



सार्वजनिक आरोग्य विभाग
महाराष्ट्र शासन



HOSPITAL ADMINISTRATION MANUAL

(PART-I)





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मिलिंद म्हासकर, भा.प्र.से.
अपर मुख्य सचिव (१)

Milind Mhaiskar, I.A.S.
Additional Chief Secretary (1)



महाराष्ट्र शासन
सार्वजनिक आरोग्य विभाग
१०वा मजला, गोकुलराम नेत्रपाल मंगलपथ संकुल इमारत,
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☎ ०२२-२२६१३१८८/२२६३२१६६
✉ psec.pubhealth@maharashtra.gov.in
GOVERNMENT OF MAHARASHTRA
Public Health Department
10th Floor, G.T. Hospital Complex Building,
A wing, L.T. Marg, New Mantralaya, Mumbai-400 001.
☎ 022-22617388/22632166
✉ psec.pubhealth@maharashtra.gov.in

Foreword

In the ever-evolving field of healthcare, effective management plays a pivotal role in ensuring the delivery of high-quality patient care, optimizing hospital operations, and maintaining a safe and efficient environment for both staff and patients. Previously, Hospital Administration Manual volumes I & II were published by the Government of Maharashtra in 1976. There was a need for updation of these manuals to include new programmes, services and protocols.



This updated Hospital Administration Manuals (Vol I and Vol II) are designed to provide clear, comprehensive, and practical directions for achieving these goals and upholding the highest standards of care within our institution. They are intended to be a resource for all hospital staff, from leadership to frontline employees, ensuring that we maintain consistency, foster accountability, and promote a culture of excellence. They encompass a wide range of critical areas, including patient safety, quality control, staff management, regulatory compliance, and financial stewardship.

I encourage all hospital personnel to familiarize themselves with these updated guidelines and use them to enhance their individual roles and contribute to the broader mission of the hospital. By working together, we can ensure that our institution remains a trusted and leading provider of healthcare services in our community.

I extend my heartfelt appreciation to Director of Health Services, Pune, & Executive Director, State Health Resource Centre (SHSRC), State Institute of Health & Family Welfare (SIHFV), Nagpur and the entire team for compiling this manual.

Let us move forward with a shared vision of excellence, compassion, and responsibility as we continue our important work in the service of others.

Milind Mhaiskar
Additional Chief Secretary,
Public Health Department,
Government of Maharashtra



Amgothu Sri Ranga Naik, I.A.S.
Commissioner, Health Services &
Director, National Health Mission
Maharashtra



GOVERNMENT OF MAHARASHTRA
**Commissioner (HS) &
Mission Director (NHM)**
Maharashtra
Web : www.arogya.maharashtra.gov.in
www.nrhfm.maharashtra.gov.in

Preface

As per National Health Policy 2017, for attaining the highest level of health and wellbeing for all, the concerted efforts were made by Public health Department, Maharashtra. The last decade has shown tremendous advancements in the medical and technology field. The focus of healthcare service delivery is shifted towards reducing the out of pocket expenditure of patients leading to provide the equitable access to them for timely and comprehensive health services.

Previously, Hospital Administration Manual volumes I & II were published by the Government of Maharashtra in 1976. Since then, there is seachange in Medical procedures, guidelines and equipments, coonsidering X-rays were backbone of radiology in good old days transformed to CT Scan and MRI in todays world. Health system now runs as per golden standards, known as IPHS 2022. Every chapter has been revised keeping these standards at the center of it.

With respect to that, there is a dire need for timely updations of these volumes for smooth administration at government hospitals. It was considered necessary to revise the manual and updates; in the context of recent advances and developments in the field of hospital administration.

The manual revision activity has been initiated at State Health System Resource Center, Maharashtra, by formulating a committee for it. The State Health System Resource Centre (SHSRC) team along with more than 100 expert members across Maharashtra, have worked collaboratively for hospital administrative manual revision.

I am sure that the manual will be very useful and friendly to all staff working in the Public Health Department of Maharashtra. The hospital Manual has been meticulously crafted to equip Medical Officers with the latest guidelines, strategies, and protocols aligned with national programs and hospital administration, in order to deliver excellence in healthcare at Rural Hospitals onwards. The book does not claim to be comprehensive on the subject. However, its importance is nondeniable and self-evident.





I would like to thank all subject experts who contributed for their efforts towards the revision of this manual. I also thank all the Officials from Public Health Department and SHSRC for their valuable input.


(Amgothu Sri Ranga Naik, IAS)



"Arogya Bhavan", 8th Floor, St. George's Hospital Compound, P.D'melo Road, Fort, Mumbai - 400 001.
Tel.: 022-2262 0235 E-mail: commissioner.health@maharashtra.gov.in / mdnrhm09@gmail.com



	 COMMISSIONERATE OF HEALTH SERVICES (Government of MAHARASHTRA) AROGYA BHAVAN * St George Hospital Compound) P'Dmello Road, Mumbai— 400001	
Office Phone No	 022 - 22620292	Website: http://arogya.maharashtra.gov.in Email: director.dhs-mh@gov.in
	022 - 22621006	
	No. / /	/ 2025
	Dated: / /2025	

Acknowledgement

I am delighted to acknowledge the release of the revised edition of Hospital administration Manual for Medical Officers in Maharashtra. This comprehensive resource incorporates the latest advancements in healthcare delivery in the State.

Last edition of hospital administration manual was released 47 years ago. There is a sea change in clinical field as well as administration since then. With the new advancement in health sector, it was imperative to work on revision of hospital administration manual.

The independent committee was formulated and approximately, more than 100 committee members/Subject experts have worked collaboratively to update the manual. This manual will become a paradigm between the hospital administration and public relations while working in the health system. The manual will help all the officers to update themselves about the guidelines and take decisions accordingly in routine manner. I am sure that the manual will be very useful and friendly to all staff working in Public health department, Maharashtra. This manual addresses the duties of the team individuals, principles of hospital management, medicolegal issues while dealing with the patients and other

I thank to Hon. Additional Chief Secretary and Hon. Commissioner and MD (NHM) for guiding throughout the process of preparation of manual. I extend my gratitude to the whole team of State Health System Resource Center. The team completely engulfed in changes to be enlisted in the revised manual. I thank to all Bureau Chiefs and all the Committee Members for their compounded efforts in revising this manual.

This resource will undoubtedly support Medical Officers in delivering exceptional services. This guide book will help the officers to address these challenges and will help to take appropriate decisions in prompt manner.



(Dr. Nitin Ambadekar)
 Director Health Services, Mumbai &
 Executive Director, SHSRC Pune

Acronym

A V Fistula	Arteriovenous Fistula
A.O.	Administrative Officer
A.R.T.	Antiretroviral Treatment
A.T.S.	Anti Tetanus Serum
ACS	Additional Civil Surgeon
ACT	Activated Clotting Time
AERB	Atomic Energy Review Board
AIIMS	All India Institute of Medical Sciences
AKF	Acute kidney failure
ARSH	Adolescent Reproductive Sexual Health
AYUSH	Ayurved Yoga Unani Siddha Homeopathy
BMW	Biomedical Waste Management
BSL	Blood Sugar Level
BTO	Blood Transfusion Officer
C.A.O	Chief Administrative Officer
C.M.O	Casualty Medical Officer
CB-NAAT	Cartridge-based Nucleic Acid Amplification Testing
CBWTF	Common Biomedical Waste Treatment & Disposal Facility
CCTV	Closed Circuit Television.
CHC	Community Health Center
CKF	Chronic kidney failure
CNS	Central Nervous Systems
CPCB	Central Pollution Control Board
CPR	Cardiopulmonary Resuscitation
CRP	C Reactive Protein
CSF	Cerebro Spinal Fluid
CSSD	Central Sterile Services Department
CT	Computer Tomography
CTD	Central TB Division
D.G.H.S.	Directorate General of Health Services
DEIC	District Early Intervention Centre
DM	Doctor of Medicine
DMRD	Doctor of Medicine & Radiology
DMSO	Dimethyl sulfoxide
DNA	Deoxy ribonucleic acid
DNB	Diplomat of National Board
DSTB	Drug Sensitive Tuberculosis
DRTB	Drug Resistant Tuberculosis
DTO	District Tuberculosis Officer

Acronym

E C G	Electro Cardiography
ELISA	Enzyme-linked Immunosorbent Assay
EPDM	Ethylene Propylene Diene Monomer
EPTB	Extra Pulmonary Tuberculosis
ESIC	Employee State Insurance Corporation
ESKD	End Stage Kidney Disease
ESR	Erythrocyte Sedimentation Rate
FDA	Food & Drug Administration
FNAC	Fine Needle Aspiration Cytology
FRU	First Referral Unit
FSL	Fasting Sugar Level
GDMO	General Duty Medical Officer
HBV	Hepatitis B Vaccine
HCAI	Health Care Associated Infections
HCP	Health Care Personnel
HCV	Hepatitis-C Virus
EMR	Electronic Medical Records
HIV	Human Immuno-deficiency Virus
HMIS	Health Management Information System
I.V.U	Intravenous pyelography Urography
IJFMT	Indian Journal of Forensic Medicine and Toxicology
IPC	Indian Penal Code
IPHA	Indian Public Health Association
IPHL	Integrated Public Health Laboratory
IPHS	Indian Public Health Standards
IV	Intravenous
JSSK	Janani Shishu Suraksha Karykram
LDR	Labour Delivery Room
LFT	Liver Function Test
KFT	Kidney Function Test
M.L.C	Medico-Legal Case
MCCD	Medical Certification of Cause of Death
MCH	Maternal & Child Health
MHRB	Medical & Health Recruitment Board
MLT	Medical Lab Technology
MNCU	Maternal & Neonatal Care Unit
MOHFW	Ministry Of Health & Family Welfare
MOU	Memorandum of Understanding
MPCB	Maharashtra State Pollution Control Board

Acronym

MRI	Magnetic Resonance Imaging
NBM	Nil By Mouth
NCD	Non Communicable Diseases
NHM	National Health Mission
NICU	Neonatal Intensive Care Unit
NIMHANS	National Institute of Mental Health & Neuro Sciences
NMR	Neonatal Mortality Rate
NQAS	National Quality Assurance Standards
NRC	Nutritional rehabilitation centre
OBGY	Obstetrics & Gynaecology
OT	Operation Theater
OT	Occupational Therapy
PT	Physiotherapy
P.M.	Post Mortem
P.V.	Per Vaginal
P.R.	Per Rectum
P.W.D.	Public Works Department
PCPNDT	Pre-conception & Pre-natal diagnostic Technic
PFT	Pulmonary Function Test
PNC	Post Natal Care
POCSO	Protection of Children from Sexual Offence
PPE	Personal Protective Equipment
PPP	Public Private Partnership
R O	Reverse Osmosis
RH	Rural Hospital
RTI	Reproductive Tract Infection
STD	Sexual Transmitted Disease
HDL	High Density Lipo protein
VLDL	Very Low Density Lipo protein
SDH	Sub District Hospital
SNCU	Special New-born Care Unit
SOP	Standard Operating Procedure
T.P.R.	Temperature Pulse Respiration
USG	Ultra Sonography
UV	Ultra Violet
V.D.	Venereal Diseases
VDRL	Venereal Diseases Research Laboratory Test
WCD	Women & Child Department
WHO	Women Health Organization

Content

Chapter I - Introduction	11
Chapter II - What Is Hospital Administration	14
Chapter III - Hospital Buildings And Compound	17
Chapter IV - Organisation Of The Outpatient Department	22
Chapter V - Casualty Services	36
Chapter VI - Indoor Wards	44
Chapter VII - Operation Theatre	81
Chapter VIII - Radiology Department	91
Chapter IX - Laboratory Services	100
Chapter X - Blood Centre (blood Bank)	106
Chapter XI - Special Paediatric Services	117
Chapter XII - Dialysis Unit Hospital	131
Chapter XIII - Physiotherapy	133
Chapter XIV - Tuberculosis (tb Clinic)	136
Chapter XV - Mental Health Services	147
Chapter XVI - Hospital Infection Control Practices	150
Chapter XVII - Post Mortem And Medico- Legal Work	157
Annexure QR Codes	195
State Technical Group.....	197

Executive Summary

With rapid globalization and advances in the medical and public health field, it is obvious to have need of human resource and the use of newer equipment and instruments. The growing demand of human resources is related to the increased population in the districts. It is inescapable to have a growing population and an increased need for trained and experienced staff for service delivery at various levels in hospitals. It is urgent and crucial to appropriately guide these staff from rural hospitals to district hospital levels to deliver services efficiently.

The hospital administration manual prepared in 1976 was a self-evident and comprehensive document. At that time, document helped administrators for managing hospitals and guided medical personnel in delivering curative services within the jargon of legality. With the changing scenario of healthcare administration in government institutions, newer services like MRI, dialysis, etc., are needed to be incorporated into health services.

Over the time in recent years, the need arises to set up norms or standards for hospital administration in order to streamline hospital services. If rules and practices get changed with each facility, it will create ambiguity among the administrators, and such rules or regulations will be interpreted and realized in a variable manner, state-wide. So, having uniform guidelines for hospital administration in public health institutions is crucial. It will be convenient for medical officers or administrators to use this guidebook to support their day-to-day clinical work from administrative and legal angles.

It fuels the increasing need to revise the old hospital administration manual and update the norms or standards required for various equipment, infrastructure and drugs.

The given context suggests the revised manual to consider various guidelines and policies prepared by the Ministry of Health and Family Welfare, Government of India, apart from various Government Resolutions and circulars from the Public Health Department, Government of Maharashtra. These updated guidelines will be supportive for new entrants and trainees in the Public Health Department, Government of Maharashtra.

This revised hospital administration manual has various additional components, such as Radiology, Special Paediatric Services, Dialysis services, etc. These new chapters in Part A add to the book's value and will be useful for raising awareness among young officers. This book also describes related services to Public Health, such as Family Welfare and tuberculosis.

Moreover, some topics from old manual omitted while framing revised version, as they are more or less obsolete in context with current health system scenario.

Updated circulars, GRs and guiding materials are attached as Annexure (QR codes are generated) at the end of this manual. With write up of this manual and addition of reference material in Annexure formed a comprehensive handbook for all hospital service providers.

CHAPTER I

INTRODUCTION

"Prevention is better than cure" is an aphorism well-known since ancient times. A large number of diseases which were at one time considered incurable have now been conquered as a result of tremendous advances in the science of medicine. Of late more and more emphasis is being laid on preventive aspects of Public Health. With all this, however, the importance of curative side cannot be said to have been reduced. This is a fact which remains valid even in the most advanced countries where diverse modern preventive measures have been implemented for improving public health. Though, brilliant success has been achieved in overcoming a number of major ailments, new diseases are being "discovered". Tolerance and resistance to new drugs have become a serious problem. The tempo of life in modern times has increased the number of accidents, and industrial and occupational hazards as well as mental health ailment. The mental health ailments now form a large part of current ailments. Frank psychological maladies cannot also be said to be on the decrease. There is rather sharp rise in the level of such ailments. Some services like maternity care, though catering to the needs of physiological functions, require a substantial help from hospitals. Thus, the importance of curative medicine has not diminished a bit till date. The hospitals constitute a very important part of social services throughout the length and breadth of the world.

Some medical persons are apt to imagine that hospital administration is not a crucial part to get noticed by them. In their opinion, hospital administration does not deserve their attention, as it results in waste of time on the part of "technical persons". According to them, if the technical duties are done well, that is all which is to be done. According to them, hospital administration activity is an encroachment upon their valuable time. Medical men and women serving in government hospitals in our country neglect to take care of administrative matters of the hospital. A feeling of reluctance to attend to all this 'bother' is frequently found.

It does not require considerable pleading to discount this view. A good and successful doctor owes a large part of his success to proper 'administration' which may have been a fact unnoticed by him. He has unwillingly performed the functions of capable administrator, but he may be altogether unaware of this particular aspect of his work, or may be partially aware about it. Ability to administer a hospital is inseparably connected with technical competence, to a certain degree. The two, like the colors of rainbow, cannot be separated.

Another fact to be borne in mind is that, there is no reason for a doctor to grumble about administrative duties while being in public service. It is not that, such doctor would not be required to do any "administrative" duties where, he entirely needs to be a private practitioner. Even in private practice, he cannot escape doing his administrative duties. In any case, he has to keep control over his staff, and maintain discipline. He has to arrange to obtain supplies, pay his staff, he has to organize smooth working and has also to maintain proper relations with his patients and their relatives.

A common experience found in government hospitals is that, out of several doctors, nursing and other staff, attached to the hospital, the brunt of administration falls only on a few. Others are supposed to be in no way connected with it. This misunderstanding is prevalent especially among medical men. Such a state of affairs unnecessarily results in an inequitable distribution of administrative work. Except certain members of the staff, the others have an attitude of nonchalance towards it, which is very wrong. It must be at once stressed that every individual in a hospital has got to play his or her part as laid down by the higher authorities. Hospital administration is essentially a part of team work.

It is absolutely wrong to presume that competent and efficient technical skill is all that is needed. A kind

word and sympathetic behavior can give immeasurable relief. It is a proven fact that, in medical practice; we may see persons having 'tact and diplomacy' succeeding much more than persons possessed only of a technical skill like a robot.

Several factors have to be considered while dealing with Hospital Administration. Patients have to stay in hospital for twenty-four hours throughout the day and night. The facilities required in a hospital are, therefore as can be easily realized, of a very different nature from other 'offices'. Medical Science has its own limitations. Many diseases are totally incurable or only partially curable. Paradoxically, there are some diseases like malignant diseases and tuberculosis etc., where the more advanced the disease the less necessary or feasible, to admit and cure the patient. The medical and Para-medical staff has to look after a large number of patients. All government hospitals are always overcrowded. It is really difficult to spend considerable time for each and every patient during the hurry of routine work. Some patients and many relatives are very aggressive in asking too many questions or many things.

The factor of what expectations the patients and their relatives have in their mind regarding hospital work, assumes a very great importance in the hospital administration. They naturally feel that every disease is completely and quickly curable and that all doctors know how to bring about this result and that all hospitals have necessary facilities to achieve the desired results. It is extremely difficult for them to understand that there are limitations to all these. The position about financial resources and the stage of progress of our country as a whole is naturally reflected in an institution like a hospital.

There is an acute shortage of medical and Para-medical personnel in our hospitals. This is not the place to go into the reasons for this. Our hospital buildings, which were built decades ago to cater to the average number of patients at that time, now fall short of unprecedented requirements. There are problems existing in current health system in securing quality equipment in adequate quantity apart from the limited financial resources and imposing restrictions .

The above paragraph gives an outline of the tremendous odds, a hospital has to face. Proper 'hospital administration' has to find a way out of all these difficulties and ensure maximum service and comfort to the patients to the extent that is possible, under the given circumstances.

The whole aim of 'hospital administration' is to serve the patients in the best possible way. Not only the patient's physical ailments have to be treated but his mind also requires to be gently cared for. The two things cannot be separated.

It is quite essential that the medical and the Para-medical staff know the principles of hospital administration before they embark on their career in a hospital. A large number of complications and bitterness all around, could be avoided by following few principles. It is obviously much more desirable to equip ourselves with the knowledge about principles of hospital administration, rather than try to learn all these by 'experience'. No doubt; experience will add very valuable chunks of knowledge, but that does not mean that everything should be learned by experience alone. A working knowledge of hospital administration will serve as an excellent background for absorbing new facts gathered during actual working in hospitals.

We come across innumerable complaints about various government Hospitals. It would be entirely fruitless to neglect these complaints by saying that they are all exaggerated as well as distorted and that nothing need be done about them. Whenever investigation starts about any complaint, this argument about distortion and exaggeration is a very favorite one. The patients and their relatives are accused of haughtiness, insolence and in many cases of a desire to do harm to particular members of hospital-staff by making false complaints. While it cannot be denied that, there might be some truth in all or some of these accusations, we have to pause and think impartially and calmly; as to why such complaints are made by the members of public. Leaving aside exceptional cases, the patients or their relatives have hardly seen the faces or become familiar with members of hospital staff. It is quite against human nature to manufacture complaints against such unfamiliar persons for nothing.

The most common complaints are as follows: That nobody takes proper notice of the patient's ailments. Scant attention is paid to the seriousness of the ailments and prompt treatment is not given, there is gross non-punctuality and irregularity in attending to the patients. Operative treatment is delayed or postponed for no reasons or for flimsy reasons. Patients are made to wait for hours together before they are examined either in the Out Patient Department or in the Wards and also in the special departments like Radio-diagnosis and Laboratory. Appointments given in such sections are changed and considerable time is required before specialized investigations are completed. Nobody is prepared to explain as to what is going on in a hospital about a particular patient and no replies or evasive replies are given to patients and their relatives, in case questions are asked. The attitude of hospital-staff both medical and Para-medical is casual, indifferent and in some cases positively careless and insolent. Patients are not properly examined and treated. Drugs are properly used from Hospital-stock but some patients are asked to bring medicines from market, in spite of Government free drug policy. A proper idea is not given about the seriousness of patient's condition to the concerned friends and relatives. The higher medical staff is not informed and summoned in time. There is no proper guidance about the diagnosis, prognosis of the patient's ailment and also about the implications of operative procedures. Operations are done improperly, wrong operations are done rarely. There is no proper post-operative treatment. Prescriptions or purchase of medicines from the market and advice to shift to a better hospital is given at very late stage, which is of no longer useful for the patient's recovery. Patients are discharged too early, when not properly recovered. There is partiality in the matter of admissions, discharges and proper treatment and unless there is some "influence" or "acquaintance" in the proper quarters, one should never think of going to a government hospital. There is harassment of patients and their relatives all around, so much so that there is excessive delay even in handing over dead bodies, in cases where Panchanama (Inquest) and post-mortem examinations are required. Doctors and other members of staff demand money for doing legitimate duties and if this is not complied with, the patients are neglected. Very perfunctory attention is given to emergencies either in the casualty Department or in the Ward and there is considerable delay in starting the necessary treatment. These are the usual complaints made by the patients and their relatives who are unaware of the routine procedures of the institution. The medical officers and the staff presume that, everyone knows about the institution, they do not consider it necessary to explain the situation and put the patient or his relatives at ease.

Proper organization of various sections of a hospital and proper coordination between the various departments is needed. Hospital Administration will do away with the drawbacks to a very great extent. A hospital with a really efficient working is a great boon to the public.

Hospital has to perform various functions besides the care of the sick and injured. Training of medical and Para-medical personnel, improving public health and research in medical problems are the other functions of a hospital.

The thoughts expressed in this manual are related to the problems of the care of the sick and injured. This obviously is the most important function of a hospital. Day by day people are becoming more and more hospital minded, and it is no wonder that the quality of hospital administration has become a focus of public searchlight.

A Hospital is mainly a human institution where the uppermost consideration always in mind should be "the patients always come first". It must be remembered that doctors, nurses and other members of the staff can carry out their duties towards the patients properly, only in a well managed hospital and therein lies the importance of Hospital Administration.

Hospital administration is a challenge to do the best possible for the patients in spite of all difficulties and should elicit the maximum response from a good administrator. We must remember that the largest sections of population viz. the poor class and the middle class have no other recourse than to turn to Government Hospitals for treatment.

CHAPTER II

WHAT IS HOSPITAL ADMINISTRATION?

Hospital Administration can be divided into 3 components:

- Administration by medical staff
- Administration by Nursing Staff and paramedical staff
- Administration by Non-medical staff

General principles:

- It is controversial to point out whether a hospital should be managed by a medical or non-medical staff.
- According to one view, it is quite essential that the administrator be a medical person because it is the one, who knows how to scrutinize and select requirements of a hospital, how to understand the needs of the patients, how to understand and absorb the advances in medical science, how to learn from experience and how to command the subordinate medical, para medical and other staff. Moreover, it is such a person, who can investigate into complaints of a technical nature and regarding treatment given to patients. He is also in a better position to put forward and plead a case for new additions to the hospital by way of additions and alterations in Infrastructure with proper concept and context.
- Government Hospitals shall be administered by Maharashtra Medical and Health Services Group-A Officers of Public Health Department, who in most instances handle clinical matters in addition to their administrative duties.
- A good Hospital administrator has to see that the professional skills of doctors and para-medical persons, are utilized in an efficient way to the maximum benefit of patients. For doing this, he has to create atmosphere of goodwill and co-operation. Every member of the staff must feel that he has been given his just and rightful place and that he has to do his duties properly. The Hospital administrator must also see that the available equipments are well maintained as per prevailing guidelines to ensure maximum benefit to patients.
- Hospital administrator should have the qualities of a good leader. He must have an open mind so as to absorb new techniques and ideas. He must have the capacity to infuse new ideas in the minds of others. He has to constantly learn from the other members of a staff, anything which is really good and worthwhile. The leadership must be such as to attract loyalty from others. If a person expects to evoke a sense of loyalty amongst his subordinates by simply 'bossing' over them, he is doomed to be a miserable failure. He must have the ability to exhibit a judicious combination of rigidity and flexibility, strictness tempered with human considerations and formality and official relationship, coupled with informality and friendliness. He must be absolutely impartial and must not mix personal relations or friendship or consideration with official duties. A Hospital Administrator must have the capacity to plan and co-ordinate work.



- The factor of personnel management, therefore, attains great significance in Hospital Administration.
- Selection of the right type of person for a particular job is the first essential. In addition to educational qualifications and experience, such a selected person should be honest, loyal, confident and willing.
- The persons concerned must be properly trained. It is no use simply entrusting a job to new recruits and thinking no more about it. This applies even to those who are locally promoted, or to those who return to work after a long leave. Even those who are trained required further training to absorb new techniques and ideas. The training must also be given with the idea of making a person more fit for any promotions in future. After appropriate pre placement training, concerned candidate should join to assigned post.
- The important principles to be observed while giving training are:
 - Patient should have top-most priority.
 - Behave and deal with patients and their relatives as if they are your near-and-dear ones.
 - Treat every member of hospital staff, as you would want them to treat you. Treat them with courtesy and dignity.
- Another important point is that the functions and responsibilities of individuals ought to be properly defined. If this is not done, 'A' thinks it is job of 'B', 'B' in turn thinks 'C' ought to do the job and so on. This naturally leads to an atmosphere of confusion, ambiguity and irresponsibility. It is no use simply issuing standing orders. It must be seen that they are followed. Job responsibilities of individuals should be well defined.
- Success in Hospital Administration also depends upon proper flow of information from top to bottom and vice versa. Proper communication must be established both ways. Unless this is done, good or bad points in the actual Hospital work will not be known. From this point of view, frequent staff meetings are essential. Work study and evaluation of work is an event of major significance which has developed and gained increased importance during modern times. Assessment of work should be done not simply on the basis of opinions, but on the basis of facts, otherwise, the decisions arrived at are not likely to be true. Decisions arrived at after assessment of facts can, however, be properly utilized to bring improvement in the existing situation. The existing methods of work and the proposed methods of work have to be critically studied to develop more efficient methods. It is also necessary to establish the time required by a qualified worker to carry out a job at a defined level of performance. Work study thus involves interplay of method study and work measurement.
- The Hospital Administrator has to see that the working conditions are as fair and just as possible.
- There should also be proper delegation of powers. The Hospital Administrator must understand that the question of responsibilities and duties is a two-way traffic. Just as he expects his subordinates to assume certain responsibilities and do some duties, similarly, he owes some responsibilities and duties to his subordinates. It is, therefore, his duty, to provide as far as possible, proper working conditions, give necessary facilities and equipment, place the necessary amount of confidence in his staff, and make them enthusiastic by appreciating good points of their work. He must have an accurate idea of the workload of each and every position held by subordinates. He should give responsibility by judicious delegation of powers, so that staff members develop a sense of loyalty and pride while working. Every individual must be educated and trained to realise that he is an important part of the system and unless he plays his part well the institution will not run well. The principle can be summarized by saying 'Organize,

Deputize and Supervise'.

- Respect and authority are to be commanded and not demanded.
- There must be some mechanisms to settle disputes amicably. Attempts should be made to form staff committees in the Hospitals to deal with such problems.
- There should be a medical staff committee in each Hospital consisting of the Civil Surgeon/ Medical Superintendent/ Head of the institute and Head of the departments. The Head of the Nursing Personnel should always be associated with the Committee. The Committee should help the Hospital Administrator in planning and administration and also in carrying out training programmes, where such exist. Important questions of common interest such as staffing, posting, budgeting, equipment etc. should be done in consultation with the members of this Committee. Specific problems affecting any particular place or department should be decided in consultation of the person concerned.
- The question of public relations is very important and it will be dealt with in a separate chapter.
- A Hospital Administrator should not go on comparing his life with those persons who have achieved eminence and success in private practice. Hospital Administrator is doing good to hundreds of persons by creating maximum efficiency in the Hospital of which he is In-charge.
- Having once accepted the role, it is highly unethical that he should deal with the matter casually.
- A Hospital Administrator has to keep himself in touch with modern developments in diagnosis and treatment, as well as Nursing and Hospital Organization. His role is not a static one, simply consisting of application of a set of rules to Hospital working, but it is a fast changing one where something old has to be discarded and something new included. The Administrator has also got to be a good teacher & counsellor for imparting knowledge to various staff members and his success will depend not only upon his technical knowledge but also upon how he carries himself and the example he sets for others.



CHAPTER III

HOSPITAL BUILDINGS AND COMPOUND

3.1 Hospital Buildings

The following instructions are worthy of attention in respect of Hospital Buildings:

Heads of medical institutions have to countersign plans and estimates prepared by the Public Works Department for Minor and Major Works.

Whenever new constructions or major alterations are being planned, Civil Surgeon and Medical Superintendents, etc. should finalize them only after discussion with Heads of Departments as are likely to be housed in the new building. When preparing the plan they should follow the guidelines given in the Indian public Health standards (IPHS-2022, Volume-I&II Ministry of Health & Family Welfare) and prevailing guidelines.

Indian Public Health standards lay out Plans and needed approximate areas

Sr. No.	Type of Hospital	Total Required areas (approximately)
1	500Bedded District Hospital	51,000 SQM (Including all floors)
2	300 Bedded District Hospital	25,500 SQM (Including all floors)
3	100 Bedded Sub- District Hospital	7050 SQM
4	50 Bedded Sub- District Hospital	4750 SQM
5	30 Bedded Rural Hospital	4106 SQM

Infrastructure Development wing: (IDW) Under National Health Mission, IDW is established for new constructions and repair work of all type of Health Institutes with following staff:

- Contractual Executive Engineer (Regional Level)
- Contractual Deputy Engineer (District Level)
- Contractual Junior Engineer (District Level)

The working system is same as Building & Construction Department of Government of Maharashtra. They must follow all rules & Regulations as well as financial Guidelines given by Government of Maharashtra.

General Appearance and Upkeep:

- Gates, Way-finding/Signage
- Parking
- Garden and Landscaping
- Facility entrance
- Environment friendly features
- Disabled and elderly friendly access
- Circulation areas corridors and ramps
- Disaster and emergency preparedness
- Electric power supply
- Fire Safety
- Illumination



- Water Supply
- Drainage and Sanitation
- Waste management
-

Infrastructure for Clinical Services:

The following Considerations should be kept in mind while planning.

- Outpatient services
- Registration area/waiting area
- Nursing Station
- Consultation room
- Examination room
- Adolescent friendly health clinic, Counselling room
- Sound treated room for audiometry
- PFT/ECG room
- Health and Wellness room
- Integrated Clinical and Public Health Laboratory
- Medical Imaging
- Drug Dispensing Counter
- Emergency Care
- Burn unit
- Dialysis Unit
- Critical Care
- Operation Theatre Complex
- Labour Room Complex
- Special New-born Care Unit (SNCU) & Mother and New-born care unit
- District Early Intervention Centre (DEIC)
- Nutritional rehabilitation centre (NRC)
- Inpatient wards
- Mortuary
- Communication systems
- Record Keeping room
- Store-room (Drugs, Instruments and Equipment, Linen etc.)
- Knowledge hub
- Administrative unit.



Other Support Services:

- Blood Bank & Blood Storage Units
- Centralized Sterile Supply Department
- Hospital Laundry
- Dietary Services
- Medical Gas Pipeline System
- Residential Quarters
- Garages
- Rest rooms for drivers
- Public Toilets
- Dharmashala – Rest House
- Police Chowki
- Civil Maintenance unit



Hospital administrator should contact the concerned officers in the Public Works Department in case of doubts and countersign the plans only after a thorough and clear understanding is reached and considering prevailing National Building Code (NBC) and IPHS guidelines.

During their administrative rounds, Civil Surgeon/additional Civil Surgeon/Medical Superintendent & medical officers should make a list of repairs required either to the buildings, electric installations or water supply arrangements and enter them in a special register. There should be two registers, one for watching the Civil and Sanitary works and another for electrical works. These registers should be periodically examined by the staff of Public Works Department. The guiding principle should be to contact the concerned officer of P.W.D. by a D.O. letter, telephones or even personally. The officers of Public Works Department should be invited to inspect hospital buildings frequently so that repairs can be made early and in time.

The Civil Surgeon, Medical Superintendent & Medical Officer should keep himself in touch with Public Works Department authorities to point out what grants are allowed for Current Repairs and specified repairs (C R & S R) . He should see that the grants are used according to the priority claims of hospitals for repairs.

Periodical painting and repairs should be done for which government should be approached for additional grants if required on this account. Structural audits shall be carried out by PWD as per the existing guidelines.

All Plans and Estimates should include provision for water supply, electricity, sanitation, and residential accommodation, as may be necessary. Proposals in these respects should not be sent in piece-meal. Whenever new constructions are started, proposal for necessary equipment and staff should be co-related, otherwise these proposals are sent after the buildings are complete, thus causing avoidable delay in utilizing the buildings or equipment.

The Hospital Administrator should pay frequent visits to the sites where new constructions are going on and see, scrutinize, and discuss on the spot any pertinent matters with the concerned officers.

3.2 Hospital Compound

A clean Hospital Compound is an absolute necessity to any hospital. Maintaining a compound having a large area no doubt involves some expenditure, but this should be considered as unavoidable. A hygienic compound with well-maintained sanitation can actually add to early recovery of a patient. A reference has been made elsewhere to the role of hospital in imparting health education and a clean hospital compound can serve as a model for exhibition in this respect. It is well known that the diseases originating in the 3 "F's"(Finger, Food, Flies) are rampant even in a hospital. Maintenance of a compound/ premises in proper condition would reduce/eliminate the incidence of such diseases. The need for eliminating this hazard especially in relation to hospital kitchen and hospital operation theatre is self-evident.

Usually, no attention is paid to maintenance of a good garden in compound of a hospital. From the point of view of environmental aesthetics, we must keep this point in mind. It would afford ambulant patients, a change and for the bedridden, a cheer.

Stray cattle, dogs etc. must be kept away from the hospital compound. Proper arrangements are necessary for parking vehicles in a secluded area. There should be good arrangement for parking cars, scooters, cycles etc. so that they do not create a nuisance, obstruction, disturbance in the compound.

The compound should have a minimum number of gates. It is preferable to have only two gates viz. one for entrance and the other for exit. The more the number of gates, the less easy it is to control the movement of public as well as stray cattle etc. At night, it is desirable to keep only one gate open, with an attendant at the gate, so that unauthorized persons do not get access to the hospital.

A sustained and constant drive must be maintained to educate the visitors and relatives in order to keep hospital compound clean. Liberal use of antiseptics and insecticides should be made, especially in

maintaining cleanliness and hygiene of latrines in the compound.

It is recommended that there should be one latrine seat for every six beds. In addition to this, sufficient lavatories must be provided for the Out-Patient Department and staff Members. Particular care should be taken to avoid nuisance by public in the open space. It is not at all an uncommon sight to see a hospital compound being used in this fashion, not only by those who visit the hospital but by general public as well. Steps must be taken to prevent mosquito nuisance. For this purpose, it will be necessary to fill all pits and see that collections of water are not left unattended. Leaking taps in the hospital compound must be repaired/ replaced in time.

Very often we find that after new constructions are over, left-over material remains in the hospital compound for a considerable length of time. This can cause in-sanitation and the material must be removed as soon as the construction work is over.

In order to remove garbage, the compound should be provided with dustbins at several spots. Sweepers should clean the compound and collect the refuse and put it in such dustbins. Covered receptacles should be provided to sweepers to collect refuse from wards and compound and put it in dustbin. They should not be allowed to arrange the heaps of refuse here and there in the compound. There should be adequate number of sweepers to sweep the compound at least twice a day. In addition to it, particular sections of the compound should be cleaned whenever necessary, as often as required. Help of local municipal body should be taken for removal of refuse at fixed intervals.

Civil Surgeon, Additional Civil Surgeon, Medical Superintendent, Matron/ Nursing personnel, and Mukadam/ responsible person looking after sanitation should conduct a Sanitary round at least every week or more often as required. In addition to this complete round, a partial round should be taken every day, so that all parts are visited once a week. This can be done without special planning as the staff members are usually required to move from one building to another during the course of their routine work.

The drains in the hospital compound should have a proper gradient and connected with a good drainage system if one exists. If there is no such drainage system the outlet should be at an appreciable distance from the hospital. The drains should invariably be covered to prevent nuisance, foul smell, and flies.

Adequate water supply is necessary to keep the drains clean. During sanitation rounds, the drainage system should be particularly inspected.

The Reservoirs of water supply are located in the hospital compound. There is usually an arrangement for pumping water in the reservoirs. The pump-man must take care to see that there is no overflow. The storage arrangement for water should be adequate to maintain a daily supply of 450-500 litres of water per bed, per day/ as per prevailing guidelines. Water reservoirs should be cleaned periodically.

Hospital buildings are usually made up of various sections, separated from one another by some distance. In many cases the passages connecting the various sections consist of kutchra roads, and they become dirty, inaccessible, and insanitary especially in the rainy season. This also creates difficulty in transport of patients from one section to the other. Internal roads should be properly surfaced and have a covered shade by way of protection from rain and sun. In order to prevent dust nuisance, all areas of a hospital compound should be properly leveled and either covered with sand or seasoned. Particular attention is required for the area around Operation Theatre to ensure a dust free atmosphere.

The Hospital watchman should constantly take care to see that antisocial elements do not loiter here and there, thereby getting an opportunity to have contacts with the hospital staff and the hospital patients. Such contacts are always used by these elements for their own ends. Every staff member should be given an identity card for security reasons. Security services shall be monitored as per checklist prepared by Hospital administration.

3.3 Dharmashala

Dharmashalas are quite essential. There is no doubt that about 60 to 70 per cent of the patients attending the hospital are from rural areas. There must be some arrangement for their temporary stay as well as for the stay of patient's relatives/caretakers. It often happens that a patient has to wait for a few days until investigations in his case are over. In the absence of a Dharmashala or adequate alternative, the hospital authorities are compelled to admit the patients indoor, thus increasing overcrowding in the Wards. Relatives accompany a patient and, in their anxiety, to be with the patient and in the absence of any place to go to for rest, block the wards. To reduce this, it is necessary to provide a place of rest for the relatives. Such places should be capacious with arrangements for cooking, sanitation, and adequate water supply. In the present state of the buildings of the Dharmashala, it is practically impossible to keep any semblance of cleanliness. Dharmashala is not meant for the stay of refused patients as well as for dumped cases. There are instances where sudden death occurs in some of such patients. While, therefore preventing entry of such patients in the Dharmashala, serious cases should be sorted out and they will have to be admitted. Dharmashala shall be managed and maintained as per prevailing guidelines.

3.4 Security Arrangements

The In Charge hospital must pay adequate attention to the security aspects of the hospital wherever there are posts of watchmen, their work should be adequately supervised especially of night watchmen. Reduction of pilferage, theft, harassment of staff and entry of unauthorized persons in the hospital is the aim. Presence of unauthorized persons in government quarters and subletting therein must be curbed. If Shortage of security staff the contractual security agency may be appointed as per norms and time to time guidelines from government.

3.5 Constructions

Newly constructed building hand & taken over policy

As per the directed guidelines the officers from public health department & Public Works Department (PWD) are authorized for particular type of hand over of the building.

Revised type Plan and estimated Budget

while planning for the new construction of the hospital and residential quarters follow the guidelines as per IPHS 2022, Government of India

Inauguration Policy

After completion of Hospital Building as per the sanction plan. Inauguration is to be arranged as per the guidelines issued.

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CHAPTER IV

ORGANISATION OF THE OUTPATIENT DEPARTMENT

4.1 General

The Outpatient Department forms an exceedingly-important part of a General Hospital. The attendance in the Outpatient Department of a Government Hospital is quite large and it is a common sight to see crowds of patients waiting for considerable time in the various sections of the Department. The Organization in this department requires special skill and attention. A very important point requiring dynamic approach is reduction in the waiting time of patients in this Department. The working of an Outpatient Department is an Index of the quality and efficiency of working of a hospital. Since all patients attending a hospital apply for examination and treatment necessarily in this department first, its importance is obvious. The serious cases have to be separated from the ordinary and deserving cases have to be admitted. The cases have to be sorted out also and referred to different sections like Medical, Surgical, Obstetrics & Gynecology, E. N. T., Eye etc. It is disconcerting for a patient to find himself standing in a wrong queue and have to take up his position in another queue all over again.

Modern medical practice with the concept of active and early ambulation tends to shorten hospital stay of a patient after the critical period of illness has passed off, such patients after discharge will need treatment and rehabilitation till they are fully recovered. The objectives of the O.P.D services are preventive, diagnostic. Curative, and rehabilitative. The out-patient department is a very important wing of the hospital, which is visited by a large section of the community. The care and attention provided to them goes a long way in building up the reputation and confidence of the people in the Hospital.

O.P.D. should be connected by metalled road from main road for patients in ambulance/cars.

At the entrance of O.P.D., sufficient numbers of wheel chairs/ trolley's to be available along with physical presence of nursing attendant/ stretcher bearer. On entering the O.P.D., services by social worker / counsellor to be available at" MAY I HELPYOU" counter. Social workers will guide the patient for registration queue, visiting to particular O.P.D. room number/outdoor pharmacy and laboratory for investigations.

All categories of the staff working in the O.P.D. must be in their uniform with the name-badge for identification.

Patients must stand in a queue and social worker should guide the public in maintenance of discipline and avoid queue jumping.

If O.P.D. complex is a multi-storey building then floor wise O.P.D services available should he prominently displayed on ground floor including specialized services, timings and days of week where such services are available.

Senior citizens, differently able, females patients should be given priority and separate queue counter for registration to be there. The doctor may see seriously ill patients out of turn.

Adequate arrangements should be made to provide clean and cool drinking water. There should be adequate toilet arrangements for males and females.

Pressure of work on the O.P.D. of District/Sub District/Rural hospitals will be considerably reduced if minor ailments are taken care of by peripheral clinics/dispensaries. This will filter back minor cases and allow the district hospital to attend better on more deserving cases, resulting in optimum utilization of hospital

facilities, and specialist services. There should be a good liaison between the Municipal Medical Administrative officer and the civil surgeon.

Every medical officer incharge of a district hospital should study the problems of O.P.D. in the evenings. This may not be a full-fledged one as in the morning but 1-2 hours, for those who cannot attend in the morning hours will be of great help to patients. Certain doctors may be allotted this duty turn by turn.

A patient approaching a hospital for the first time is a new comer and not aware of the routine of the departments as well as the location of various sections. He therefore, requires correct and sympathetic guidance at all stages, not only during the first visit but also in his subsequent ones. The hospital staff must be made to realize this.

4.2 OPD and Departments

Broadly speaking the functions of this department can be stated as follows:

- a) To provide diagnostic and treatment facilities to minor ailments which do not require admission.
- b) To provide specialist services in different branches of medicine to the referred cases. These cases fall under three categories:-
 - 1) Only specialist opinion is given and the case is referred back.
 - 2) Cases are admitted for treatment, Medical or Surgical etc.
 - 3) Cases are reviewed from time to time.
- (c) To provide specialized services in Ancillary Clinics. They are:-
 - 1) Ante-Natal Clinic.
 - 2) Immunization Clinic.
 - 3) Family Planning Clinic.
 - 4) Post-Natal Clinic.
 - 5) Leprosy Clinic.
 - 6) Nutrition Clinic.
 - 7) A.R.T. Clinic.
 - 8) Skin and V.D. Clinic.
 - 9) Dental Clinic
 - 10) Maitri Clinic.

Following facilities are desirable as per national programmes :

- 1) Diabetic clinic
- 2) Cancer detection clinic
- 3) NCD clinic (STEMI)
- 4) AYUSH Clinic
- 5) Mental Health Clinic (Manashakti clinic)
- 6) Glaucoma Clinic

Dental Services:

In DH, SDH and RH, dental services and manpower are provided as per the guidelines as per Annexure 4.1.

Physiotherapy, Occupational Therapy & Rehabilitation:

Where a large number of patients are visiting the hospital, work to be systematically organized amongst the physiotherapist/occupational therapist and also the doctors. Proper records to be maintained by the department. Stock register of equipment to be maintained and equipment should be functional. Services, which are available, should be exhibited on a display board.

It is usually considered that arrangements should be made in the Out-patient Department to cater for one percent (1%) of the population of the area and 10% of this figure in turn should be considered as comprising of emergency cases.

Prescriptions:

The prescriptions should be explicit, clear, and brief. A medical officer should not write, ct. or ct. all" as this is responsible for many a sin of commission and omission. This habit discourages initiative and responsible thinking. It is not to find that even orders for minor operation unusual or removal of stitches etc. are "ct." day after day. Wounds completely healed may continue to be dressed. The words "ct." and "ct. all" should therefore be unceremoniously removed from the vocabulary of hospital practice. The prescription must state what is specifically required to be done. Instead of saying "ct. dress" it would be desirable to state the manner in which the dressing should be done. For the sake of brevity certain formulae can be fixed and indicated on the case papers. Case papers should contain generic names of the drug preferably.

Costly drugs and antibiotic should be prescribed with great care and against the background of proper knowledge. They should not be used as substitute for proper diagnosis and not merely on account of whims of patients. An effort should be made to prescribe specific drugs after a proper investigation and diagnosis. Rational prescriptions are also necessary on grounds of economy.

There should be no prescription policy (drugs to be purchase from outside) in all government hospitals and it should be strictly monitored by hospital in charge.

The pattern followed by the Civil Surgeon/Additional Civil Surgeon/Medical Superintendents in the district hospitals and equivalent hospitals for attending in the O.P.D. is not uniform. The Civil Surgeons, Additional Civil Surgeon and Medical Superintendent should physically sit in the O.P.D. at fixed hours at least twice a week and conduct it for general cases and his own speciality. He should also see other cases referred by Medical Officer, if possible. It is necessary to discard rigidity in dealing with cases belonging to different units. By and large the patients attend on days of their respective units, it is, however, possible that a patient may attend on a day other than his unit's day, for emergency reasons or unknowingly. Such a patient should be treated to the extent possible by other units who can then refer the patient to the appropriate section subsequent treatment. If the decision involved is major and there is no urgency, the patient may be advised to visit the hospital again on his unit's day but there is no reason why routine treatment cannot be continued on the day of attendance. One aspect needs attention in this respect. If a patient does not attend on the day of his unit, the other unit may simply "ct. all". If this is repeated, the patient may continue to get medicines indefinitely without proper guidance. The unit concerned should therefore in the first instance give careful instructions as to when the patient should attend again for follow up care after the first visit, and on each visit for the day of attending for subsequent follow up.

.4.3 Case paper in OPD**Issuing O.P.D. case paper:**

Every patient has to secure an O.P.D. case paper before he is examined in any section of the O.P.D. As the number of patients attending is large, arrangements must be made to issue these tickets as quickly as possible. It is ideal to have sufficient staff members to make entries necessary for issue of outpatient tickets. In their absence work will have to be managed with the available staff. It is desirable to induce social workers and ambulant patients of the hospital to undertake this work.

The Queue system is necessary to prevent chaos. As a matter of fact the queue system is necessary for every section in the O.P.D. There should be separate queues for male and female patients and also for old and new cases. Thus the minimum number of rows should be four. If a separate window cannot be arranged for Government servants and members of their families, it would help if some time is reserved at one of the windows for them.

If there is a session in the afternoon or evening some time will have to be reserved for the issue of tickets during those periods also. During the registration time there should be a guide at the entrance who should enquire into the ailment of the patient and direct him to appropriate place for registration and subsequent examination. This could be done by a receptionist, a medical officer, a social worker, an internee or a

senior medical student. This guidance must be followed up in order to direct the patients to further sections as may become necessary. The guide should be able to pick out cases requiring urgent attendance and for them the routine should be cut short, such patients can be taken directly to the place of examination and simultaneously arrangements made for getting the entry ticket. They must be given quick stretcher services and admission whenever necessary. Arrangements also will have to be made for giving such patients any emergency treatment which may become necessary in the Outpatient Department itself. Thus, there must be a small sections in the O.P.D. for emergency outdoor cases, apart from the arrangements made in the Casualty Department.

Government have issued certain instructions in order to facilitate early treatment of Government servants and their family members.

Attention of the patients should be drawn to the particulars which are necessary to be entered on the O.P.D. case paper.

Case paper should be handover to the patient and the same case paper should be used for 7 days. e-OPD is going to be started in all health facilities in near future.

The identity slips are usually mere scraps of papers on which a number and date of issue are written. Such scraps of papers are very difficult to preserve and they get lost or torn easily. Identity slips of thin cardboard are preferable. On these three columns can be printed or stamped viz. "Name of the patient", "O.P.D. case No." And "Date".

It is a common experience that at the time of closure for issue of O.P.D. tickets a number of patients may remain in balance and they might claim that they are not given the Case paper though they reached the hospital before the prescribed closure time i.e. 12.00 noon and 6 p.m. In order to decide those who have reached in time there should be arrangements to supervise those who have remained in balance at 12.00 noon and 6 p.m. and those attending the hospital at a later hour.

Examination in Various Sections.-Constant efforts are needed to induce the patients to stand in a Que and to take their turn. Vocal, active and influential persons acquainted with the hospital staff should not be allowed to get an undue advantage. The best course will be for the various sections to collect the case papers of patients as they come and arrange them on the doctor's table in chronological order. A daily serial number can be put in a corner of the case paper where each section has a separate window for registry e.g. Medical Surgical etc. Subsequently the patient should be called in the order in which the case papers are kept or according to the daily serial number, and a queue system must be enforced.

Any outdoor case requires proper history taking an examination. The first examination is more often likely than not to influence the future treatment. Serious cases require careful examination and none should be avoided because it is tedious or requires some minor equipment. Arrangements for rectal examination, proctoscopy, PV (per vaginal) examination should be available in the O. P. D. only and such cases should not be referred to the operation theatre as is often done. The head of the institution and head of the department must ensure that facilities for common examinations are available. There should be sufficient privacy when the patient approaches a doctor. Even an ordinary examination should be made in a proper atmosphere. A closed cubicle for patients to be examined in the lying down position is necessary. There should be sufficient benches to allow waiting patients to sit in the general waiting hall as well as in sub-waiting halls. Ladies must be examined in the presence of a Nurse or a female attendant or a relative but in no case without a second person being present.

Medical officers should put their initials on the case papers in a legible manner as it is often necessary to find out which medical-officer is treating a particular case.

O.P.D. Case Paper Records: It is obligatory to write a few relevant records on O.P.D. case papers. Apart from benefit to the patients they are an essential part of medical records and hospital statistics. Such a record will facilitate the treatment of patients on correct lines and avoid duplication of accessory tests which is a common cause of unfruitful expenditure. No distinction should be made between medico-legal cases and non-medico legal cases so far as records are concerned. Such a distinction is commonly observed in injury cases. Progress or regress in the patient's condition must be indicated on the case paper from time to time. The diagnosis column is often left blank and if so the patient attending the different sections in the O.P.D. or some other section after some interval will suffer. As completion of records and statistics is affected by lack of entry of diagnosis, difficulties will arise in formulating proposals and plans for expansion of the hospital, or in modifications of the existing procedure. Difficulties will arise in supplying information to State or Central Government and also in doing medical research.

While filling in the column of diagnosis the medical officer must follow the international classification of diseases (Vol. I and II of World Health Organization). The head of the institution or department should supervise from time to time that these instructions are being followed.

O.P.D. Case papers of one Patient— Whenever there are more than one O.P.D. case-papers in respect of one patient they should be properly stitched together and not merely glued or pinned. Patients suffering from Tuberculosis have to take treatment for a long time and in their case, it would be better to have booklets of 15 to 20 pages.

Entries on the Case papers.—The entries on the case-papers like name, address should be written legibly. They should be complete. The income column should not be left blank as this will attract audit objections.

On the occasion of visits of patient on days after the first day, the stamp of the particular date is affixed or the date is written on the case-papers but this is put anyhow at any place with the result that it is difficult to make out what particular treatment was given on what particular date. The stamp should, therefore, be put well below the writing of the previous date and legibly.

Stamping the Case Papers.—The doctor should sign and stamp of his name so that the patient is aware of who is attending on him.

4.4 Lab and Radiological services

Reports of X-ray Examinations: X-ray and Laboratory sections to which patients are referred, prepare their reports and though such reports are to be attached to the case papers. It is desirable to write a summary of such reports on the case paper itself. These sections should send the reports to the Sister/Sisters incharge of the O.P.D. who should send them to the appropriate section and obtain acknowledgement from the person incharge of the section whose duty it will be to put them up to the medical officer when the patient attends.

Requests for Laboratory and Radiological examinations: Radiological and laboratory examinations should be ordered for specific and well defined reasons; otherwise these sections are flooded with a large number of patients and the strain on the staff of these sections is enormous, causing a load on X-ray machines and unnecessary consumption of X-ray materials. Injudicious requisitioning will obviously lead to a lowering in the standard of quality of work. The patients also suffer as they have to wait for a long time to get the results. It is a good idea for the medical officer to ask a question to himself, "Is this examination really necessary?" The next point to be decided is what particular examination is needed and to restrict the order to that specific examination only. Orders for examination should not be vague.

Usually all hospitals follow a system of filling printed forms for X-ray and Laboratory examination. These too should contain specific instructions as referred to above. If the forms are not used, instructions should be written on the case paper itself.

Tests are often ordered without understanding their full significance. This is a question of medical officers keeping themselves up to date in technical knowledge. X-ray and Laboratory tests should not be ordered as substitute for proper history taking and clinical examination.

Whenever X-ray of a female has to be taken, nursing Sister / Lady Attendant must be present at the time of X-ray. Outsourcing of these services is to be done as per guidelines of government of Maharashtra from time to time can be done.

4.5 Dispensary Dressing and Injections

Work in Dispensary Room.—The work of replenishing the stock of medicines in the dispensary room, arranging the case-papers in bundles etc. should be completed by the pharmacy officer on the previous evening, so that none of these has to be done just before starting the Outpatient Department work. Failure to observe this precaution will cause delay in commencing the work. The case writers have to collect all the Outpatient case papers and arrange them in proper bundles in the after-noon. The Pharmacy Officer have to classify the diseases according to statistical forms. They have to fill various registers. This work should be attended by Pharmacy Officer on evening and night duty.

All Medical Officers attached to hospital should be aware of the correct position about various drugs which are available in the hospital stores so that unnecessary prescriptions are not given to patients to bring them from the market. The drugs should not remain unused for long periods of time which may result in their being wasted. The head of the hospital should, therefore, cause a circular to be sent to the various medical officers including the Honorary Medical Officers, apprising them of the stock of drugs available in the hospital stores and also when any particular item is likely to be in short supply or supply is expected to be delayed.

After the Pharmacy Officer dispenses medicines according to the prescription on the case paper he should tick each item supplied. If a particular drug is not in stock the Pharmacy Officer should consult the Medical Officer but in no case should he omit the prescription or change it. The hospital should start a shop to sell standard sized bottles. Suitable labels should be prepared for sticking on these bottles. The head of the hospital as well as the Receptionist should check random samples of medicine supplied to the patients by calling them after they have obtained their medicines, to see whether the Pharmacy Officer are dispensing medicines correctly or not.

Syrups may still be necessary for children and certain other patients. There should be promoted digitization of the records in O.P.D section. Medical certificate book should be kept with Medical record section/ office of the Hospital.

e-Aushadhi application must be used for inventory management.

Dressing— Adequate number of tables and stools will help to dress patients in lying down and sitting positions. Foot stools should be provided for each table in order to enable a patient to get on the table easily. Separate arrangements for dressing of male and female cases preferably in adjoining rooms with sterilization room in between are desirable. If there are no separate rooms, good partition or at least a curtain should be provided. Instruments should be well sterilized for each dressing and dressing materials such as gauze, cotton etc. should be autoclaved and preserved in separate dressing drums or jars. The autoclaving should be entrusted to trained staff. Instructions for dressing must be precise and there should be some arrangements for supervision to check, whether the dressings are correctly done or not. This could be done by medical officers turn by turn, the O.P.D. sister or by staff nurse or a senior student nurse. Dressers usually being illiterate and untrained, such a supervision is absolutely necessary. It is a common sight to see a dresser washing his hands once and carrying on dressings until he feels his hands are soiled. This must be avoided and those responsible for dressings must be made to practice washing hands for each

dressing. If all this is done the patients' attendance in the dressing department should be reduced considerably.

Anti-Rabies Treatment.—This section is usually a neglected one. The administration of Anti-Rabies vaccine requires proper study of instructions issued by the Haffkine Institute. Administration of the vaccine is not entirely devoid of risks. The Haffkine Institute has issued a booklet giving necessary details about rabies, its prevention and also about details of administration of the vaccine. The basis for dosage schedule is also clearly explained, in the booklet.

The following are important aspects:

i) The work of dealing with dog-bite cases has to be entrusted to Medical Officers trained in this work. It appears that the word "training" in this connection is often misunderstood. What is required is not any complicated process of training but only a study of the instructions given in the Haffkine Institute publications. The Medical Officer has also to attend and see the working in an Anti-Rabies Treatment Centre for a week. The work should not be entrusted to any untrained medical officer or to any medical officer returns stating that the Medical Officer dealing with administration of anti rabies is on duty. The head of the hospital is required to send quarterly Anti rabies Vaccine is trained, and still, on occasions entries are found in this return stating "no" against this column. There should be a correct classification for purposes of the dosage schedule. The patients should not receive the maximum dosage for the maximum number of days whether they require it or not.

- i. Anti-rabies vaccine is to be preserved at a temperature of 0 to 4 degree centigrade. This should be tested carefully, by a thermometer. Incorrect preservation will result in loss of potency of the vaccine and giving such vaccine is dangerous.
- ii. In order to make a proper classification and ensure proper treatment the case paper should contain the following details
 - a) The date and time of the bite;
 - b) The date and time of attendance at the Anti Rabies Treatment centre;
 - c) Species of the animal causing the bite;
 - d) The number of bites and on what parts of the body (details);
 - e) Whether the bites are superficial or deep;
 - f) Whether the animal is rabid, pet or stray and if pet or stray, whether it could be observed.
 - g) Whether the dog or animal was provoked or unprovoked at the time of the bite;
 - h) Whether the bite took place through clothes or bare parts of the body;
 - i) Cauterization done or not and, if so, with what?
 - j) Class of treatment;
 - k) Health of patient on arrival-good, fair or poor;
 - l) Date when treatment was begun and date when it ended;
 - m) Treatment completed or not completed;
 - n) Any reaction and its outcome;
 - o) Correct and detailed address of the patient.
- iii. The Anti-rabies Centre should not be closed on Sundays and holidays. It should be open on all days like a Casualty Section.
- iv. The public should be discouraged from killing suspected rabid dogs. A better procedure would be to get such dogs examined by the nearest Veterinarian.
- v. Whenever the biting dog is non traceable, it must be presumed that the dog is rabid and the full course of injection should be given.
- vi. Anti-rabies vaccine has a short expiry period. It is therefore not advisable to stock vaccine which would last for more than two months. Similarly, vaccine which has taken more than 5 to 6 days from the dispatching centre to reach the place of A.R.T. Centre should not be used.
- vii. A uniform practice should be followed regarding administration of prophylactic injection for tetanus in cases of dog bites. The dog-bite wounds should be considered on par with any other

wound for this purpose. It is preferable to give tetanus toxoid rather than A.R.T. unless the wound is grossly contaminated when A.T.S. should be given.

viii. The help of Police and local authorities should be enlisted through the patient or his relatives to ascertain the status of the biting animal. The owners of pet animals should be advised to get the animal examined by a veterinary surgeon.

ix. Careful instructions should be given so that in case of death the details of symptoms and the date of death are known. The cause of death should be ascertained as far as possible.

Guidelines for anti rabies treatment issued by government of India should be followed.

Tetanus Prophylaxis and O.P.D. Injection:

Occasions for giving prophylactic injections for tetanus are very large in the Outpatient Department of a Hospital. It is necessary for the Medical Officer to be in touch with modern developments in the concepts about immunity and tetanus prophylaxis such as the use of tetanus toxoid, combined active and passive immunization etc. Due attention should be given to the question of ascertaining allergy before giving Anti-tetanus serum. Similarly, it should be possible to diagnose actual allergic reaction in the early stages. The Medical Officers as well as the nursing staff should be trained for this. The necessary materials for treatment of reactions including severe shock must be ready at hand and the medical officers and the nurses should be trained in their use. After administration of A.T.S. the patient should be asked to wait for at least half an hour for observation. With due precautions it should be possible to avoid untoward reactions.

O.P.D. Injection:

The injections for male and female patients should preferably be given in adjoining rooms with a room for sterilization in between. The patient should be observed for some time after the injection and if necessary treatment for allergy and shock should be given promptly. As soon as the injection is given, the nurse should tick mark the prescription in token of having administered it. Sometimes a series of injections are ordered in one prescription, e.g. 5 to 10 injections of "B-complex ". In such cases the nurses should record the dates of giving the injection and tick mark the dates. It is advisable to change stainless steel needles after every 25 injections. Labels on the ampules or the carton should be read carefully before administering the injections. Nurses working in this section should be trained to recognize the onset of side effects. It will be convenient to divide injection patients into two groups viz. those in need of sensitivity test or follow up waiting period and those not in need of such precautions. The latter group can then be relieved quickly compared to the other group. Also the Anti-Rabies programme guidelines should be followed. Anaphylactic kits should be available in the OPD.

4.6 Social Welfare related to OPD

Social Welfare:

Social worker/ counsellor should be appointed in hospital if the post exists. Non-Government social organizations should be actively involved in the hospital to help the poor and needy patients.

Social workers/ counsellor should act as a liaison between patient and doctor. Social workers/ counsellor should be able to locate the genuinely poor patient and try to help them in getting proper treatment drugs, medical appliances etc.

They should be working under the supervision of Additional Civil Surgeon and Medical Superintendent. Rail concession forms are to be issued to handicapped persons, patients suffering from cancer and tuberculosis as per the government norms. Social Worker / counsellor should work as per instructions of Hospital Incharge.

Patient Satisfaction.:

The medical officer should concentrate on one case at a time and the patient must feel that the doctor is attending on him only. He should not leave his place of duty except for an appropriately planned respite if

necessary and this should be in a separate room. It is preferable for the doctors to go to the "Tea Room" if at all, turn by turn and not all at one time. It is said of justice that it must not only be done but must also appear to have been done. Similarly it must appear to the patient that the doctor is really attending on him alone at the moment. These hints apply to the medical officer's work in all departments of the hospital.

Public Relations:

One doctor of each unit should keep aside at least 5 minutes during every O.P.D. Session for "Public Relations". During his time any patient or his relative or friend should be able to ask for advice and guidance. It should be notified for information of the general public that such a time has been earmarked specifically for this purpose. This opportunity may also be utilized to impart health education with reference to the particular disease from which the patient is suffering. It is possible to reduce the strain of waiting patients by playing Hindi and Marathi songs in low pitch. The necessary equipment for the same can be procured by way of donation if sincere attempt is made.

Government Servants and their Families:

The case papers of these persons should be stamped and marked G' (State/Central). This will enable staff to give priority attention to them. Separate windows for issuing case papers or if this is not feasible, earmarking of a separate time for issue of case papers will afford necessary facilities to the Government servants and their family members. It may also be worth while to find out if Social Welfare Agencies of Government Servants' Associations like Revenue Services Association and Police Welfare Association etc. will help in the matter of writing of case-papers.

Health Education:

There is a considerable time hanging loose with patients in the O.P.D. and also with their relatives and friends. This opportunity should be utilized to impart health education which may be done by a Public Health Nurse or a Health Educator. Attractive health posters, Family Planning posters and handouts should be available for imparting such knowledge. Simple instructions about nutrition should be particularly kept in mind. waiting patients and others who accompany can be shown short films on family planning, hygiene etc. Posters for attracting blood donors should be put up at prominent places. In addition, if a particular patient requires blood of particular type a notice regarding this should be prominently displayed in the O.P.D. Display of posters, banners, audio-visual aids, digital boards etc. should be used in OPD for health education.

4.7 Support services of OPD

Guide Charts and Indicators.-The first requirement is to indicate the various sections of the Outpatient Department on charts. This should be done in Marathi/ local language and in English. Since a large number of patients even now attending the hospital are illiterate, symbols should be used to indicate the various sections. A board should be put up at the very entrance giving numbers and names and symbols of the various sections.

The following hints will be helpful:

- i) The sections may be given different colour and circle of the particular colour should be drawn before the name of the section.
- ii) A simple diagram may be drawn in front of the name of the section to indicate the nature of work. For example it would be easy to draw a diagram of injection syringe in front of the Section "Injection Room".

Boards.—The O.P.D. should exhibit boards near the entrance as follows:-

- a) A Board showing the names of Medical Officers full time along with their time table.
- b) A Board showing the names of doctors, nurses and Group D staff on emergency duty.
- c) A Board giving broad instructions to the patients as regards the working of the hospital. There instructions should be brief but informative. There should be specific instructions not to make any payment without receipt except for O.P.D. tickets. This board should specifically mention

particulars which are necessary to be entered in indoor and outdoor case papers like name and address, income etc.

- d) A Board showing the fees charged in the hospital in respect of major and common items only and also fees charged for different types of certificates.
- e) A Board for identification of different sections.
- f) A Board showing the names of members of visiting committees/Board of Visitors.
- g) A Board showing the daily average of indoor and outdoor attendance.

Enquiry Window:

There ought to be an Enquiry Window in every hospital big or small. This should be located in the outpatient department. In District Hospitals and bigger hospitals separate clerical staff is essential for this purpose. In smaller hospitals it would be necessary to manage this work with the available staff and in such hospitals the enquiry window should function at least during peak hours. In District Hospitals and bigger hospitals the enquiry window should function round the clock all the 24 hours, but it is not necessary to maintain separate staff at all times. The quantum of staff can be regulated according to the rush hours of patients. The work should be shifted to the casualty department after O.P.D. hours. Voluntary and Social agencies should be tapped to enlist social workers for attending the Enquiry Window.

The Enquiry Window should be able to supply the following information:

- 1) Locations of the various sections of the hospital and existence or otherwise of particular facilities.
- 2) Information about serious and dangerously ill patients.
- 3) A time-table of various members of the staff, for example, their outpatient days, their operation days, their round days and so on. Information should also be available if any member of the staff on leave and, if so, how long?
- 4) Broad outlines of the methods of working in the hospital;
- 5) List of patients operated on that day and those who are to be operated on the next day.
- 6) List of patients admitted indoor on the particular day and in what ward.
- 7) Any other important information like giving of routine immunization for children, Swine flu, COVID 19 vaccination etc.
- 8) The Enquiry Window should bring to the notice of concerned doctors/ departments, complaints and difficulties of patients and public, with a view to redress their grievances.

Telephone Arrangements.:

There should be round the clock arrangement for telephone messages to be received properly. Functions of a telephone operator may conveniently be combined with the Enquiry Window. In smaller hospitals the telephone should be located where a person is on duty round the clock for e.g. Casualty Department or Dispensing room.

Work on Time.:

Usually, the outdoor hours are fixed in the morning. It may, however, be necessary due to exigencies of the local conditions to have two sessions viz. in the morning and again in the afternoon, or evening.

Ante-natal sessions are usually conducted in the afternoon or evening for convenience of ladies.

Hours of Work:

Medical Officers on duty in O.P.D. must start their work at 8.30 a.m and 4 p.m. sharp. They should not leave the O.P.D. until the last patient is disposed of. This would mean that the medical officer should wait for those patients who have been referred to the X-Ray or Laboratory section and in whose cases immediate reports have been called for. Since the medical officer has to remain in attendance till the last patient is disposed of, the hours of attendance in the O.P.D. apart from the starting time cannot be defined, as far as the maximum attendance is concerned. It is however, necessary to fix a minimum time of attendance for the medical officer in the O.P.D. and this would mean that if on a particular day the attendance is thin the

medical officer should not leave his place until the prescribed time is over

The Use of Stretchers.:

This elementary facility is many a time conspicuous by its absence. Cases requiring the help of a stretcher or a wheelchair must invariably be given the help of these facilities. The number of stretchers and wheelchairs should be commensurate with the number of patients attending the O.P.D.

Water coolers and spittoons should be provided in this department. Attempts should be made to collect donations for the same and usually they will be successful. Adequate sanitary facilities should be made available.

4.8 Miscellaneous

Equipment.—Sufficient equipment for diagnostic and sterilization purposes as well as for dressings, injections and minor operations should be available in the different sections of the O.P.D. There should be an Emergency Kit for resuscitation purpose in cases which require prompt revival due to injuries, poisoning etc. or due to reactions to the administration of drugs.

Avoiding Cross Infection.:

Elementary facilities for sterilization of instruments used repeatedly as for example in diagnosis and injections must be provided in all the sections of O.P.D. Tongue Depressors, Arthroscopes and Dental Forceps should be washed and sterilized for each patient. The inspecting supervising officers must now and then watch that those responsible do not a short cut to this essential step.

Minor Surgery.:

Sessions for minor surgery call for close attention. Adequate preparation of patients for operation and proper facilities for Anaesthesia and sterilization are necessary. It should be ensured before the start of operation that sufficient staff is available for help. No operations should be done in a hurried or non methodical manner, since every operation is major as far as the patient is concerned.

All minor operations in the O.P.D. should be undertaken in a separate self-contained session preferably towards the end of the O.P.D. hours. This will be necessary if there are no separate officers to do the minor surgery. Where there are separate medical officers the minor surgery work can go on simultaneously with the O.P.D. work. Special care is necessary to avoid hurried induction of anaesthesia. Adequate pre anaesthetic medication should be given and the required interval allowed for the medicines to take effect.

Staff in the O.P.D.—Rather more than average efficiency is demanded of the O.P.D. staff, and better qualified and competent doctors should be sent there. The staff members have to be alert and quick. The personnel should have a sense of discrimination and a habit of observing matters. No loitering should be allowed. There should be one or more Sisters incharge of the O.P.D. depending upon its size. They should exercise supervision over work of non-medical staff in the different sections of the Department. The Sisters will have to do technical duties as well as administrative ones. Any breach of rules should be brought to the notice of the concerned medical officers.

Occasions may arise when the work in the O.P.D. suddenly becomes unmanageable due to rush of patients. The medical officer incharge of the hospital, Resident Medical Officer, or the Matron should take a due note of this situation. The O.P.D. Sisters should communicate the fact to the proper authorities who should arrange for extra staff temporarily.

Saving of Patient's Time.:

The Outpatient Department Sisters and Receptionist should always be on the watch, to see how the waiting time of patients can be minimized. The following measures will be helpful:-

- i. A patient waiting in a long queue for injections may be given a token and asked to collect his medicine and then go back for the injection.
- ii. The patients should be encouraged to bring the correct change to avoid loss of time at the O.P.D. case paper window.
- iii. Whenever possible medicines should be given for upto four days at a time.
- iv. In respect of T.B. cases, the medicines can be given, as per rule, for upto 30 days at a time:-
- v. In respect of those patients, who require dressing of their wounds, it is possible to simplify the procedure by giving orders for dressing for a week or more on one day only, so that the patient after getting his case paper straightway goes to the dressing room. The same procedure can be applied to a course of injections. It should, however, be ensured that the entry about issue of case paper in the appropriate register is not missed.
- vi. Uniformity in prescriptions will go a long way in saving the time of patients. The hospitals should follow set of formulae barring exceptional cases. This will facilitate dispensing.
- vii. The Medical Officers should remain at their place of duty throughout as already stated. Entertaining of visitors, including medical representatives should be done with due regard to the time spent.
- viii. Some patients have to undergo minor operations and some other require certificates. If it is definitely known that the performance of the minor operations as well as the issue of certificate is going to take some time, it is better to advise the patient to go away and come back after a specific period, when he could be attended to.
- ix. The system of giving appointments to patients should be tried wherever possible, like in X-ray Department, Laboratory and even for O.P.D. examinations. In the latter case, the patients may be asked to come during a particular interval of time like 10 to 10.30 a.m., 10.30 to 11.00 a.m. and so on. This will result in even spacing, less crowd and less waiting. The mean consumption time per patient should be taken into consideration and the consultant must attend punctually.
- x. Decentralization of registration, dispensing of medicines and administration of injections so that the same are available on the spot in the section in which the patient is examined, (Surgical, Medical, Gynaecology, Paediatric etc.)

Decentralization of dispensing has two other added advantages:

- 1) Reducing chances of pilferage.
 - 2) Medical Officers remain aware about drugs available and not available. Thus avoiding prescriptions of drugs which are not available. Thus avoiding prescriptions of drug which are not available—a common cause of complaints from public.
- xi. Queue system must be enforced.
 - xii. The doctor's time should not be wasted for unnecessary writing. Cyclostyled forms should be kept ready.
 - xiii. Help of medical social worker should be taken for registration of OPD case papers

Represented Cases.:

Sometimes patients send representatives to fetch medicines. As a rule, represented cases should not be given medicines

Error Books.:

The Sister-in-charge of the Outpatient Department should note down any lapses or errors occurring in the Outpatient Department in a separate book. This should be shown to Additional Civil Surgeon/Medical Superintendent for necessary action.

Leprosy Patients.:

Leprosy Patients should be finally examined by Medical Officer.

Unsocial Elements and Agents. It is a common experience in all the hospitals that there are persons who move about with the airs of veterans capable of handling any matter in the hospital as regards

admission and treatment. They often misguide the patients and try to get their work done by showing undue favours to the lower hospital staff. In several instances, they establish such a foothold that it is difficult to counteract their activity. Most of the lower staff of the hospital is non-transferable and they are there for years together while the other members of the staff are liable for transfer. It is no wonder that under such circumstances the medical officers are wary as regards any steps to drive away these undesirable persons. It is nevertheless necessary to counteract their activity by a concerted action and by a free exchange of ideas amongst all the staff members. If necessary the O.P.D. staff suspected of such alliance should be shifted for indoor work. A board should be put at a prominent place informing the people that no money should be paid for admission or treatment and any one asking for it should be reported to the Medical Officer.

Method of Indoor Admissions.:

This should be carried out according to availability of beds in the particular wards. The Admitting section should have a chart showing the total number of beds in each ward and the number of vacancies on a particular day. If necessary, a waiting list should be maintained of cold cases and the cases admitted according to the order in the waiting list.

Treatment of Fracture Cases.:

Fracture cases attending the O.P.D. or the casualty department should be treated as emergency cases and treated on the spot. The clinical examination, X-Ray examination and the treatment should be chalked out on this basis. Delayed treatment causes considerably difficulty in accurate reduction and restoration of normal function.

Improvement of O.P.D. Services.—The following indices are useful to gauge the efficiency of out-patient services:

- i. Waiting time for patients from the time they enter till the time they leave the department.
- ii. The amount of time spent by doctor on a patient for diagnosis, treatment and education.
- iii. The total number of patients treated.
- iv. Expenditure on and receipts from the department.
- v. Measure of patient satisfaction.
- vi. Effectiveness of medical care.
- vii. Help rendered by the department to Public Health Authorities to frame their policy and take the necessary corrective action.
- viii. Utility of the department for training of medical and para-medical staff.

It is possible to improve some of the services to an appreciable level by keeping in mind certain factors. For example, if the timings of registration and examination by doctors (clinic time) are different a big queue is bound to form before the clinics. Similarly if there is an imbalance between the number of patients attending during certain intervals (such as 8 to 9 a.m., 9 to 10 a.m. 10 to 11 a.m. and so on) and the availability of doctors in those periods, the again, large queues are inevitable. Thus it may happen that the maximum arrival of patients is between 9 and 10 a.m. but the maximum availability of doctors is during some other period.

Then again the patients after they are examined go to the dispensing section to receive medicines. Here again an imbalance between the time of arrival of patients and the dispensary working hours will create a measure of deadlock.

The time of start of work in the registration, clinic and dispensary should therefore be the same say 8 a.m. Other units like X-ray and laboratory can start work half an hour later i.e. 8-30 a.m. The system of giving guidance to patients to attend the appropriate departments which has already been referred to (Receptionist, Enquiry Window) if streamlined will also add to reduction of patients waiting time. The number of doctors available in the various clinics during different intervals should be proportionate to the

rush of patients during particular intervals. This pattern will vary from hospital to hospital and can be easily found out by a survey. For example in a certain hospital the maximum number of patients may arrive between 9 a.m. to 10 a.m., moderate number between 10 a.m. and 11 a.m. and least number between 11 a.m. and 12 noon. If so maximum doctor service should be available in the first period, moderate in the second one and least in the third one.

Such redistribution will not only reduce patients waiting time but also enable the doctors to examine a larger number of patients, lead to optimum utilization of available doctors, effect a more equitable distribution of work amongst the doctors, and allow more time per patient care.

Patients who have to attend O.P.D. on more than 2 or 3 occasions, should be automatically referred to senior doctors for a more thorough examination and treatment unless the attendance is required as a mere routine (for example routine A.R. treatment).

Minimum Performance standards for Specialist and Healthcare staff should be as per the IPHS standards given in annexure 4.2.

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CHAPTER V

CASUALTY SERVICES

5.1 General

From the point of view of the public image the O.P.D. and Casualty departments are the two most important ones. The casualty department can be said to have an edge over the O.P.D. in this respect. When a patient is brought in this department there are few other patients if at all. The disease from which the patient is suffering is usually of an emergency nature, and requires speedy and prompt attention in such a way as to create a sense of confidence in the patient as well as his relatives and friends.

Promptness in attention to the patients is very vital.

- a) As per Honorable Supreme Court ruling, no patient should be refused treatment, even if no bed is available and the particular specialization is non-existent.
- b) Sympathetic and well-trained staff should be posted who can render immediate and appropriate lifesaving treatment and also able to meet the emotional requirement of patient and their attendants.
- c) An efficient and full proof communication system should be available. There should be efficient communication system within the department and from department to the various intensive care areas of the hospital and also to contact consultants or senior doctors on matters pertaining to better patient care. These can be telephones, intercoms, Mobiles or public announcement system.
- d) Liaison with police in Medico legal cases should be maintained.
- e) The emergency department should preferably be located on the ground floor and it should have direct access from main road for ambulances.
- f) Directions to the emergency department should be well marked and clearly visible both far away and close to the hospital, day and night.
- g) At the entrance of emergency department, adequate and neatly maintained wheel chairs and patient trolleys should be available for transferring the patient from ambulance to emergency department.
- h) Close linkage to other supportive services: like Radio diagnosis, Emergency clinical laboratory, Pharmacy, dressing and plaster area, critical care area, ECG facilities should be available.
- i) Admission and Inquiry Office should also be adjacent to emergency department. At the entry of hospital there should be display board of casualty patient information.
- j) All areas of Accident & Emergency Department should be able to handle seriously ill patients. An adequate numbers of oxygen, suction, ECG, pulse oxymeter, cardiac monitor, defibrillator and multi para monitor and electrical outlets must be available.
- k) There should be examination rooms/cubicles, doctor's room, Medico legal record room, Police constable Room, Nursing station, Storeroom, Minor OT and Plaster Cast room, etc. Doorways should be wide enough to accommodate stretcher/trolleys.
- l) Adjacent to emergency department there should be a Registration (Admission) cum Inquiry Office, ambulance and driver's room, ambulance parking area, stretcher and wheel chair's bay, waiting area, public telephone and other public convenience like drinking water, drug store etc.
- m) Special attention to be given for maintenance of light and temperature of the room. In case of power failure, provision of electrical back-up system should be available.
- n) Various categories of manpower like CMO, DMO, Specialists, Nursing Staff, Technical, Paramedical staff, Security and support staff should be posted in the emergency in adequate number.
- o) Pre hospital care is provided by a fleet of ambulances (108) fully equipped with first aid equipment and trained manpower for safe transportation of patients from accident site or residence of patients to enable them to reach hospital for definite medical care.

It is possible that sometimes patients may apply to the casualty for treatment of a disease which is really not of an emergent nature. There is often panic in the mind of the patient. This may be justified on account of the nature of diseases or it may be due to a false sense of alarm. In those cases where the disease is not of an emergent nature the doctor will have to exert tact to explain to the patient the real situation. Since the casualty department is a point of major public impact criticism and censure are more easily generated.

The use of casualty department is increasing day by day. This is due to several factors. With increased urbanization and complexity of life, industrialization and increased transport facilities, the number of accidents is on the increase. People are now more hospital minded and better transport facilities are available giving comparatively easy access to the hospital. There is an increasing tendency and which is justifiable too, in doctors to refer the cases to the casualty department for better patient care. The practitioners are inclined to do this on account of better equipment and staff available in the hospitals. The superiority of group work over individual work in urgent cases is now more appreciated by the medical practitioners.

Paradoxically a situation often arises when patients try to secure a backdoor entry to the hospitals by feigning that their condition is of an emergent nature. This is done only to overcome the difficulties of securing admission through the usual channels, especially in cases of chronic, incurable or mild complaints. A good screening is therefore essential before admitting patients in the indoor wards.

The importance of round-the-clock services in the casualty department on hardly needs stressing. There are a number of occasions when a patient may be brought to the hospital in the last stage of his life, for example cases of drowning, cases of severe injuries and cases of foreign body in the respiratory tract. The transition from the living condition to death occurs very quickly in these cases and if this happens without there being any medical officer to examine and treat the case once he has reached the hospital, the repercussions on the general public can be well imagined. It may be that sometimes the patient brought to the casualty department will be already dead or gasping and that nothing can be done for him but the point is that the necessary staff must be present and attempts made to do everything possible and at once up trying while life still flickers is unethical. There is no doubt that prompt service in the Casualty Department will save many lives. If the patients are not attended to promptly the difficulties are multiplied in our country on account of lack of adequate transport system, telephone facilities and on account of inadequacy of medical centers. It is practically impossible for the patient to be taken away to another medical centre. The situation is further aggravated in the hours of night.

Cases of Worthy of Attention

As regards the criteria for attention in a casualty department it must be realized that it is not only the magnitude of the disease that makes a patient worthy of attention. It is the acuteness of distress caused to the patient which is also to be noted. Any acute severe pain, for example, severe headache or toothache or severe intestinal colic, makes it incumbent upon the casualty medical officer to attend on the patient.

The following conditions should be considered as worthy of attention in the casualty department:

- i. Any acute severe pain even if the underlying disease is trivial.
- ii. Any medico-legal case.
- iii. All cases of injury, minor, major or an accident, industrial or those occurring on the road etc. and burns cases.
- iv. All surgical, medical, obstetric, pediatric etc., emergencies, poisoning cases.
- v. Anything in general which causes acute distress to the patient.
- vi. All cases of fracture and dislocation should be treated as emergency and there should be no procrastination.
- vii. Any dog bite or animal bite cases.

For obstetrical emergencies, special transport arrangements should be available in the Casualty

Department, to fetch cases from residence of patients. Emergency Medical Services should be used in Emergency cases. (e.g. 108 ambulance services)

A mention may be made of the fact that apart from the regular casualty services hospital must also make arrangements to meet emergencies arising in respect of patients who are already admitted in the wards.

Current Scenario

The level of Casualty Services will depend upon the population of the locality and the type of hospital. In bigger hospitals in larger areas there are separate casualty departments manned by casualty medical officers. In smaller hospitals the casualty department is a part of the O.P.D. Section. There is sometime a separate room and sometime not. If there is no separate room the department is improvised in one of the O.P.D. rooms. Arrangements are usually made for the medical officer's stay in the casualty section but in smaller places the medical officer is on call and is required to be called each time from his residence.

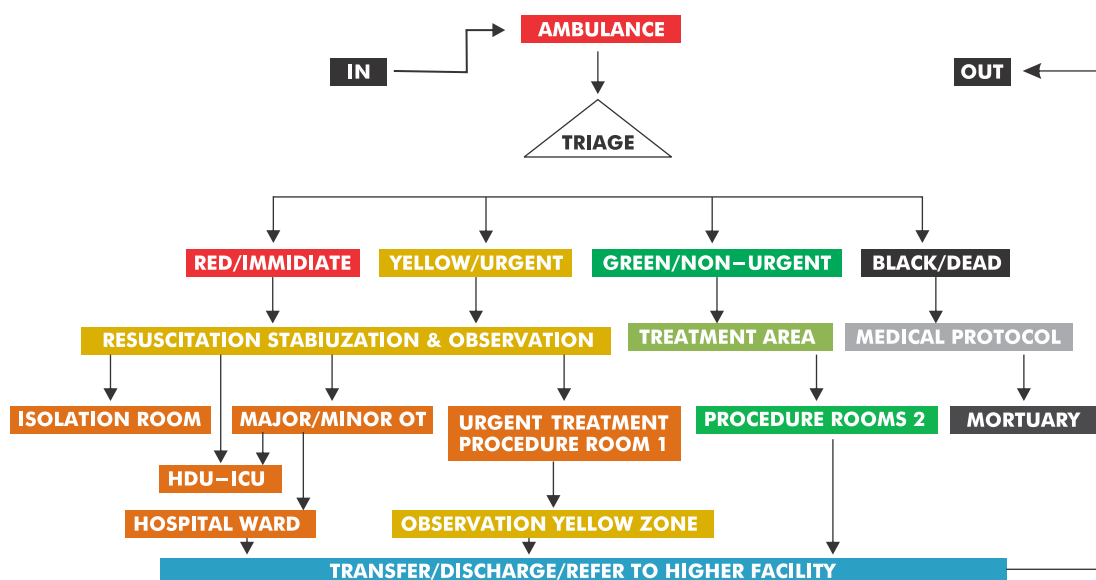
5.2 Infrastructure

The casualty department should be prominently placed near the entrance of a hospital. It should be well lit with suitable boards and a coloured light. Lighted roads from all gates of the hospital should be available leading to the casualty centre. Space to bring vehicles right up to the casualty centre in all weather and park them should be available. The casualty department should have a waiting hall for relatives and friends of the patients who are anxious. The Enquiry Window which referred to in the "Organization of the O.P.D." must be connected with this department. Except in case of RH/SDH hospitals, the casualty department must be a separate section in a part of the hospital building specially earmarked for it. It will consist of a waiting room, examination and treatment room and a retiring room for the medical officer on duty with toilet arrangements. A minor operation room is added in a big hospital.

Observation Wards: In any well organized casualty services there should be an observation and emergency ward where patients can be observed for up to 24 hours or so firstly to allow the medical officer to make up his mind whether the patient can go home or needs to be admitted and secondly in order to give required treatment to a case which is expected to recover within a short time or in grave emergency cases, where minimum essential treatment is given here before the patient is shifted to the appropriate ward. The emergency ward must have all life saving and essential medicines, apparatus for intravenous infusion and resuscitation, oxygen cylinders, stomach wash arrangements, suction machine, equipment for minor surgery etc.

Quarters should be made available to members of the staff who are required to attend the casualty centre, at any time. Since in many hospitals there is no separate staff available for this department the importance of the quarters in the campus assumes more importance.

Figure : Flow of patients in an Emergency



5.3 Human Resource

Sufficient staff must be available in the casualty centre and emergency ward to deal with various types of emergencies. Apart from the casualty medical officer, services of specialists on call should be available. Ideally in larger places, specialists in at least the three main branches of medicine, viz. Surgery, Medicine, Obstetrics and Gynaecology should be available as members of staff specially appointed to work in the casualty centre. Staff in the casualty department has to remain alert all the time and establish proper co-ordination with that in the X-ray department, Laboratory, Blood Bank and the Wards. Technicians should be available round the clock for X-Ray and Laboratory work for E. C. G., and for Blood Bank work. Thus depending upon the population of the place and the size of the hospital, either there should be a separate staff to deal with all the emergencies in the casualty centre, or there should be arrangements to make the services of such staff available round the clock, on call. The specialist staff dealing with cases from this department should hold periodic meetings with casualty medical officers to give instructions regarding what initial treatment should be given or started by the Casualty Medical Officer.

The staff of the casualty department should be quick and efficient and for this purpose they should be trained. The medical officer must develop his own judgement in tackling the cases. The work of medical officer should be based on certain fundamental principles. Though a precise diagnosis may not be possible, adequate therapy to tide over crisis must be given.

The medical officer working in the casualty centre should not hesitate to seek the help of higher/more expert medical officers whenever required.

Persons are posted on duty usually for 8 hours by turns in this department. The persons belonging to the first batch would not leave the place until those in the next batch are actually physically present. Whatever complaint if any can be made to the proper authority later on, but at the moment the staff of the first batch will have to continue until that of subsequent batch replaces it.

Casualty medical officers should not be disturbed by assigning them other duties, during their duty period. (Post-mortem work, ward calls etc.).

Security Guard: He/She is Responsible for

- Polite, tacitful, sympathetic, courteous service under all circumstances.
- Duty as per roster prepared by Security Officer Incharge/ Hospital administrator.
- Regulating the flow of patients or their attendants.
- Security of the area under his charge and is answerable to any untoward incidence.
- He will perform any other duty as required by his supervisor security officer/ Hospital administrator.
- Checklist of security services shall be prepared by Hospital administrator.

5.4 Equipment

The medical officer incharge of the hospital should keep a separate buffer stock of medicines. Dressing materials, etc. to replenish the stock which is exhausted. There should be sufficient trolleys and wheel-chairs to move the patients to the casualty centre as well as for transporting them to different sections of the hospital, from the centre. The department should have adequate equipment for diagnosis and resuscitation and to tackle all emergencies which are expected. Cases of Burns, Abdominal emergencies, Snake bite, poisoning, drowning. Severe bleeding etc. are required to be attended to with great promptitude and despatch. If the hospital has an intensive care unit it will be useful for casualty and emergency cases, outdoor cases also.

Emergency Beds.— Every hospital should have at least number of beds as per mentioned in the table reserved for admission of emergency cases, below. In a teaching hospital the number of beds for

emergency purposes may be based on the presumption that 10 per cent of O.P.D. cases may require emergency and intensive care. Even if at a particular moment no bed is available, one of the patients due for discharge on the following day can be shifted to an extra bed and room created for the emergency case. Sometimes patients suffering from infectious diseases attend the casualty department. Where it is possible to refer such cases to an infectious disease hospital, at least some first aid measures are as necessary should be given before the patient is sent to the infectious disease hospital. The casualty medical officer should contact the infectious disease hospital and arrange for the admission of the case. A full record of patient so transferred should be maintained by the casualty medical officer in the casualty register.

Chart of Emergency beds (as per IPHS 2022)

Type of Hospital	SDH 100 beds	DH 50 beds	DH 100 beds	DH 200 beds	DH 300 beds	DH 400 beds	DH 500 beds
Red Zone	3	2	3	5	6	10	10
Yellow Zone	5	2	5	10	12	15	20
Isolation Beds	1	1	1	2	2	4	4
Pediatric Beds	2	2	2	4	6	8	10
Total number of Emergency Beds	11	7	11	21	26	37	44

It may happen that an emergency case brought to the casualty department requiring admission may refuse to avail himself of it on one reason or another. In such cases the refusal of the patient should be taken down in writing on the case paper. The writing should clearly state that admission is refused by the patient, even though advised. The patient's or guardian's signature should be taken below the statement.

The Casualty Medical Officers are personally responsible to ensure that immediate medical attention is given to all cases attending the casualty department. Additional Civil Surgeon/ Medical Superintendent should supervise of casualty work.

First Aid. - The medical officer, nursing and other staff should be well aware of the principles and practice of first aid measures.

5.5 Co-ordination

There should be excellent co-ordination between the casualty centre and all other sections of the hospital, particularly Indoor wards, Operation Theatre, Radiology Department, Pathology Department and the Blood Bank. Internal telephone connections between the Casualty centre and these departments will be very useful.

The Part to be played by Police and Public.:

It is regrettable that the public have not realised adequately the importance of priority that is attached to the treatment of seriously ill Patients whether from disease or accidents. The Police department should also be fully conscious of the urgency of treatment in medico-legal cases which are seriously ill. In this connection, it may be stated that there should be a separate telephone line for the use of Police attached to casualty department, so that messages can be exchanged to and from by the Police from this place. (Establishment of Police Chowki /out post near Casualty department) When a medical officer feels that treatment is urgent, will have to wait for formalities of the police; as precious minutes may make all the difference to the outcome of the treatment for the patient.

Members of the public should be taught first aid measures along with education about the necessity of applying for prompt treatment, in emergency cases. The police should be informed in case of accidents very promptly as the question of treatment has to take precedence over all other matters.

Public Relations.:

The Public should know what services are available in the casualty department. The staff of this department must be very alert and at least one person should be near the entrance so that he could render aid to get the patient in and to convey to the medical officer information about patient's arrival. Sufficient stretchers, stretcher-bearers and wheel-chairs should be available.

5.6 Unusual Emergencies

There are occasions in every hospital where when there is a sudden rush of a large number of patients injured in serious accidents like Railway or S.T. Bus accidents or accidents due to collapse of a part or a whole of building. Earth quakes, floods, mass poisoning, rioting etc. or other such occasions. The usual plan of work will not meet the needs of such emergencies. A separate plan will have to be drawn for the same, which involves the whole or a large part of staff in the hospital. The spheres of responsibilities and duties must be chalked out and so also various steps for efficient inter-departmental co-ordination. The object is to evolve an effective pattern of work to deal with these critical emergencies. The only way to ensure adequate arrangements is to carry out dress rehearsal of the plan, periodically, and meet thereafter to find out the deficiencies and to rectify them. Liaison with the local Civil Defence Department is obviously desirable and feasible.

The specialists who are on emergency duty must be in such a position as to attend within few minutes of a call. Telephone connections with their residence is an elementary facility which should be available. The operation plan therefore should be able to activate itself, within a matter of minutes.

5.7 Disaster Plan

A mass casualty situation arises whenever a rapid influx of large number of critically injured people exceeds the capacity of the receiving facility to provide individualized medical care in the usual way. In order to meet such a situation a disaster plan of the hospital should be available. The disaster plan must be rehearsed periodically to ensure effectiveness when the need arises. While treating the mass casualties, principle of triage should be followed.

There should be a disaster management committee at hospital level.

5.8 Miscellaneous

Records–Casualty Register.:

The records of cases in the casualty sections as well as in the emergency wards are important from the point of view of medico-legal work, hospital statistics and research etc. A careful documentation of the record is therefore necessary. The records will also be useful to assess the requirements of additional staff and expansion of the department in case these are necessary. It is suggested that the records be kept in the

following manner :

There should be a register for casualty cases. This will be in addition to the usual records of the outdoor or the indoor case papers (but Medico-legal cases should be entered in the Medico-legal Register). The register should contain the following columns :-

Date : _____

Name : _____

Age : _____

Sex : _____

Address of the patient and his Guardian/Relative/Friend.

Time when brought to the casualty department.

Time of examination _____

History _____

Findings and

Diagnosis _____

Treatment in brief and the time when given.

Whether patient is discharged after treatment, admitted indoor or referred to another hospital. In the case of latter case particulars should be given.

Signature of the Medical Officer

All cases reporting to casualty irrespective of whether admitted indoor or advised to come to outpatient Department should be entered in the register. Medico-legal cases will be entered in the M.L.C. Register. While mentioning the injuries, the exact situation as referred to fixed bony points, the side right or left, size, and dimensions should be accurately mentioned.

The records on the case papers should be written carefully with reference to history, symptoms, signs and the orders given. Examination in the casualty department is very important in the sense that in acute conditions the signs and symptoms are likely to change from time to time. The signs and symptoms as they were at the time of the first examination will offer a valuable clue in cases where immediate diagnosis is in doubt and where patients require observation and constant watch before a diagnosis can be arrived at.

The medical officer should note down on the case paper the time of his examination and should put down his initials beneath the findings and prescription

Records:**To be kept in Casualty are as follows:**

- I. Patient's attendance record (Name, Age, Sex, complete postal address, time of attendance etc.).
- II. Observation and follow-up record.
- III. Referral record within and outside hospital.
- IV. Treatment record.
- V. M.L.C. record with all the diagnostic and investigation results.
- VI. Attendance Register of all cadres of staff.
- VII. Duty roster of DMOs, Specialists and paramedical staff etc.
- VIII. Daily record of administrative problems and their management.
- IX. Brought dead & dead body (For P.M.) register

Medico-legal Cases. :

The Casualty centre is an important department of the hospital dealing with medico-legal cases. In bigger hospitals there is a Policeman on duty who takes cognizance of medico-legal cases on the spot. In smaller hospitals intimations will have to be given to the police if there is no Police Yadi/Diary. All cases of accident, cases of suspicious nature, poisoning, drowning, burns, tetanus etc. should be reported to the Police as they might have a medico-legal angle.

Medico-legal forms must be completed then and there and a copy handed over to the police accompanying or sent to the police in a Dak-book at the earliest. Information should be given to Police in respect of medico-legal cases and death from medico-legal causes with a view to do postmortem examination. There are occasions when a hospital will receive persons who are already dead or who die shortly after being brought. In such cases also the Police will have to be informed since a complete diagnosis cannot be made. The arrangements to dispose a dead body should aim at reducing the time required before the dead body is handed over to the relatives.

Ambulance Service.:

A good Ambulance service is an essential requisite for a successful organization of any Casualty Department. The ambulance should be equipped to deal with-

- a) First Aid Measures.
- b) Resuscitation.
- c) Care of the patient on the way to the hospital. If possible there should be trained doctors and nurses available in the ambulance.

Arrangements to administrate Oxygen and give I.V. fluids and greatly to quality of ambulance service. Lifesaving operations like tracheostomy should be possible in a well equipped ambulance. If possible there should be two-way radio communication between the casualty center and ambulance car.

Ambulance will be required not only for transporting patients from the site of emergency to the hospital but also to shift him to any other hospital if necessary.



Casualty Centers must have good liaison with Fire Brigade service and Police Department. If so, the public can contact either of these two who can in turn direct the patients to the hospital and may also help by way of transport. The help of these two agencies is required in addition to identify persons, to trace the relatives and inform them, when this becomes necessary.

Follow-up. :

It may be necessary for a casualty medical officer to follow-up a particular line of treatment which he has initiated in the casualty centre, in the ward till the medical officer incharge of the ward arrives.

List of References

1. Hospital administration manual, 1976
2. Indian Public health standards, Ministry of Health and Family Welfare, Government of India 2022

CHAPTER VI

INDOOR WARDS

6.1 General

Bed Distribution

Different hospitals have various bed strength. The beds are divided into Surgical, Medical, Maternity etc. Given below is an indicative requirement of general in-patient beds in a district hospital. However, the requirement of beds indicated here is only suggestive. The administration and RKS of the district hospital should take the final call on the exact distribution of beds per speciality based on the district's local epidemiology and burden of disease, resources available, time to care approach, community requirements, and the health-seeking behaviour of the population. Ideally, all the wards should be situated in close proximity to each other and away from congested places. Linkages should be established with OT, critical care, LDR complex, Emergency and OPD.

Service Area	Sub District Hospital	District Hospital					
	100 beds	50 beds	100 beds	200 beds	300 beds	400 beds	500 beds
Surgery Medicine OBGY, Peds, Ortho, Eye, Geriatric/Palliative, Mental	55	33	35	90	150	210	300
Isolation				8	8	10	10
Prisoner Ward/Beds				4	5	5	5
Burn Ward/Beds	6 (Desirable)	3	6	6	6	10	10
Private Ward/Beds	5	-	5	5	16	20	20
Day care Beds	4	4	6	8	10	10	15

For larger facilities, a typical ward would accommodate about 30 patients, although flexibility will be needed to factor in local requirements while determining ward size. The beds should be placed either on one side or both sides of a nursing station ensuring good visibility and ventilation. Wherever possible, segregation of beds based on gender to maintain dignity and ensure privacy (with access to separate toilets and bathing spaces) should be ensured. Toilets should be conveniently located. Security arrangements should be adequate and appropriate, for example, female security guards for female and maternity wards.

Every ward should have a procedure room, a small store that can accommodate supplies of drugs and linen for five to seven days, a pantry and a janitors/housekeeping room. A changing room will help ensure the privacy and dignity of patients. All beds in the ward should have a wall fitted cupboard for the patient's belongings. Call bells with switches for all beds should be provided in all types of wards with indicator lights and with the location indicator situated in the nurse's duty room.

In every ward, one-third of the beds should be demarcated with a separate port for oxygen, suction and air so that patients can be provided emergency or short-term support.

Apart from general wards, certain beds for patients should be demarcated for isolation. The number will depend on the total number of beds in the district hospital. The table depicting the number of isolation beds is given above. The isolation rooms should be separated from general wards, have negative air pressure and at least 6 air changes per hour. Only essential personnel should enter such rooms with standard infection control precautions. These include basic hand hygiene, use of PPE, respiratory etiquette, and environmental disinfection. Dedicated or disposable equipment should be used. If equipment is to be used for more than one patient, it should be cleaned and disinfected before use on another patient.

Any patient who requires observation for a few hours after undergoing certain clinical procedures may require to be admitted temporarily to day care beds. Procedures like PHACO, chemotherapy, IV iron sucrose administration, etc. may require admission in day-care rooms.

A system of visitor passes may be used in busy areas such as emergency and critical care areas to control the flow of hospital traffic. Visiting hours forwards/indoors and critical care areas should be clearly displayed and adhered to.

Steps to be taken on Admission:

Since Government hospitals are always overcrowded, it is necessary to select cases for admission very carefully laid down below. Only such cases should be admitted which can be tackled properly in the hospital. As soon as the case is admitted in the wards, the patient is given hospital clothing, a face towel, and a tumbler etc. As far as possible, the patient should be asked to take a bath or given bath before putting on the hospital clothes. Steps must be taken by the nursing staff to notify to the doctor of the Unit about the admission of the patient, indicating his condition.

The patient should be explained the routine of hospital working, the arrangements for food, the timings for visitors and the time table of medical care. Ambulant patients should be shown the Sanitary Annexure and informed about how to use them. Any other instructions if ordered like not eating particular article or not getting down from the bed etc. should also be explained.

If any immediate operation is to be done or the condition of the patient is serious this should be explained to the patient in such a way as not give rise to due anxiety. Admissions in special hospitals should be only for those patients which are referred to them. (Mental hospitals, Tuberculosis Hospitals etc.) In general, the feasibility of advanced reservation of beds especially for those coming from a distance should be explored. It may be possible to do in a certain number of cases.

Procedure to be initiated on admission should be recorded on the O.P.D case paper, which can then be started without any delay.

If possible, the patients should be admitted in the ward when a medical officer is present for the support. This will prevent the patient being seen only after appreciable interval on admission and create a pleasing psychological impact the patient at the start.

The following criteria are considered useful for admission of patients

- 1) Any acute illness requiring constant medical and nursing supervision.
- 2) When patient requires specialized procedures for treatment (operations). It should be possible by proper planning to carry out the procedure within 24 hours after admission barring exceptional cases.
- 3) Patients requiring special investigations which can be done only an indoor patient. The same should be planned and started within 48 hour after admission. The patient can be admitted for this

- purpose on any day of the week and not simply on the Unit's admission day.
- 4) In teaching hospitals, some patients may require admission from the point of view of teaching to students.

It is of great importance to write proper history on case paper so that diagnosis can also be done by exclusion in few cases. Staff Nurse should attach all the previous investigation records to the case paper. A complete history and thorough examination is the essential to for the correct diagnosis and treatment.

Measures to Avoid Overcrowding in Hospitals

All Government hospitals are overcrowded both in the outdoor and indoor sections. There are no infirmaries which take care of chronic or incurable cases not requiring any active treatment. Quite a large number of patients are required to be admitted simply for investigations which could be done on an outpatient basis. The cases may be new as for example suspected peptic ulcer and abdominal pain etc. or old cases, for example a case of T.B. spine, requiring renewal of plaster cast after doing X-ray examination and blood examination. The chief difficulty is that there is no place where the patients can stay in the intervening period. Dharmashalas having adequate space or hospital inns if available will help. Investigations should be well planned in advance in respect of patients admitted only for this purpose, so that once admitted, they are not required to wait needlessly. Similarly operative procedures should be pre planned before admission of the patient.

The hospital should refer as many patients as possible to peripheral institutions like Primary Health Centers and Dispensaries to pursue simple treatment. The investigations of a patient should be completed in as short a time as possible. For this purpose, it is necessary to have staff on call even during the night and on holidays in investigation departments. Operations once fixed should not be postponed for the convenience of the persons other than the patient. Co-ordination of operation work with the departments of Anesthesia, Pathology, Radiology and Blood Bank is necessary. Adequate grants for X-ray films etc. will help to reduce overcrowding as in some cases the patients have to be kept waiting to await their turn for X-ray examination.

Medical Officers have been given instructions repeatedly not to admit inappropriately large number of cases. The admissions should be limited to the sanctioned bed strength and at the most an absolute minimum of additional 10 per cent cases may be admitted if necessary due to emergency. Heads of the institutions are also required to submit to the Office of Director of Health Services a monthly return in the prescribed proforma, stating the position of indoor patients as on the last day of every month. This should reach the office of the Director of Health Services by the 10th of the following month.

Medical Officers who examine cases in outdoor department or casualty department should screen adequately before recommending admission to the indoor wards.

Admissions from the outpatient department should be based on availability of vacant beds in the ward. A daily list of vacant beds in the wards should be available on the admission table.

Establishment of physiotherapy and occupational therapy departments will help earlier discharge of patients, in several cases which will help to reduce overcrowding.

It may happen that a patient requires to be given guidance and opinion by more than one department of the hospital at the time of discharge. If there is no proper co-ordination between these departments the patient is required to be detained unnecessarily thus increasing overcrowding.

A waiting list should be prepared of cases which do not require immediate admission, and this waiting list should be reviewed daily and patients whose turn is due for admission can then be informed. This will lead to planned admission and less overcrowding. The Medical Officer in charge of Hospital should institute a system of accountability of beds which are occupied. For this purpose, he will have to obtain reports from

different wards such as bed occupancy ratio, bed turn over index, average length of stay, and such other indices which can help to decide if the beds are being properly utilized.

Since overcrowding in hospitals leads to lowering in the quality of medical care and encourages cross infections, all measures possible should be taken to avoid overcrowding. The fundamental principle would be to avoid delay at each stage from the time the patient is admitted to the time the patient is discharged. Advance intimation about discharge to patients already referred to is a useful measure.

Staff members must be made aware of daily expenditure per patient per day, i.e. they must be made cost conscious.

The observation ward (emergency ward) should be utilized to the maximum. This can filter quite a good number of patients.

Better Utilization of Beds

It has been found on study that beds are utilized in a better way if they are combined into use by pool system in different wards. The same result can be achieved by pooling units of different doctors, say of 10 beds each in the same ward. If beds are allotted rigidly to individual doctors, it may happen that those beds are underutilized or over utilized. Thus

Dr. A having 10 beds may not have any vacant beds among the beds allotted to him but there may be 4 vacant beds of Dr. B' available on that day. If the system of allotment is to be observed rigidly these 4 patients of Dr. A will have to be put as extras in his unit, though 4 cots may be vacant in the other unit. If, however the beds are pooled, the vacant beds of Dr. B can be used by Dr. A. For this purpose, the unit doctors will have to agree on giving a trial to the system of pooling the beds.

In order to achieve a quick turnover a patient must not be allowed to stay in the hospital more than necessary, and it is for this reason that advance intimation of discharge to a patient will be very useful.

Hospital Fees

The first essential requirement for proper calculation of hospital fees is recording of correct family income of the patient on the case paper. The C.A.O. and A.O. should ascertain from the patients in at least 5 per cent of the new cases whether the income entered by the admitting clerk is correct or not. In case of discrepancy the necessary change should be made, attesting the correction.

There is often no proper check on the collection of O.P.D. fees. Check should therefore be conducted by the staff members referred to above, for at least one day in each week, i.e. at least 4 times in a month to be decided by the medical officer in charge of the hospital when all case papers issued during that day would be collected and checked with entries in the register in which O.P.D. collections are entered. Fee collections are required to be scrutinized by the concerned authority.

As per state policy all patients should receive free diagnostics, free medicine and free diet for all admitted patients. And according to NHM, JSSK guidelines all pregnant women till 42 days of delivery and children up to one year of age should receive all services including OPD fee, referral transport services free of cost.

Call Books

Every ward should maintain a "call book" The call book is an important register for ensuring timely attention in emergency cases.

The implication of sending a Call' is that the attention of the Medical Officer is required immediately.

The call book should be a regular bound book with pages serially numbered and certified at the end to the effect that the book contains so many pages. It should be preserved as a valuable document and be kept in

lock and key when it is not in actual use.

Whenever a member of the nursing staff desires to call a medical officer on account of any emergency, the call should be written in this book putting the date and time at which call is sent. The call should contain a brief description of the condition of the patient and the reason why it is sent. The temperature, pulse, and respiration should be invariably mentioned. In case the sister or the nurse feels that it is absolutely necessary that the medical officer should himself come and attend on the case the following words should be written: -"Please Call"

In other cases, the words "Please Call or Advice" may be written. In the latter case, it is entirely the responsibility of the Medical Officer concerned to either visit the patient in person or to write the necessary orders without seeing the patient. The call book accompanied by the case paper should be sent with a ward boy to the Medical Officer concerned. The medical officer should sign below the call-in token of having received it immediately on receipt of the call book and should carefully put the date and the time of receiving the call. That should be done invariably. Any instructions as result of the call should be written on the case paper recording the date and the time and they should be initiated. An entry should also be made in the call book saying that the necessary instructions have been given on the case paper. In case the Medical Officer attends the case as a result of the call the sister in charge should, in addition, enter the time of the actual visit of the medical officer in the call-book and the medical officer should also note the time of his actual visit on the case paper.

If due to certain reasons, the Medical Officer concerned is not available the sister should not wait but should send a call to the higher medical offer immediately and so on until she gets a response.

In case of grave emergencies, Telecommunication should be used for sending the call message rather than the call book.

The call may conveniently be written in the following form:-

Date _____

Time _____

Number of ward _____

Name of Patient. _____

Name and designation of the person sending the call. Name of the Medical Officer to whom the call is sent. Reason for sending the call and condition of the patient. T.P.R. of the Patient. Signature of the person sending the call Signature of the Medical Officer to whom the call is sent.

Date _____

Time _____

Notes or instructions by the Medical Officer.

Ensuring Silence in the Wards

Noise, hustle and bustle are a source of great discomfort to a patient. Movements of staff members and transportation of dressing trolleys as well as food wagons etc. should be made with due care, keeping always in mind that the comfort of patients demands maximum silence possible. A common disturbance is arrival of new patients, especially serious cases. If the suggestion of having an observation ward attached to the Casualty Room is accepted, the number of cases coming straightway to the ward especially during the night time, will be reduced. Discharged patients are also a source of disturbance to other patients. It is possible to give some thought to all these matters and reduce the disturbance caused to the other patients in the ward to the barest minimum. It is advisable to have a separate cubicle in each ward with glass window

containing two to six beds depending upon the size of the Ward where serious patients can be treated. This section should be nearest to the nurse's duty room. An hour after day meal and after 9-00 p.m. no work causing noise should be undertaken if it could be postponed. Thus, sweeping, washing of ward, shifting of cots or furniture should be avoided.

Patients are woken up by Hospitals at a set hour. While this practice is good, due care should be taken that the hour is not set too early and condition of patient be taken into account. A Patient who has fallen asleep after a hypnotic in early hours of the morning should not be woken up unless he has had a fairly long rest.

The death of a patient causes considerable disturbance and psychological trauma to the other patients in the ward. Such patients should be isolated by screens to minimize the disturbance in the ward.

Where there are no arrangements to isolate serious cases in a separate a corner of the ward should be reserved for admission and treatment of such cases, and in case of death, the cot should be completely isolated by curtains. The relatives and friends of the patient should be persuaded not to create any cubicle disturbance in the ward itself. The preparations for obsequies should not be done near the ward in sight of the other patients in the ward.

Smooth, efficient and orderly movements should be ensured with proper organization in respect of patients sent to the operation theatre, X-Ray room and Laboratory etc. and also in respect of patients received back from these various sections. Shouting across the ward, and chatting and persons are to be strictly avoided. The relatives are to be admitted in the wards only during the fixed hours. This will have to be ensured by tact and firmness loitering by

Certain patients arrange for their own diet from their homes and in order to prevent any misunderstanding, passes should be issued by the Medical Officer in charge of the hospital or the ACS so that the concerned persons can bring the diet at various fixed intervals. Similarly, it is necessary that in respect of certain serious patients the relatives should be allowed to be present all the time during day and night. In such cases also passes should be issued. For bringing the diet the pass should not be for more than one person while for attending on the serious cases passes may be issued for two persons at a time. The pass should be marked Diet Pass or Attendant Pass.

As per state guidelines, all state public health hospital are following no prescription policy for providing services to the patients so the patients are not prescribed medicine from outside

Reading Material for Patients

The reading material will have to be provided:

- a) For ambulant patients
- b) For bed-ridden patients

As far as the ambulant patients are concerned, it is convenient, if there is one common reading room where they can read. If, however, the distance is excessive, arrangements for ambulant patients will have to be made in the wards themselves. For this purpose, a day room should be provided. Separate arrangements will have to be made for bed-ridden patients by giving some reading material to the respective sisters in charge of the ward. The reading material should consist of newspapers other periodicals, and books. This opportunity can be profitably utilized for health education. Collections of such periodicals and books could be made by approaching social organizations who can supply old books and magazines. Attempts should be made to get books in regional languages. The Civil Medical Code refers to Government orders regarding supply of reading and occupational therapy material to patients wide para. 15.126.

Amenities for Entertainment

Creation of pleasant psychological atmosphere would go a long way in inducting early recovery of patients. A common room for ambulant patients providing ordinary indoor games, newspapers and books

would be a good addition to any hospital. Radios, TV, LED should be installed in the wards and there would be no dearth of donations for such items. Chronic ambulant patients will only be too glad to learn minor bits of hospital work. Larger hospitals will have separate rehabilitation and Occupational Therapy sections where handicrafts can be taught to patients. It is possible to arrange film shows for the benefit of the patients, with the help of staff of the Health Department. Talks can be arranged for the benefit of patients.

Visits by Social Workers

It is desirable to organize visits of Social Workers to patients in Mental, T.B., and other Hospitals, with a view to cheer them up especially those who have no visitors. Superintendents of the Hospitals and Civil Surgeons can appoint social workers in their respective areas as honorary visitors to the hospitals. Suitable persons for this work should be selected in consultation with the Collector of the district from an organization like Red Cross-Society, Rotary Club, Lions Club etc. Such persons should not be members of the Visiting Committees of the hospitals. RKS committee members of the hospital should take the review.

The following will be the functions of the Social Workers: –

- 1) To collect and distribute medicines and books to patients.
- 2) To collect and distribute pictures, books and toys for children in the hospital.
- 3) To arrange periodically, concerts and film shows provided there is no disturbance to the patients.
- 4) To collect and distribute fruits to the patients on festival days
- 5) To teach patients crafts like knitting, painting etc.
- 6) To write letters for patients or to contact to their friends and relatives when necessary.
- 7) To do any other work likely to bring comfort or cheerfulness to the patients.

Workers may function jointly or individually. Such appointments should be communicated to Government.

Road-side Cases and Beggars

According to the rules such cases have to be admitted when brought to the hospital by the Police. They cannot be refused admission unless the medical officer puts down in writing the cause of refusal, or unless he refers the case to an infectious disease hospital nearby with a written note. The patients are afflicted with various chronic diseases in advanced stage and their mental condition is also often grossly degenerated. Their habits are extremely dirty and it is practically impossible to make them get rid of their dirty habit. Such patients are often kept on the varandah but they continue to cause a great nuisance to all the other patients on account of the insanitary conditions and stench which they create. It is, therefore, preferable to have a small cell, for such cases, with separate arrangements to admit male and female cases.

Burns Cases

In addition to the fact that these cases require intense concentrated attention, their dressing is a major event. They require adequate protection from dust, wind and flies. Their nursing is very difficult. In spite of precautions these cases start emitting a peculiar type of smell which is very obnoxious to the other patients. The sight of these cases also is rather terrifying to other patients. Such persons should be constantly under a mosquito curtain well tucked in. For all these reasons, it is advisable to have special burns units or special rooms for cases in the male and female surgical wards.

Burn Ward

Burn unit in a district hospital should preferably be located in quiet environment, free from noise and other disturbances, contamination, and possible cross-infection. It should have the following number of beds:

Types of Hospital	SDH 50 beds	SDH 100 beds	DH 100 beds	DH 200 beds	DH 300 beds	DH 400 beds	DH 500 beds
Number of Beds	3(D)	6(D)	6(E)	6(E)	6(E)	10(E)	10(E)

* D-Desirable, E-Essential

A 3 bedded unit would have 2 beds in ward and one bed earmarked for acute care, six-bedded unit consists of 4 beds in a ward and 2 beds earmarked for acute care and 10 bedded units 4 should be marked for acute care. A sub-waiting area with client-friendly amenities should be made available. In order to prevent Infection, zoning protocols should be adhered to. Provisions for body wash/shower facilities, rehabilitation, and dressing, air conditioning with regular air exchange should be ensured.

6.2 Infrastructure

Design of a Ward.

The ward should be designed in such a way that it is comfortable to the patient and convenient for medical and nursing staff, especially for the latter. This objective must be achieved in an economical manner. The needs of visitors should also be kept in mind.

The design can be considered by way of following components:

1) Primary Accommodation. -According to the report by the Committee on Plan Projects, Government of India, New Delhi, May 1964 and notification by Public Health Department (MNHR Amendment 2021) the following is necessary:

- a) The minimum Distance between bed centers 6 feet.
- b) Clearance between wall and bed head of the cot.... 1 feet
- c) Clearance between wall and side of cot in respect of the cot closer to the wall-2 ft.
- d) Aisle between two rows of cots-5 ft.
- e) Width of the ward should be 20 ft.
- f) The area per bed within the ward 70 sq. ft. In case of post-operative ward 80 to 90 sq. ft.
- g) Length of bed is 6'-6" and width 3'-3". Its base is formed of hoop iron mesh reverted to frames. This ensures ventilation, comfort and economy.
- h) The mattress should be at least 4 inches thick.
- i) Provision of built-in-lockers to save space and achieve economy.

Structural Arrangement :A modification of the pavilion type of ward is a long hall divided into compartments by partition of masonry or wood up to a height of about 3'-6" and translucent material for an additional height of 2 ft. The main ward should conveniently be of 20/30 beds or more. The patients should be put in two to four rows.

Veranda is in advisable as it causes overcrowding. Sun breakers are recommended for comfort of patients. The tendency in modern times is to have larger wards with 45 to 60 or even 80 beds instead of wards with 30 beds. This is to overcome the difficulties created by shortage of nursing personnel.

A ward also should include single, double and four bedded units. Though ideal is to have four bedded units it should not exceed six bedded units. The following are the carpet areas for beds in a ward as suggested by the Senior Architect, D.G.H.S., New Delhi

Single bed unit	Minimum 120 Sq. ft.
Double bedded unit	140 to 160 Sq... ft.
Three bedded unit	210 to240 Sq. ft.
Four bedded unit	240 to 280 Sq. ft.
Six bedded unit	380 to 400 Sq. ft.

When we have to build the above mentioned apartments in a ward, flexibility is always desirable in view of future expansion. To achieve this all-single room should be sufficiently large, appropriately wide and mechanically equipped to accommodate two beds. Similarly, four bedded rooms should be proportioned to allow for future conversion to two bedded units. The ward should be so compact that no room is more than 90 feet from a nurses station (Ninety-foot-rule).

Ancillary Accommodation.

- a) Nursing Station. This should be so located as to command a view of the entire ward. It should be enclosed with glass on three sides. The size should be 100 to 120 Sq. ft. The room should have a cupboard to hold clean material, a drug cupboard, sink, chair, small table, telephone and call system points and records.
- b) Nurses Lavatory and Cloak Room. -60 Sq. Ft. This may be shared between two wards.
- c) Clean Utility Room. -For sterilization and packing of dressings. Size 100 to 120 Sq. Ft.
- d) Treatment Room-120 Sq. Ft. For treatment of patients who are to be protected from cross infection, for dressing, examination etc. (c) and (d) above should be contiguous and may be common to more than one ward. The functions to be carried out in a clean utility room can be carried out in the treatment room.
- e) Pantry. For collection and distribution of food and preparation of Beverages 100 to 120 Sq. Ft. This should be equipped with hot water boiler, refrigerator, gas or electric shegris, and facility for storing cups, plates, cutlery etc.
- f) Day Room. -180 Sq. Ft. This is to meet the social needs of ambulatory patients. This should have chairs, book shelves, radio, in-door games etc. Ambulatory patients can take their meals here.
- g) Stores and Linen Room. -About 80 Sq. Ft. These should have access for easy cleaning.

Sanitary Accommodation.

- a) Dirty utility room. -100-120 Sq. Ft. for washing bed-pans, urine pots, sputum mugs, disposing of soiled dressings etc.

Electrical Installations. –

Electricity Control Boards should be near the nurse's duty room. The lighting should be safe for patients and staff. The intensity of light in general ward should be 3 lumens per sq. ft. and in a treatment room 20 lumens per sq. ft. at working level.

Each bed should have a bell push for calling a nurse.

Electric power supply

Public health facilities should have access to adequate, affordable, and reliable electricity supply. Distribution of electric load along with the load balancing to various equipment and installations in a facility is very important since overloading at any point can result in a mishappening like an electric fire hazard or can even damage the equipment. Similarly, fluctuation in voltage also adversely affects the equipment. That's why it becomes important to provide automatic voltage regulators which regulate fluctuating input power voltage and maintain constant output voltage. Placing electrical installation is a specialized job and must be given due importance to ensure proper care with reduced risks to the patient.

Adequate number of electric points on the various walls (at < 1.5 m height from the floor) needs to be ensured for easy connection. The use of explosion-proof plugs, plug connectors, and the socket are essential to ensure safety against explosion.

New electrical appliances should have a minimum of a 3-star rating from the Bureau of Energy Efficiency or equivalent recognized organization to minimize the energy consumption.

Monitoring: Constant digital display for neutral and earthing should be there. (The voltage between neutral and earthing should not be more than 5 volts otherwise it can harm the semiconductor devices. Hence digital display should be installed to monitor the voltage between neutral and earthing).

Regular electrical audit shall be done by PWD (Electrical wing)

Toilet Arrangements and General Cleanliness:

Priority should be given to adequate water supply for sanitation. As already referred to water requirements of a hospital should be on the basis of 450-500 liters per patient per day, and the water should be available in all the sections for 24 hours. The following are quite essential for adequate sanitation:-

- 1) Adequate number of bath rooms, Urinals, Latrines, in each ward as per IPHS norms
- 2) Dirty utility room for washing soiled linen, urine pots, and bed pans.
- 3) Arrangement and space for drying clothes.
- 4) Sufficient number of wash basins conveniently located in the ward.
- 5) Adequate drainage arrangements, ambulant patients must be taught how to use toilet especially the backward and dirty patients. Printed instructions in simple language can be given to them. They are useful to patients from Labour Ward who block pipes by throwing pads in the W.Cs.

The medical officer and sister incharge of the ward must supervise arrangements for adequate cleanliness. Outsiders must not be allowed to use the ward toilets as happens at some places.

Bed-ridden patients have to be provided with toilet facilities on the bed. Adequate help from ward boys and sweepers must be ensured. There should be either sufficient number of folding screens or an arrangement for movable curtains for these patients. Such curtains can be attached to wires which go across the length and breadth of the ward, It will then be possible to isolate the patient temporarily.

It is often seen that bed-pans and urine pots are kept below the patient's cot. This should not be allowed. The needs of the patient have to be met as they arise. Mackintosh pieces of adequate dimensions should be available for use of bed-ridden patients when they use bed pans or urine pots on their beds.

Water Supply:

The arrangement should be made for round the clock piped water supply along with an overhead water storage tank with a provision to store at least three days of water requirement. Water supply preferably through two independent sources must be ensured. A separate water tank for critical care areas should be made available. It should have pumped and boosting arrangements. Approximately 450 to 500 liters of water per bed (including day care, emergency, dialysis and LDR beds) per day is required for a district hospital. Separate provision for firefighting and water softening plants is to be made available. Cleaning of all water tanks should be ensured on a regular basis (at an interval of a maximum of three months) and records should be maintained accordingly.

In view of the critical shortage of water, conservation of water by rain water harvesting and by use of recycled water to the maximum extent possible is required. Hospitals must encourage the use of a safe clean rainwater harvesting system to help reduce the municipal water demand and enhance the ground water table. Fitment requirements for water supply in various areas are given in the table below.

Bottles connected with in Desellias catheters or nasogastric tubes or containers in which aspirations from such tubes are collected should be periodically renewed in time. They should be fixed in a place so is not to interfere with other work, and should be periodically inspected for their proper functioning.

The pediatric wards should have small sized latrines for children. They should be in a row and without doors but with walls on 3 sides. The whole section should be enclosed by walls on all sides leaving an entrance and exit.

Table: Fitment requirements for water supply (IPHS 2022)

Sr. No	Fitments	Hospital IPD
1	Water Closed	One for every 6 beds
2	Wash Basins	Two for up to 24 persons, add one for every additional 24 beds
3	Baths with Shower	One bath with shower for every 6 beds
4	Bed pan washing sinks	One for each six beds in a ward
5	Cleaners sinks	One for each ward
6	Kitchen sinks and Dish washers	One per ward
7	Urinals	One per 20 persons

Many patients have wounds which require frequent dressings. The oozing from such wounds spoils the mattresses, bed-sheets and the patient's clothing if the area beneath the wounds is not protected by rubber sheets. In serious ill patients there is often a free flow of saliva and spoiling of clothes on account of incontinence. Wherever, therefore, such secretions or oozing are likely to spoil bed linen and patient's clothing adequate protection should be given with the help of mackintosh pieces covered with draw-sheets. The bed linen and patient's clothes must be changed daily and as often as necessary whenever they are soiled.

Sponging should be carried out for non-ambulant patients, satisfactorily ambulant patients must be given sufficient hot water for bath. The electric heaters/Geysers/Solar heaters should be used for hot water supply. The hair, beard and the nails of patients must be periodically seen and attended to.

The idea of cleanliness must be inculcated in the minds of staff as well as patients, repeatedly. Boards should be put up everywhere saying "This is your own hospital. Help us to keep it clean".

The staff should not throw swabs, bandages and soiled dressings as well as soiled linen on the floor. Such waste should be collected in closed containers having lids. In attentions to this, will encourage breeding of flies. Sufficient number of dustbins or buckets should be provided as per BMW rules 2016.

The weekly grill of washing of wards and cleaning the walls, windows, doors, brass and electric fittings and all articles of furniture should be rigorously carried out. In addition the floor of the wards should be cleaned with a moist piece of cloth dipped in some antiseptic lotion at least twice a day.

There are several articles of furniture in the ward which gather rust. They must be frequently painted, otherwise they create a very undesirable sight.

As a rule patients should not be put on the floor. The turning over of mattresses and the "Satranji" underneath must be a regular routine. If mattresses are used without any Satranji, the rust of the cots affects the mattresses, clothing etc., and gives rise to tears and holes. Mattresses for extra patients should also have Satranji put below them, as a rule.

If the patients are not given pillows, they use their own dirty clothes or dirty turbans, etc. as a pillow. Sometimes, when the patients are put on the floor, it is customary to roll a part of the mattress and use it as a sort of a pillow. This shortens the length of the mattress and makes the patient uncomfortable. Each bed should have, at least, two pillows. The mattress and pillows should be protected with covers and they should never be allowed to be soiled by discharges. Patients and their relatives should not be allowed to keep their dirty clothes and other belonging below the cots.

Rubber sheets and buckets should be used while giving I.V. injections, fluids transfusions etc. to receive swabs, and fluids. Similar arrangements should be made during removal of plaster cast.

Patients and their friends and relatives should be taught to throw waste articles, like fruit peelings, etc., in dustbins provided for the purpose. These dustbins should either have lids operated by foot-lever or should have lids which can be lifted by a holder. If the dust bins are open, they will give rise to filthy smell and breeding of flies. If the lids are ordinary, everybody is reluctant to touch and lift them and so the tendency is to throw the garbage outside.

Every bed-ridden patient should be given a food table to avoid soiling the bed. Ambulant patients should preferably visit dining hall which should be provided in every ward.

Drinking water is either provided by taps or through water coolers. Water cooler should be cleaned periodically and maintain cleaning record of it and water sample should be sent monthly to Public Health Laboratory. Medicine bottles in the ward should not be allowed to be kept open without corks, as dim and insects may get inside.

Walls, crevices and cots should be sprayed periodically with a standard insecticide in order to prevent bug nuisance. The cots etc. should be treated with blow lamps every now and then. Nawar cots should be completely discarded. Similarly, tom mattresses and pillows should not be used as the crevices in such articles provided a good hiding place for bugs.

Anti-fly measures should be instituted in the wards, and hospital compound with the help of District Health Officer. It is necessary to draw attention to the following points as regards the sanitary blocks:

- i) The Bushes should work properly, and pans and basins and flush tanks must be repaired as required.
- ii) Fittings should not be missing;
- iii) The drains should not be choked either on account of waste dressings. and cotton for which the patients are responsible or on account of insufficient water supply
- iv) White washing and repairs to the plastering should be attended to.
- v) The lower half of the walls in sanitary block are not capable of being kept clean if they have no oil paint or special tiles.
- vi) Use of the sanitary block by persons other than the patients, should be prevented.
- vii) The floor of the sanitary block and the walls around should not be allowed to be used for committing nuisance by people as they gather thick ammonia deposits. These have to be removed by acids;
- viii) The bedpans and urinals should be kept on hangers in cupboards surrounded by wire meshing;
- ix) The electric fittings in the sanitary blocks should not be out of order; the bulbs are often either missing or fused out;
- x) The drainage system for the entire hospital should be adequate; (xi) The surroundings of the sanitary blocks are littered with articles of waste food, peelings, of fruits, discarded plaster casts, dirty dressings, scraps of paper etc. This should be prevented by providing sufficient dustbins where all these articles could be thrown.

Drainage and Sanitation

The construction and maintenance of drainage and sanitation system for wastewater, surface water, sub-soil water and sewerage shall be in accordance with the prescribed standards.

A separate drainage system for effluents being generated from various service areas to Effluent Treatment Plant (ETP) needs to be in place, so that all effluents are treated before discharge. Provision for an Effluent Treatment Plant (ETP) based on the estimated effluent load (and separate from the treatment of sewage) should also be provided at the district hospital and larger public health facilities.

As per Bio Medical Waste Management Rules (BMW) rules, it is mandatory to establish a Sewage Treatment Plant at a health facility with more than 10 beds. Faecal Sludge Treatment Plant (FSTP) by Decentralized Wastewater Treatment System (DEWATS) method is a greener and climate-resilient alternative that is suggested so that the treated wastewater is also re-utilized for gardening and landscaping while the wastewater is completely treated and even the sludge, after drying is utilized as manure.

Unless the attention of the staff, the patients and the visitors is constantly and pointedly drawn to the various simple measures required for ensuring cleanliness it is very difficult to maintain any reasonable degree of sanitation and hygiene. It is only by persistent efforts that some improvement can be expected in the hospitals in this regard.

Cleaning Schedule (Daily and Weekly Schedule) as per letter from DHS Maharashtra.

In every ward and corridor, the cleaning schedule should be painted on the wall as per the state guidelines and the activity should be carried out accordingly. (For Hospital Cleaning Time Table please refer Annexure 6.1)

Night Lamps

Night lamps and hand lamps should be provided in all wards. For this, there should be a number of permanent electric points to which Zero candle power bulbs can be fixed during the night. At the same time, in order to enable the medical and nursing staff to attend to the patients as and when required, there should be a sufficient number of hand lamps. A few reading lamps may be provided near some beds in each ward.

6.3 Equipments

Ward Equipment and Supplies

The ward should be provided with adequate equipment for carrying out procedures like P.V. and P.R. examinations. It goes without saying that the ward must be equipped with sufficient implements for sterilization, dressing and minor operations.

As regards minor operations there are occasions when such procedures are required to be carried out in the ward itself. They should be done with adequate sedation or local Anesthesia. The patients requiring such minor operations should be isolated from other patients, during the procedures. (Thoracentesis, Paracentesis, Suturing etc.) The ideal is to carry out such operations in the treatment room attached to the ward.

A case once occurred in a hospital where a medical officer was trying aspiration of the liver. This minor operation was being conducted in the ward. The patient was suffering from high fever, delirious and was not properly sedated. Whether due to this or whether due to faulty local anesthetic infiltration, the needle being used for local anesthesia broke during the process of injecting. After this, for a while the cut end of the needle was seen protruding from the skin and should have been held and extracted. The medical officer however, to his dismay, found that there was no artery forceps to catch the needle with and he found the needle disappearing inside the chest bit by bit with each respiratory movement.

He could hardly do anything immediately. He therefore instructed the sister to bring a forceps to catch the needle. Since the forceps was not available in the ward, the sister had to run to the operation theatre to bring the same. By the time the sister returned, the needle had disappeared in the chest cavity and could no longer be seen. The patient was X-rayed and it was found that the needle was present in a dangerous area and was likely perforate vital structures. Therefore, the patient had to be taken to the operation theatre for extraction of the needle. Sometimes, after the operation the patient died. Apart from the reasons for the death, this incident will impress upon all the necessity of adequate precautions while doing minor

operations in the wards and to ensure that sufficient material and equipment is at hand to meet all eventualities, before undertaking any procedure.

Necessary equipment to meet with emergencies and minor procedures in the wards should be kept ready in separate trays with appropriate labels. For example, there should be a tray for veinesection and another for lumbar puncture. There should be sufficient number of oxygen cylinders. The oxygen cylinder should be labeled "Full" when not used or "In Use". It is necessary the oxygen cylinders have the accessories like the flow meter and pressure gauge. The administration of oxygen cannot be done in a mechanical way. It is customary to administer oxygen at so many liters per minute. This regulation is not possible without the attachment of a flow meter. The wards should also have sufficient number of splints.

Other common minor operations usually performed in the wards are Catheterization and lumbar punctures. They should receive the same care for any surgical procedure. Catheterization of male patients should be done by the medical officers themselves. Lumbar punctures should be done with proper sedation, positioning and local anesthetic infiltration. It may be repeated all operations are "major" to patients.

The equipment and supplies in the wards should take into the consideration the question of extra patients. Each patient ought to have a cot but many times patients are required to be put on the floor and they should have a mattress and a quilt. The requirements of articles for a ward must be provided on a standardized basis and there should be at least 10 to 20 per cent extra articles. In case of linen, it is desirable to have 25 per cent extra articles. Consumable articles must be replaced and there should be sufficient mechanism for the same.

There should be adequate place for keeping medicines. For proper storage all medicines must be carefully labeled. Medicines for external use and those for internal use must be kept separately.

The ward should be supplied with adequate number of trolleys, I.V. infusion sets and refrigerators. In every ward preferably first bed should be reserved as an emergency Fowler bed and it should be equipped with multi-para-monitor, Oxygen cylinder with key in place, Suction machine, emergency drug trolley.

Insufficient equipment leads to delay in work as the staff is required to wait for arrival of the same. Use of substitutes may be more costly. Equipment which is not in proper working order is embarrassing. Preventive maintenance of equipments is, therefore, very important. All the medical equipment should be mapped for annual maintenance and comprehensive maintenance through the agency appointed by State.

The replacement mechanism should be such that the nurses are not required to visit the stores. It is a common experience to see that nurses are often busy ordering the supplies and equipment, storing them and in keeping an account of them, so much so that they do not have adequate time to look after the patients. Weekly indent of required medicine, disposables, consumables, etc., to be done by Incharge sister to the central medical store.

Sufficient points for plugging, electrical appliances should be located in the wards at convenient places. All the ward equipment and store should be classified and kept in suitable marked areas of the ward. Due to the inherent nature of the working in the wards, articles commonly used are always liable to broken. They are sometimes lost also. There should be a smooth mechanism to replace these articles quickly. This can be done in two ways. After first fixing the minimal level for each article in the wards, the sister-in-charge can indent as often as necessary the required number of articles so as to bring them on a level, which is the minimal level. The other way is that each ward should be provided with, say, 10/20 per cent excess articles, above the minimal level, so that replacement can be done on the spot, in case of

breakage or loss. The Sister can then indent, during the time of routine indents, the number of articles to bring up the number to the level up to 10/20 per cent excess. It is obvious that the second method is preferable, as it is quicker and it avoids frequent emergency indenting. All breakages should be reported in detail indicating the circumstances and orders of the competent authority obtained regarding recovery of cost, writing off etc.

The shelves of medicine cupboards should be shallow and long for easy location. A careful watch should be kept on expiry dated drugs.

Repairs of Ward Equipments

The medical officer and the sister in charge of the wards should be particular in attending to timely repairs of equipment. It is not uncommon to see a number of articles lying unrepaired and unused for a considerable length of time. This, apart from causing difficulties in carrying out wards work means a regular loss of Government funds. Moreover, such a state of affairs is directly responsible for purchase of new equipment which could have been avoided had the repairs been carried out in time. This means unnecessary and wasteful expenditure and to that extent loss of Government money.

6.4 Rounds, Ward Dressings and Injections

Rounds in the indoor wards can be of a routine nature or of emergency type. The senior medical officer of the Unit must take a regular round in the morning. The responsible member of the nursing staff has to accompany the medical officer. It is however observed in many hospitals that the nursing staff is perpetually engaged in accompanying rounds taken by the doctors at various levels, like head of the Unit, and assistant medical officers etc. To reduce the burden arrangements should be made so that the nursing personnel take round only with the certain medical officers. Changes made during round shall be noted and after round is completed, these should be entered in IPD papers and instructions in round book. It will be responsibility of nursing staff to enter such changes in general order book (GOB). Before starting round, MO should ask if there is a any death in last 24 hours and if any serious patient need urgent attention.

Medical Officers in charge of wards having Out Patient Department work operation work may not be able to take a full round in the ward on the particular days. Even on such days they should take a round of important and serious cases. The round for the remaining cases could be taken after the work in the O.P.D. or in the Operation Theatre is over. The art of taking round in the shortest possible time but with due attention to the patient must be learned and practiced by the medical officers. All orders should be written down on the case papers and there should be no "ct all ". When T.P.R. is ordered at frequent intervals or when orders are given to observe the patient, the medical officer should clearly state when he is to be called. Since the work in indoor ward cannot start without a proper round, an attempt should be made to complete it before starting any other work.

In addition to the routine round in the morning it is advisable to pay a short visit to the wards before leaving the hospital in the forenoon or afternoon is then possible to say whether important and vital orders are being carried out correctly and if there is any difficulty in carrying them out. This round will take only a short time.

The Medical Officers should also take an evening or night round. At such times they should specially examine serious cases and give complete orders for the duration till the round on the next morning as far as possible. If this is done methodically there will be very few night-calls indeed. In many hospitals, night-calls from wards have to be attended to by the Casualty Medical Office but this system is not desirable. A Medical Officer attending calls in this way, will have to visit any ward and examine a patient about whom he knows nothing It is obvious that the casualty Medical Officer's grasp about the condition of the patient cannot be as good as that of the regular Medical Officer in charge of the case. It is therefore advisable that the night calls should be attended by the regular Medical Officer In charge of

the ward. Moreover, this will also act an incentive for the Medical Officer In charge of the ward to take a proper round during evening hours or night hours.

Round in Serious Cases

It may be necessary to take round for serious cases often, during the course of the day and night. In order to do away with any complaints and in order that the rounds in serious cases should be capable of being authenticated, is necessary that the Medical Officers should record the time of their visit and examination, in such visits. Such recording of time should be done by all Medical Officers from the lowest to the highest. The recording of time in each case should be initialed by the respective Medical Officer. All notes must be in a chronological order.

Surprise Rounds

The Superintendent or the Medical Officer In charge of the hospital as well as the R.M.O. and the Matron should take surprise rounds at any time of day and night, in addition to their routine rounds and record the results of such a round in a special register.

Quarterly reports are required to be sent to Government by the Deans, Civil Surgeons, etc. In respect of surprise rounds and corrective action taken if any. The Officers should send the reports to Director of Medical Education and Research or Director of Health Services, in January, April, July, and October. The reports should be sent on the last day of a quarter or on the first day of the month following a quarter. The Sisters or nurses accompanying the medical officer during rounds should take down instructions in a rough order book. Later on, these instructions should be transmitted to the nurses daily order book or treatment book.

Before accompanying the doctor for a round, the Sister or nurse must take her own round and get completely acquainted with the conditions of the patients so that she can communicate with various facts to the medical officers.

Administrative Round

It is necessary that the Civil Surgeon/Additional Civil Surgeon/Medical Superintendent, Matron, Administrative Officer, Office Superintendent, store clerk, dietician, Sanitary Inspector/Mukadam, Linen Keeper, Plumber, Electrician, should combine take detail administrative round of the hospital and campus on a fixed day of week, so that management of some issues can be done easily and the problems can be addressed and solved in a easy manner. Special register to be maintained for this round for entering the observations and instruction given during round. Compliance and rectifying measures to be taken in a specified time limit.

Prescriptions

It is advisable to write the prescriptions daily, mere words "ct. all" should be prohibited.

The prescription should be legible. As far as possible Pharmacological names of the drugs should be entered followed by proprietary names in bracket. is needed to be done on the occasion of the first prescription. Entering pharmacological names will encourage a scientific attitude.

The dosages should be properly indicated. We often find prescriptions like:

- (1) Injection Cefotaxime — One vial.
- (2) Tablet Paracetamol-three times a day."

Such prescriptions do not communicate the precise dosage, since the drugs are available in different strengths. The frequency, and timings of administration of the drugs should be indicated. Prescription policy should be followed. There should be no over writing, erasing and extra insertions relating to previous dates. It is the duty of every Medical Officer to write correct and proper prescriptions day after day. Additions and alterations can invite criticism in case a complaint is under investigation.

Few injections like injection Anti snake venom should be given only after sensitivity test in presence of MO. All drugs should be written in specific dose, route and frequency. To avoid medication error, rights of

medication safety as per NQAS 2020 guidelines.

The habit of prescribing drugs orally is to be avoided. Such orders are usually given during emergency visits especially after operations and during night time. The commonest of such oral prescriptions are for Analgesia and Hypnosis. Whenever any extra order is to be given besides those given at the time of rounds, it is the duty of the Medical Officer to call for the case paper and enter the order and sign below it and enter the time. The Nursing staff should not accept oral orders. It should be possible to tally at the anytime from the records or the case papers and entries in the Nurses Order Book whether correct treatment is being followed. If oral orders of doctors are accepted, difficulties will arise in giving and taking "overs".

As per the state guidelines no medicine/consumables should be prescribed from outside. So the patient should be prescribed drugs from the state EDL/ECL (Essential drug list/essential consumable list). In case of non-availability of prescribed medicine, purchase from RKS (Rugna Kalyan Samittee) or other sources to be done.

Ward Dressings

It is no use entrusting all the dressings to the care of the nursing personnel and Group D staff. The important dressings must be done by the medical officers themselves. The dressing room of the wards should be utilized for important dressings. The dressing room should have table for dressing, stool, well equipped dressing trolley and common instrument required for minor surgery and dressings. There should be a couple of basins with adequate water supply. Curtains should be used in case dressing are done on the beds themselves. Good sterilization should make it unnecessary for patients to be sent to the operation theatre for important dressings. A work about painful dressing like those in cases of Burns, Compound fractures such patients should be given adequate doses of sedatives and the dressing should be carried out in an unhurried manner. They should undertake only when full preparations have been made.

Injections in the Wards

From the point of view of therapeutic efficiency the prescribed interval between the injections must be observed, scrupulously.

The sites for intramuscular and subcutaneous injections should be chosen judiciously so that alternative areas are used in case of repeated injections. If this is not done the patients are unnecessarily subjected to extra pain. Intramuscular injections are often given in the triceps area which is not a happy choice. The lateral surface of thighs or buttock can be used for such injections and advantage should be taken of this fact, especially in cases where injections are being given very frequently for example penicillin, streptomycin and insulin. It is advisable to wait for some seconds after applying an antiseptic solution to the chosen area before the actual prick is given.

There are occasions when a patient who is doing very well develops intermittent pyrexia and no disease can be apparently found which can be said to be causing it. It is a good rule in such cases to examine the injection sites with a view to exclude the presence of an injection abscess. Such an abscess formation indicates lack of proper sterilization. It must however be remembered that there is nothing particular in these drugs as such which would cause tetanus except that the drugs have a necrosing effect on tissues. It is the insufficient sterilization which is responsible. It is also necessary to clear injection sites properly especially in non-ambulant cases who are required to be nursed on bed only. Some of these patients may be having bed sores etc., and injections given at a site very near to such sore may cause abscess or tetanus.

Injections of insulin are often prescribed to be given at a prescribed intervals before the principal meals. Some of the diabetic patients may be taking their own diet. In these cases as well as in those where diet is supplied from the hospital the timing of the injection should be carefully observed to that the interval between the injection and the meal is strictly complied with.

6.5 Diagnostic Services

Referring the Cases to Laboratory and Radiology Departments

When patients are sent for such examinations the request should be written on a prescribed form and the column of clinical diagnosis should be always filled. The X-ray and Laboratory departments should not accept any samples or patients for examination unless accompanied by the prescribed form duly filled in. Medical Officers should rely more on clinical examination to the extent possible and reduce the number of X-ray and laboratory tests to the barest minimum. The medical officer in-charge of the Unit should frequently check these requests and see if indiscriminate references are made for examination.

6.6 Preparation for the Operations, Pre-operative and Post-operative Management

Preparation for the Operation:

It is the duty of the medical officers to ensure that patients are adequately prepared for operations. It should be seen if the parts are properly shaved or not, and detailed instructions should be given regarding the area to be shaved. Similarly, enemas and bowel washes should be given properly in cases of rectal operations. No contingency should arise in which the patient has to be sent back sometimes even after he has been anesthetized, and the surgeon should not have to carry out operation under unsatisfactory conditions which is naturally detrimental to the interest of the patients.

The timing of atropine injection for the first case to be sent to the operation theatre should be carefully observed. As far as the subsequent operations are concerned it is advisable that the atropine injections should be given intravenously in the operation theatre itself.

All preoperative orders should be spelt out clearly, one by one, and there should not be any ambiguity, otherwise, there is a passing of responsibility from the nursing personnel to the doctors and vice versa.

The hospital should follow a routine standard method for preparation of the skin at the operation site. Shaving with blunt blades and with razors which are unserviceable is painful for the patients. Scratches and abrasions on the shaven part will make it apparent that shaving has been done with blunt blades. It is often found that different procedures are adopted in different wards in the same hospital. The Medical Officer in charge of the hospital should ensure about uniformity. It is also advisable to prepare the patient at least twice before the operation, once on the previous evening and once on the morning of the operation. Cases in which operations are to be done on bones and joints should be prepared for three days, morning and evening before operation for replacement surgeries.

The patient and his relatives should be given a good idea about the timing and nature of the operation.

Pre-operative Care:

The list of operations should be prepared by the operating Surgeon in triplicate before leaving the hospital after the morning duty hours and not in the evening and as far as possible the order of precedence of cases laid down. Separate list for emergency cases will be prepared in respect of emergency cases. Pre anaesthetic check-up of planned cases shall be carried out on prior day. The operation list should be signed by operating Surgeon, ACS/ MS and then sent to OT.

The ward sister should follow the checklist before sending patient to the operation theatre.

The checklist should consist of name of the patient Age Registration number type of surgery, site of operation. And also about the information regarding preparation of patient, consent, premedication and sensitivity test. Check Investigations. She should label the patient regarding name, registrations number, diagnosis, type of surgery.

Post-operative Care:

As soon as particular patients are sent to the operation theatre the nursing staff should make arrangements to receive the patients back. If operated patients are to be shifted in another post surgical ward, the nursing staff of that ward should make all types of required arrangements to receive post operative patients. All such arrangements including the bed should be kept ready so that the post-operative treatment whatever it is can be started immediately on return of the patient from the operation theatre.

As soon as the patient returns from the operation theatre the sister in charge of the ward should scan the case sheet and ensure that the post-operative orders have been given on the case paper. If such orders are not found on the case paper she should immediately contact the medical officer concerned and see that the necessary orders are written on the case paper. No oral orders should be accepted on the ground that the medical officer cannot write the order on case paper on account of preoccupation in the operation theatre. A careful watch should be kept in unconscious cases, those cases which require to be kept in a particular position and cases having endotracheal tubes.

The first half to one hour after general anesthesia is very vital for the patient and a very careful watch should be kept on the condition of the patient as well as on the positioning.

Particular attention is required to be given to naso-gastric tubes and catheters which might have been inserted in patients and towards any infusions started in the operation theatre.

It is very necessary that surgeons and anesthetists should write their notes on sheets immediately after the procedure is over. It is advisable, if surgeon can show the lesion diagrammatically on sheet.

Informed Consent for Operations:

It is necessary in all cases, undergoing minor or major operations to take the consent of the patient, and in case the patient is a minor, the consent of his parents or guardian. The wording of the consent is also important. It is advisable to take the consent in the following form

"I am prepared to undergo the necessary operation required for amelioration or cure of my disease under whatever anesthesia as considered fit by the hospital authority. I have been explained the details and implications of the operation."

In case the consent is given by the guardian, the wording should be changed viz. :

"I am prepared for the necessary operation required on my son/daughter/ ward (as the case may be) under whatever anesthesia as considered fit by the hospital authority. I have been explained the details and implications of the operation."

In case of operations for sterilization it is not necessary to have consent of both the spouses for operation on any of them, but, for practical reasons of harmony in the family it is advisable to do so.

The informed consent should be taken by the medical officer himself and it should be certified that the consent was willingly given in his presence. Such certificate should be signed with date and time. This work should not be entrusted to the nurses. If the consent is not taken properly the patients or the relatives have ground to complain that a proper idea was not given to them.

If required, the high risk consent should be taken by the concerned Medical Officer along with Informed Consent.

In respect of operations involving privation of a part of the body like amputation, emasculation or nucleation of the eye, a specific consent should be taken that the patient or his guardian is prepared for such an operation involving the loss of the part. In amputation cases the level of amputation should be mentioned. The consent should be taken on the previous day at the time of preparing the lists for operations

and the name of the patient should not be included in the operation list unless proper consent has been taken.

A surgeon can operate without consent in those cases where it is not possible to obtain it, in the interest of the patient wherever applicable.

6.7 Discharge of Patients

Hospitals should fix certain criteria for patients to be discharged. Criteria would depend upon the arrangements for follow-up care at nearby medical or health centers or availability of private practitioners for treatment, near the residence of the patient. The patient will require to stay as indoor patient as long he requires close medical or nursing supervision or as long, he requires use of some hospital facility, not available outside. In general the following criteria are useful as a guideline for discharge of patients:-

- 1) Patient has recovered, there is no danger of relapse and he does not require daily medical supervision, nor use of special hospital facility.
- 2) No immediate procedure is to be carried out like operation. If there is going to be 2-3 days gap, and if the patient does not require any preparation in the intervening period, he can be discharged.

As far as possible the time of discharge should be anticipated and the patients informed in advance about the day of discharge. This will enable the patients to make proper arrangements for their journey from the hospital to their residence.

Government hospitals are often posed with a situation where the patients are not willing for discharge on a particular day as desired by the medical officers.

Help of social worker if available for creating a proper atmosphere may be sought. Proper explanation and tact will usually succeed in inducing the patient to accept the discharge. As far as possible the discharge of a patient should be in the post lunch period when doctors working in the ward can meet the patient at the time of discharge. It often happens that chronic, invalid and incurable patients remain the hospital for an unusually longer time and they cannot be discharged. Here also help of a social worker, charitable organization and members of Visiting Committees might help.

According to the orders of Government an Adhoc Committee, consisting of the following members should be formed at each hospital to decide the discharge of the patients in doubtful or disputable cases.

- 1) Doctor in charge of the patient.
- 2) The head of the hospital.
- 3) A member of the Advisory Committee to be called by the head of the hospital.

Medical Officers should take care to see that mentally retarded patients and such others who cannot independently take care of themselves are not discharged in the absence of a responsible relative or friend, who can take them. Instances have occurred where such patients were discharged without precaution as referred to above, and disappeared and their whereabouts were not known. A patient discharged from a hospital may have to go to another hospital. In such a case proper reference should be supplied to the patient to enable the next hospital to carry out follow-up care or further investigations and treatment as may be necessary.

Columns on the indoor case-papers like discharged, cured, relieved etc. should be properly filled in. The patient should be given a card showing the disease from which he was suffering, the dates of admission and discharge. The main line of treatment, any operation which might have been carried out and further instructions as to what the patient has to do should be written on the card. These entries should also be made simultaneously on the outdoor case paper which should be sent to the outdoor department. The patient should be given the usual slip to enable him to take out his outdoor case paper when he attends the department next.

The timing of discharge of a patient should be properly coordinated with the work of other sections of the hospital whenever required for example a patient may require to have some type of certificate at the time of discharge and this will be supplied by the hospital office.

The ambulance car of the hospital will also be required by a discharged patient in some cases.

Discharge against Medical Advice (DAMA)

It often happens that patients take discharge against medical advice. There may be an atmosphere of hostility, antagonism and unpleasantness in this or not. Sometimes, the patient desires to go away for the sake of convenience. Relatives often prefer to take away a patient who is certain to die after a short while. In such cases there may be no atmosphere of hostility between the hospital staff and the patient or his relative. The Medical Officer should therefore, write the words, Discharged at Request and sign. He should also take the patient's signature (or guardian's) below the words.

"I am going on my own responsibility" or "I am taking away the patient on my own responsibility".

Where the patient desires to take discharge against medical advice or to seek a better or other medical opinion against the wishes of the treating Medical Officer or where the discharge of the patient is clearly against his own interest, the following words should be written:

"I am taking the patient away from the Hospital/I am going away from the Hospital against medical advice on my own responsibility".

The Medical Officer should also write the words "Discharged at request against medical advice". The signature of the patient or guardian should be taken below this and the medical officer should add his signature. Date and time should be mentioned.

6.8 Some Useful Hints

Red colored discs or boards should be hung above the beds of serious cases, where there is no separate cubicle to treat such cases in a ward. This will facilitate, Medical Officers, nursing staff and others to keep a proper watch over such patients. If a patient's condition becomes grave he should be isolated at least by movable curtains to avoid psychological trauma to other patients.

Each Bed should have board displayed at the foot end mentioning name, age, diagnosis of the patients. It would be a good practice in respect of serious cases to take down in writing from the relatives who are responsible that they have been made aware of the seriousness of the patient. This will eliminate complaints often made that the knowledge about the Patient's condition was not communicated to them in time. Relatives of serious patients should be allowed to stay in waiting area of the ward.

There are occasions when a patient or his relatives desire for a second opinion. Whether this should be allowed or not is a matter to be decided at the discretion of the treating Medical Officer according to the circumstances in individual cases, but as a rule, it is better to be liberal in these cases. In case the patient's condition becomes serious and there is no responsible relative nearby, it is the duty of the hospital staff to make all-round efforts to send a message to the proper address, even by a special messenger. This procedure is to be followed whatever the time of day and night. For this reason, detailed address should be obtained from each patient at the time of admission, including availability of any telephone number, for communicating with the relatives.

Ward rules should be displayed in each ward in Marathi and English. They should mention visiting hours, prohibition of tipping, prohibition of bringing food unless so allowed, instructions about use of complaint book, rules about obtaining blood for treatment etc. Ward staff should explain these rules to illiterate

patients.

Each member of the staff should wear a label or badge on his apron or uniform for ready identification. Ward servants should preferably have numbers. This will make the defaulter or those connected with pilferage more easily traceable. As many persons as possible working in the wards should be vigilant about the prevention of thefts.

Case notes prescriptions for diet and medicines should be checked by the medical officer in charge of the unit at least once a week. The Unit chiefs should be responsible for proper records.

Fake entries on charts about nursing procedure should not be allowed, if found, severely dealt with, if found. TPR should be taken 8 hourly or as per the order of MO and entry is to be made on TPR Chart by the staff on duty.

Visiting hours should be strictly enforced and passes being issued by the ACS/MS/Ward In-charge to relatives of serious and critical patients. Patients should not be allowed to stroll out of the hospital.

There should be a complaint book with pages serially numbered in each ward. The ward rule should state that a patient is free to write complaints in it. The Civil Surgeon/ ACS/MS should look into the written complaints and sign the complaint book in token of having seen it.

Each ward should maintain a list of standing orders to be followed by staff members from top to bottom levels.

Lab or other Investigation advised by MO/Specialist during round, samples should be collected and to be sent timely to the lab (in house or out sourced lab) and the lab should send the reports to concern ward in specified time limit. Staff on duty should inform reports to Ward in charge/MO immediately or on the same day as per the case need .

CCTV guidelines in concern with Labour room, PNC ward, Pediatric Ward and SNCU as per the order of Honorable High court 6th May 2009 are to be followed.

6.9 Miscellaneous

Safety Measures

It is advisable to have proper CCTV Cameras in each ward at the entrance and exit to monitor untoward incidents, monitoring hospital safety. According to high court guidelines it is mandatory to have CCTV cameras at labour room, OT and SNCU, NICU entrance and exits. This is applicable to other departments of the hospital also. (Please refer annexure 6.2 for more details)

CCTV guidelines to be followed as per the order of honorable high court 6th may 2009 following remedial measures to be followed.

Remedial measures

- 1) CCTV cameras should cover all the entry and exit routes as well as sensitive areas of the hospital like neonatal and perinatal and pediatric wards.
- 2) Entry doors of the above wards must be kept closed and the entry must be restricted and regulated.
- 3) Visiting hours must be fixed and no visitor should be allowed to enter neonatal and postnatal wards and pediatric wards unless proper entries are made in the visiting registers about the visitor's name, address and other particulars of the purpose of visit.
- 4) Security guards must be present for all the 24 hours outside the above wards.
- 5) Security guards must check all the baggage of the visitor who goes out.
- 6) Female security guards must be posted inside the above wards.

- 7) Every security guard should have a walkie talkie with him so that he can be in constant touch with other staff of the hospital in case of emergency
- 8) Photographs addresses and other particular of the security guard must be noted in the register kept in the hospital
- 9) Staff in neonatal and post neonatal ward and pediatrics ward must have distinctive photo
- 10) Public address system must be installed in wards passages. Pre-recorded audio messages of instructions should be played.
- 11) LCD and DVD players must be installed at important places so that imparting messages can be screened in local languages i.e Hindi or Marathi.
- 12) Important signage and board must be put up at visible places to create awareness amongst the people and the messages on the boards must be in Hindi or Marathi.
- 13) Matching identification band, must be attached to the infant, mother and father and they should contain numbers.
- 14) Footprints finger prints and special birth marks, if any and as far as possible biometric identification of the infant must be noted within two hours of the infants birth or admission in the infants medical record maintained by the hospital. Where biometric identification facility is not available. It should be made available within six months from today.
- 15) No infant should be allowed, to be taken outside the hospital unless discharged, or without permission of the In-charge sister.
- 16) Infant, should not ordinarily be allowed to be taken out. A neonatal and postnatal wards and pediatric wards. However, if situation so demands and the infant is required to be taken out of the ward, the staff must verify that the person leaving the ward with the infant is wearing identification band and such person must, be accompanied by the other staff of the hospital.
- 17) In the night only a female visitor to whom pass is issued by the hospital may be allowed to stay with the mother.
- 18) Security guards and nurses should take rounds of the neonatal, post natal and pediatric wards at regular intervals.
- 19) In case of infants discharge hours must be fixed from 12.00 pm to 2.00 pm noon only.
- 20) All post Natal patients who are fit for discharge must be discharge on the second day
- 21) No Postnatal patient should be allowed to go out of the ward for any reason except CT scan , X ray or Sonography or for any other Medical checkup Except with the permission of the incharge sister
- 22) Examination for any physical complaint of post natal patients and infants must be done as far as possible in the ward itself.

Fire Safety measures to be taken in all departments and ward as per the fire safety guidelines.

According to Fire Safety Act 2006 and 2008 guidelines, each hospital should follow safety measures and it is also advisable that wherever there is entrance to the ward there should be also be exit preferably from the separate side. It will help in safe evacuation of patient, relatives and staff if such untoward situation arises.

Fire protection requires that material used for construction should be fire resistant. Each ward should have a manually operated fire alarm system.

Fire extinguishers: These should be installed in consultation with local Fire Brigade.

Please refer annexure 6.7 for guidelines and recommendations from higher officials for Fire Safety in hospital

(c) Pantry, lavatory and infectious diseases wards should have wire gauze to make them fly proof.

(d) There should be a waiting hall for visitors.

(e) Room for Trolley parking, Group D staff retiring and locker room. patient's locker room along with attendant's retiring room should be provided.

- (f) Side laboratory, which may be common to two wards, in teaching hospitals.
- (g) A demonstration and conference room in teaching hospitals. These are ideal requirements for a ward in larger hospitals, and may not be possible in each and every hospital.

I) Illumination

Progressive Patient Care

This is a concept to rationalize the quantum of work in a ward on equitable lines and distribute it in such a fashion that services of required intensity are available according to the needs of patient. The patients are grouped according to the degree of illness and need for medical care. The following classification is useful:

Sr.No	Department	Illumination (lux)
1	General area	150 (lux)
2	Beeds	100

- a) Intensive care.
- b) Intermediate care.
- c) Self care.
- d) Long term care.
- e) Home care, to be given in conjunction with community health services.

If there is a relation who can help he can be taught how to do dressing and irrigation, give injections etc. Social service agencies can also help. All this will be useful for home care.

Long term care is required for geriatric and orthopedic cases requiring and those with relapsing and inter current illness. Such patients require periodic assessment.

Intermediate care patients require a moderate amount of nursing, such patients will be ambulatory for short periods, but unfit for complete self care. Moderately ill patients, those who have undergone un complicates surgery etc. are suitable for such units.

Ambulatory patients requiring investigations for diagnosis, convalescent patients etc. are suitable for self care, which will be more or less utilized only for giving instructions to the patients. Patients in this Section can follow their home routine and the hospital time-table may not apply to them.

Progressive patient care is beneficial to the patients, the staff and the hospital. The patient can after getting exposed to the hospital atmosphere, continue to adjust himself to the conditions in his house and the community. He get treatment according to his necessity and this naturally satisfied the attending doctor too. The nurses' attendance can be utilized to the maximum and with less effort for example they have not to move over a wide area for paying attention to serious cases. The hospital benefits because of better utilization of facilities and better co-ordination with community health services. Progressive patient care requires to be critically studied and properly planned and organized. A hospital may implement it in stages.

Even without organizing progressive patient care on a full scale as outlined above, the grouping of patients in a ward could be arranged for intensive care, intermediate care and self care without any extra facilities to give the best possible service to patients under the existing circumstances and for optimum utilization of existing staff.

Organization of Nursing Services in the Ward

The objective of giving proper nursing care to the patients is to aim at giving that level of care as is required by the patient. In this connection a reference has already been made above to the concept of Progressive Patient care.

The hospital administrator must be constantly on the move to find out ways of minimizing expenditure of time by nurses for activities other than nursing. The ward sister or nurses in charge of the ward must be fully aware of the policies of the hospital. She must know what job is to be done in the ward, who are the patients, and what staff and equipment is available. She must train the nurses to understand individual patient and his reaction to treatment.

The reasons why the sister must know the administrative policies of the hospitals are firstly the standard of nursing care depends on them. For example, what is the system of supply of sterile instruments, dressings etc.? If there is a central sterilization service the nurses work would be different from what it would be if Central Sterilization service is not available. Against what is the system for washing the linen and supply of drugs, and what is the system of recovery of losses? Is the temperature to be taken 4 hourly or twice a day or this question is left with the Sister? Is the distribution of beds rigid? What is the policy about the student nurses? Answer to these questions would determine the types of nursing service in the ward.

For the purpose of optimum utilization of stock and equipment an assessment of the patients needs in groups as well as individually is necessary. The nursing task should be distributed according to the experience of the nurses.

Important work will have to be entrusted to sisters or the staff nurses while very routine work can be entrusted to student nurses. The division as regards this will be made depending on the ability of the nurses and needs of the patients. The ward sister must know her staff Nurses' abilities quite well. She should be able to supervise over their work. Co-ordination of different activities in the ward is quite essential. For example if when surgical dressing are being done, sweeping and cleaning of the ward is allowed simultaneously it will be difficult to maintain asepsis. The Sister in charge of the ward must take every opportunity to give in-service education and training to the nursing staff.

It will be a good idea to utilize services of helpful relatives rather than considering them as nuisance, Such relatives can be utilized for follow-up care if they have been initiated into it during the patient's stay in the hospital. If responsible relatives are taught healthy practices, ("Health Education") this may prevent re-admission of their illness.

According to H.A. Goddad, "Principles of Administration applied to nursing services" W.H.O. Monograph series No. 41 page 1058-Good aims at seeing that a ward is so arranged and equipped that good nursing is possible, economy of effort and maintenance, are facilitated and the time and energy of personnel are conserved.

Delegation of authority at various levels must be practiced, while taking work from them. Since it is necessary for the nurses to have a proper initiative in doing their work delegation of authority is quite necessary.

It is necessary to ensure that orders issued by Matron/Sister to the nurses on the one hand and those issued to them by doctors on the other do not conflict or confuse the nurses.

Student nurses should not be put in charge of wards as this may give rise to various complications.

Reservation of Beds for Hospital Group D Staff

Hospitals in Bombay should reserve 2 beds for hospital workers and those in districts should reserve 1 bed for the same purpose. The beds may, however, be utilized for general public but they should be vacated for hospital workers whenever necessary.

6.10 Records and Ward Registers

As soon as the patient is admitted indoors, the Sister in charge of the ward should enter the time of admission in the Indoor register. The name, age, sex of the patient should be recorded, along with detailed address. The admitting section should have taken the care to fill in all the columns on Indoor case paper including detailed address of the guardian or relative etc. The Sister should scrutinize whether all these

columns have been properly filled. Particular care should be taken to fill in the column of family income of the patient and intimation given to steward when necessary. Only this will help to realize hospital fees according to Government rules.

Admitting medical officer should put on the O.P.D. case paper, the time of admission in O.P.D./Casualty Section itself, along with his name and signature. In respect of cases admitted from the casualty section, the casualty medical officer should inform the ward concerned in advance that a particular case is being admitted. The person receiving the intimation should note the time the intimation was received. For this purpose the casualty officer should maintain a dispatch book on which the ward sister should sign indicating the time the patient is received in the ward. When the medical officer of the Unit receives the intimation about the admission of a patient he should enter the time of receipt of the intimation on the call book. In urgent cases the casualty medical officer should himself inform the medical officer of the Unit about the admission of the particular patient indicating the condition of the patient

It may not be possible for doctors in non-teaching hospitals to write very detailed notes like those which are recorded in the teaching hospitals. However the necessity of writing relevant notes is obvious. The art of writing short succinct but relevant record must be learnt and practiced by all the medical officers working in the hospitals. It is often found that history is not properly taken especially in cases of injury and only perfunctory notes are made. Details such as how exactly an injury was received, which may help diagnosis, should never be missed. The question is especially important in respect of semi-conscious and unconscious patients. Instructions given by superior officers if entered by the subordinate medical officers should be initialed by the higher officers to indicate their correctness. MO on duty should write detail notes/provisional diagnosis, investigation advice and treatment.

Daily notes indicating the progress or regress of a patient must be entered as necessary. Though the results of accessory tests are attached as separate sheets, a summary of the same should be mentioned on the case paper itself. Operation notes should clearly indicate, the type of Anesthesia and the nature of operation carried out. If patient is in serious condition, it should be informed to accompanying relative/person.

Medical Officer in charge of the case should often check and scrutinize the notes made on the indoor case paper to ensure that all the relevant notes about the signs, symptoms, daily progress and regress, operation and Anesthesia and notes of accessory examinations like X-ray and laboratory are entered on the case papers. In this respect it must be emphasized that this duty is not part of the administrative duties and the Honorary Medical Officers in non-teaching hospitals bear a responsibility in this matter, in respect of their cases. The Medical Officer in charge of the hospital must instruct the Honorary Medical Officers that they are fully responsible for the case-papers of patients under their charge. The columns of provisional diagnosis and final diagnosis must be properly filled. If any post-mortem examination has been made, this act should also be entered on the case paper and the result of the post-mortem examination, viz. the cause of death or about the viscera having been sent to the Chemical Analyser, should be entered on the case paper. If the diagnosis is suspended pending receipt of report from the Chemical Analyzer, it should be filled later on after receipt of the report. In case of unknown unconscious patient brought by police should be monitored very carefully. When patient regains consciousness, he/she should be asked about name and address and accordingly should be informed to the police. In case of death of such patient, that should be informed to police station.

The indoor case-papers should have two columns for numbers. One should indicate the admission serial number as usual and there should be another column to indicate medico-legal case number. There should be columns on indoor case paper to indicate the names of the Medical Officers incharge of the case as well as the names of the houseman and registrar in respect of teaching college-hospitals and of the Medical Officers Group A or Group B, incharge of the case.

The Registers commonly required in the wards are as follows:

- 1) Linen Register;
- 2) Dead Stock Register;
- 3) Diet Register;
- 4) Duty Register of Group C and Group D staff;
- 5) Round Book;
- 6) Daily Order Book;
- 7) Admission and Discharge Register;
- 8) Sponge Register
- 9) Call Book;
- 10) Dhobi Book;
- 11) Breakage Register;
- 12) Indents for medical stores, linen, dead stock and petty supplies;
- 13) Expense register for medicines;
- 14) Patient's property register:
- 15) Day and night report book.
- 16) Autoclave register
- 17) Biomedical Register
- 18) Morbidity Register
- 19) Condemnation register
- 20) Injection register
- 21) Remark Book
- 22) Complaint register
- 23) Referral/Transfer Register
- 24) Discharge Register
- 25) Donation Register

The forms commonly required in the ward are:

- 1) List of Operations;
- 2) Request for Laboratory Examinations:
- 3) Request for X-ray examinations;
- 4) Temperature charts;
- 5) Indoor Continuation Sheets:
- 6) Diet Sheets:
- 7) Intake and Output charts;
- 8) Form for Demanding Blood;
- 9) Blood Transfusion Report Form;
- 10) Report Books;
- 11) Daily Order Books.

Admission paper, Continuation sheet, TPR Chart, Diet Chart, Lab format

Case Sheet for Maternity Services - L3 Facility

Admission Form

RCH PORTAL No. <input type="text"/> Booked Yes <input type="checkbox"/> No <input type="checkbox"/> IPD/Registration No. <input type="text"/> BPL/JSY Registration Yes <input type="checkbox"/> No <input type="checkbox"/> Aadhar Card No. <input type="text"/> Referred from & Reason <input type="text"/>	Name of Facility <input type="text"/> Block <input type="text"/> District <input type="text"/> Contact number (facility) <input type="text"/> Name of ASHA <input type="text"/>
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Name: <input type="text"/> Age: <input type="text"/> W/o OR Dio: <input type="text"/>	
Address: <input type="text"/>	
Contact No: <input type="text"/>	Marital status: <input type="text"/>
Admission date: <input type="text"/> / <input type="text"/> / <input type="text"/> Time: <input type="text"/>	Name of birth companion: <input type="text"/>
Admission category: presented with labour pain <input type="checkbox"/> Presented with complications of pregnancy <input type="checkbox"/>	
referred in from other facility <input type="checkbox"/>	
LMP: <input type="text"/> / <input type="text"/> / <input type="text"/>	EDD: <input type="text"/> / <input type="text"/> / <input type="text"/>
Provisional Diagnosis: <input type="text"/>	Final Diagnosis: <input type="text"/>
Contraception History: <input type="text"/>	

Delivery outcome: live <input type="checkbox"/>	Abortion <input type="checkbox"/>	Sex of Baby: Male <input type="checkbox"/>	Female <input type="checkbox"/>
Fresh Still Birth <input type="checkbox"/>	Macerated Still Birth <input type="checkbox"/>	Preterm: Yes <input type="checkbox"/>	No <input type="checkbox"/>
Single <input type="checkbox"/>	Twin/Multiple <input type="checkbox"/>	Birth weight (in kgs) <input type="text"/>	Inj. V/L/K1 <input type="text"/>
Delivery date: <input type="text"/> / <input type="text"/> / <input type="text"/>	Time: <input type="text"/>	Immunization: BCG <input type="checkbox"/>	OPV <input type="checkbox"/>
HepB <input type="checkbox"/>		Mode of Delivery/ Procedure: Normal <input type="checkbox"/>	
Assisted <input type="checkbox"/>		CS <input type="checkbox"/>	
Other (specify) <input type="text"/>		Indication for assisted/ LSCS/ Others <input type="text"/>	
Final outcome: Discharge/ Referral/ Death/ LAMA/ Abortion			

Name and signature of service provider: <input type="text"/>	Designation: <input type="text"/>
Phone No: <input type="text"/>	Date & Time: <input type="text"/>

Presenting complaints:	Past Obstetric History: APH: <input type="checkbox"/> PPH: <input type="checkbox"/> PEE: <input type="checkbox"/> C-section: <input type="checkbox"/> Obstructed labour: <input type="checkbox"/> Still births: <input type="checkbox"/> Congenital anomaly: <input type="checkbox"/> Anemia: <input type="checkbox"/> Others (Specify): <input type="text"/>	Medical / Surgical History: (Please specify) <input type="text"/> Family / No chronic illness: (Please specify) <input type="text"/>
Date and time of onset of labour: <input type="text"/> / <input type="text"/> / <input type="text"/> <input type="text"/>		
Graeco:	Paro:	Abortion:
Living children: <input type="text"/>		
General Examination	Height: <input type="text"/> cms	Weight: <input type="text"/> kg
	Pulse: <input type="text"/>	Jaundice: <input type="checkbox"/>
	Pain Score: <input type="text"/>	
Vitals	BP: <input type="text"/> mmHg	Temperature: <input type="text"/> °C
	Pulse: <input type="text"/>	Respiratory rate: <input type="text"/>
	Fat: <input type="text"/>	
PA Examination	Protrusion Cervix: <input type="text"/>	Others (specify): <input type="text"/>
	Engagement: <input type="text"/>	LC: <input type="text"/>
Gestational Age	LMP: <input type="text"/> / <input type="text"/> / <input type="text"/>	EDD: <input type="text"/> / <input type="text"/> / <input type="text"/>
Pre-term: Yes <input type="checkbox"/>	No <input type="checkbox"/>	Fundal height (in cms): <input type="text"/>
Final estimated Gestational Age (in wks): <input type="text"/>	Age (in wks): <input type="text"/>	Age from USG: <input type="text"/>
PV Examination	Cervical dilation: <input type="text"/> (in cms)	Cervical effacement: <input type="text"/> (%)
No. of PV Examinations: <input type="text"/>	Membranes: Ruptured <input type="checkbox"/>	Intact <input type="checkbox"/>
	Colour of amniotic fluid: Clear <input type="checkbox"/>	Mucous <input type="checkbox"/>
	Bloody <input type="checkbox"/>	Other: <input type="text"/>
	Foetal attitude: Yes <input type="checkbox"/>	No <input type="checkbox"/>
Investigations	Blood Group & Rh: <input type="text"/>	TdPr: <input type="text"/>
	Hb: <input type="text"/>	Anti-D given: <input type="text"/>
	Urea Protein: <input type="text"/>	Blood Sugar: <input type="text"/>
	WC: <input type="text"/>	Urine Sugar: <input type="text"/>
	Synovial: <input type="text"/>	HbA1c: <input type="text"/>
		Mitral: <input type="text"/>
	Others: <input type="text"/>	

There should be a check on the maintenance of the various registers' forms by the Medical Officers as well as the Matron. They should also check as to whether the diet and other supplies are being properly utilized in the wards by taking surprise rounds.

Control over Group D Staff

Now a days, in most of the hospitals there is sufficient Group D staff to enforce 8 hourly duty and 1 weekly off. There might be some difficulty in respect of night duty where longer hours of duty are still required to be given in some hospitals. The Sister in-charge of the ward should prepare a list of duties of the various Group D servants, which they should be given to understand every week. This should be done in consultation with the Additional Civil Surgeon. There should be a discipline file for each Group D servant in the office. In this file complaints in respect of the servant should be entered together with the action taken. Whenever the Sister in charge feels that the behaviour of the Group D servant has not been proper, she should write the facts in the complaint book and send the book to the Resident Medical Officer. The R.M.O. should enquire into the matter and give his report to the Civil Surgeon or the superintendent of the Hospital who should then pass the necessary orders.

The Group D servants should not be allowed to leave their posts of duty and go out for Tea" or to their quarters. The habit of going to quarters often seen in respect of female ward servants. It is also necessary to see these servants, when sent on errands outside the wards, return in due time A careful watch will have to be kept over them, otherwise it will be difficult to find where they have disappeared. The duties of the Group D servants are already embodied in a set of rules- vide Appendix 55 and 56. Breach of the orders should not be allowed. It is perfectly legitimate to expect that the servants do scrubbing and cleaning, help in dressing, pre-operative treatment and cutting the dressings and also for sterilization. They should help in of diets and cleaning of utensils. They should help in bringing article from the Stores. In general, they have to act according to the instruction given by the Sister in-charge of the ward.

As the sweepers, it is usual to find that they make it a point not to be available at the required time. This must be prevented by strict disciplinary action. The sweepers also harbour a misconception that if they do the cleaning once, their duty is over. This is not correct. Since there is an influx of patients in the wards at any time, they must clean the various sections, as often as required, during the day and night. As already emphasized, they should not be allowed to keep the bedpans and urinal below the cots. It is their duty to understand the needs of the various cases and meet them as required.

Patients should be clearly told not to give any tips to Group D servants otherwise a situation develops in which no work is possible without tips and patients who do not pay adequate tips would be neglected. Appropriate atmosphere should be created and difficulties overcome by discussions with Group D staff's recognized Unions which now exist practically at all places.

Many a time Group D staff neglect their duties and conveniently sleep a night. They often behave rudely or improperly with the nursing staff. It is quite necessary that the nursing staff should get proper co-operation from ward boys and sweepers. Civil Surgeons, Superintendents, and hospitals must maintain discipline for which they are personally responsible. Any complaint in this regard should be looked into and suitable action taken. This work should not be entrusted to subordinates.

Instances sometimes occur when male ward servants may enter in a ward during night with objectionable motives. Only female ward servant should be posted in the female ward especially at night as far as possible. A male Members of the Group D staff should not be allowed to enter the female ward particularly at night unless on duty in that section, and only when called by the medical officer or sister or the nurse incharge of the female ward.

It is perfectly legitimate to expect that the servants do scrubbing and cleaning, help in dressing, pre-operative preparation, treatment as well as infection prevention and control, especially hypochlorite 1% solution. They are also expected to maintain linen, instrument cleaning, decontamination and disinfection by various methods such as (heat / autoclave sterilization or chemical sterilization).

They should help in distribution of diets, cleaning of utensils, proper collection, segregation of wastes produced in wards, treatment of waste (biomedical/ Domiciliary generated waste) and transport the same to central biomedical waste collection units.

They should help in bringing articles (drugs ,consumables and logistics) from central store to wards store.

As regards the sweepers, it is not uncommon to find them not to be available at their respective work station at the required time(as per predicted cleaning time table/ schedule).This must be prevented by strict disciplinary action. The sweepers also harbour a misconception that it's sufficient to do the cleaning once and their duty is over. This is not correct. Since there is an influx of patients in the wards at any time, they must clean the various sections, as often as required, during the day and night. (Cleaning shouldered, check list should be attached at work station duly filled and signed by cleaning supervisor and monitored by ward incharge sister). As already emphasized, they should not be allowed to keep the bedpans and urine pots nearby or below the patients bed. Because it is immediately cleaned kept at specific space /place and needed for other patients in the wards may need it anytime. It is their duty to understand the needs of the various cases and meet them as required.

Patients and relatives should be clearly instructed, not to give any tips/ money / gifts to Group D servants otherwise a situation develops in which no work is possible without tips and patients who do not pay adequate tip would be neglected. Appropriate atmosphere should be created and difficulties overcome by discussions with Group D staff's recognized Unions which now exist practically at all places.

Many a time Group D staff neglect their duties and conveniently sleep at night hours of duty time. They often behave rudely or improperly with the nursing staff. It is quite necessary that the nursing staff should get proper co-operation from Group D staff, Nurses, Technicians, sweeper, doctors and support services providers should behave respectfully and dignity with all patients (Pregnant women in labour with dignity,

choice, information, confidentiality, privacy, in-discrimination, assured and free of cost, zero tolerance for decline and negligence and positive experience during total hospital stay). Civil Surgeons, Additional Civil Surgeon, Superintendents, Metron and Medical Officer In-charge must maintain discipline for which they are personally responsible. Any complaint, grievance from patient or relatives or public, media should be immediately, attended, investigated and redressed, system for same should work efficiently. Client / patient satisfactions at highest rate should be the motto for quality of care in this regard should be looked into and suitable action taken. This work should not be entrusted to subordinates.

Avoidance of Cross Infection.—The incidence of cross infection especially by staphylococci is on the increase amongst the hospital patients. To counter this, firstly, it is obvious that strict aseptic pre-actions must be observed. Secondly all cases of cross infection need careful record and investigation especially to find out what type of infection it is. Health record of those who come in contact with food is necessary. There should be a minimum spacing of 8 ft. in case of post-operative cases centre to centre and 12 ft. in septic cases which should be isolated for barrier nursing. Care should also be taken to isolate patients who are known to be susceptible to infections and patients who are receiving drugs which lower their resistance to infections.

Visitors should be allowed rarely or not at all to visit such patients. Entry to the areas isolated for treatment of septic cases should be restricted.

6.11 Critical Care Unit

A Critical Care Unit is defined as a separate, specially staffed and equipped area dedicated for management and monitoring of patients with potential life-threatening illnesses, injuries and various complications. Among the patients with life threatening conditions, the primary goal is to save the life of the patient for which one to one care, monitoring and regular follow up by specialist trained in intensive care. The Patients may also require support from specialists like cardiologists, pulmonologists, nephrologists, etc.

Critical Care Unit comprises of emergency/casualty/ Intensive Care Units or High Dependency Unit or a hybrid HDU along with isolation beds.

A. Intensive Care Unit

Admissions to such a unit are from the casualty centre, wards or the post operative ward. There must be one admitting authority. All calls emanating from such a unit must be answered immediately, and staff visits signed in a book specially kept for that purpose. All orders must be written on order sheets and daily notes and charts must be complete. Treatment orders should be signed by a responsible person immediately after they are given. Extra and skilled nursing staff is essential. Admissions from various sources should be Co-ordinated and that is why one admitting authority is essential. To be economical the unit must be fully utilized. The success or otherwise can be seen from the figure of bed utilization and survival rate of patients. The resident staff and attending staff should develop a system of team work, and an emergency call system for nurses must be organized. Methods are often evolved by trial and error. The physical design of the unit should allow easy accessibility to patients and equipment. There will be a physician director for the unit who will work in cooperation with hospital superintendent.

The unit should have built-in equipment like suspended I. V. hangers, ceiling spot lights, piped oxygen and suction, wall B.P. apparatus etc. Adequate toilets and mechanically operated adjustable height beds are necessary. Equipment for Tracheostomy, resuscitation, heart revival, intratracheal etc. will be required. I.V. cut down tray. Tracheostomy tray, Endo tracheal tray, intermittent positive pressure breathing etc. are important items. Emergency drugs, I.V. solutions should be well stocked and there must be separate and special mechanism to replace used articles. A point to be remembered is that it is no use referring a patient

to this unit simply because he is dying. As a matter of fact, such cases where hardly anything can be done could be treated in the intermediate care section.

Ideally 8-10% of the total beds should be a part of critical care unit, as per Indian Public Health Standards.

B. High Dependency Unit (HDU)

This is an area where patient care level is intermediate between ICU and General ward. It should be located near the ICU or within ICU complex, near emergency or in a ward. The nursing and supportive staff should have critical care experience/training. Patients after recovery from critical illness, patients of single organ failure and not requiring invasive monitoring or mechanical ventilation but need close observation due to vulnerability for deterioration preferably be admitted in HDU. Size can be up to 50% of the main ICU. Doctor/Patient ratio should be 1:10 and Nurse/Patient ratio should be 1:2. It may also be used as palliative unit for patients who are terminally sick and for end of life care, if other area is not available for care of such patients in the hospital. During the Covid 19 pandemic, the need for assured critical care facilities providing close monitoring was quite evident.

Basic characteristics of both HDU and ICU

High Dependency Unit	Intensive Care Unit
Acts as a "step-up" or "step-down" unit between the level of care (intermediary care) delivered on a general ward and intensive care.	Acts as a "step-up" unit, since the highest level of care is delivered in intensive care unit.
In general, HDU aims to manage cases where patients do not require invasive ventilatory support, are not in shock with significant amounts of vaso active medications, or are not in multi organ failure, but have complications that necessitate close monitoring and supervision and are treated at the secondary care level (DH).	Provides invasive ventilation, constant monitoring, and support to patients with, or at risk of developing, acute (or acute on chronic) single or multiple organ failure.
HDU also aims to be a facility where severely sick patients who require ICU care can be stabilized before being transported to the nearest ICU for further treatment.	Patients with severe complications or organ failure can be managed in the intensive care unit with the facility of Invasive ventilation and vasopressor assistance.
Does not admit patients who only require nursing care on a regular basis.	-

Zones of ICU:

ICU area can be categorized into 4 different zones:

- Zone 1: Patient care zone
- Zone 2: Observation area
- Zone 3: Support area
- Zone 4: Family support zone
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Patient care zone (Zone 1)

It includes the area around patient's bed.

Observation area (Zone 2)

- It includes central nursing station, nursing and doctor's station/computer area/immediate investigation area like ABG analysis/ drug trolleys, chairs and other support system needed at the nursing station.

Central nursing station (CNS)

- This is the nerve center of ICU, despite lots of development, the old standard of a central station still holds good and is endorsed by most guidelines and regulations regardless of today's practice needs.
- It is the station where all the resident doctors, nurses and other support staff come together to share information and keep records. All computers and digital information system, stationery material, registers, etc. are kept here. It provides moments of discussion, relaxation and center of administration.
- All/near-all monitors and patients must be observable from there, either directly or through the central monitoring system. Most ICU use the central station, serving six to twelve beds arranged in an L or U fashion. Patients in rooms may be difficult to observe and therefore should be placed on remote television monitoring. These monitors may satisfy regulatory requirements but do not really provide adequate patient safety if the clarity of the picture is poor.
- Some ICU have unit pods of about four or five beds, each served by a separate workstation, nurses assigned to patients in the pod form a team, a monitor technician is also required. The unit nursing clerk and the supervising nurse will usually work together to oversee the efficient interaction among the staff and with support services, Careful consideration of what level or type of activity will occur in the CNS will ensure adequate space planning, also, new equipment purchased over the next decade will probably increase the amount of desk and shelf space required.
- At times of high use, the number of people in the central station can increase several folds. Having enough space and chairs to meet needs during such times should be provided for. The space should accommodate computer terminals and printers. A large number of communication cables may be required per bedside to connect computers and faxes to other departments, as well as to other institutions and offices, adequate space for charting on the platform is absolutely important.
- Patients must be easily visible from the charting area whether the nurse is sitting or standing, taller chairs are often necessary. In case of space constraint, collapsible desktops or shelves that can flip up off the wall can be planned. Space allotted for storage of the previous charts of patients currently in the unit should also be provided It is also important that a storage space is provided for equipment, linen, instruments, drugs, medicines, disposables, stationery and other articles to be stored at the nursing station must be provided. All these cupboards should be labeled. The latest generation of monitoring systems allows access to patient data from any bedside; this means that the doctor who is busy caring for one patient can monitor others without leaving that bedside. Consoles can be programmed to automatically display critical events from one bedside at several sites without personnel calling for it.
- CNS has in-charge nursing, duty doctor (s), clerk, computer operator, machines, store attached and monitors and spare machines/spares, linen and other ancillaries.

Support area (Zone 3)

It includes offices, doctor's duty room, nurses' room, stores, toilets, discussion and teaching rooms including library.

Family Support Zone (Zone 4)

In charge, doctor should ensure that the general condition of the patient is explained after the daily round and critical patients whenever necessary.

Stores in ICU: Four important store levels are recommended in a busy ICU.

- By the bedside/a portable trolley
- At the nursing station
- Nursing stores
- Remote central store

Structure:

Location of ICU in Hospital

- Safe, easy, fast transport of a critically sick patient should be priority in planning for location of ICU.
- First floor is the ideal location in close proximity of emergency and operation theatre. Ground floor should be avoided for ICU location due to dust contamination and higher chances of cross infection.

- Higher floors are suitable if elevators are available close to ICU.
- Corridors, lifts and ramps should be spacious enough to provide easy movement of bed/trolley
- The Critical Care Unit should be located close to the operation theatre complex and other related departments such as radiology, laboratory so that the staff and ancillaries can be shared. Moreover, easy and convenient access to ICU from emergency department is essential. Close/easy proximity is also desirable to diagnostic facilities, blood bank, pharmacy, etc.
- There should be unidirectional flow for entry/exit point to/from HDU and ICU.
- There should be a dedicated fire safety exit available. These "exits" are meant to be utilized with spring-loaded flap type doors in the event of emergencies or disasters.

Privacy : In order to maintain privacy of the patient, single piece curtains are recommended. Curtains should be waterproof, clean, washable, light colored and stain resistant. Preferably the colors such as blue, yellow, red or pink should not be used in HDU/ICU as they interfere with symptoms like cyanosis, icterus and pallor etc.

Civil construction and other necessary requirements:

Critical care unit is divided into 4 major areas

A. Waiting area

- I. A comfortable waiting area in the hospital should be located in the vicinity of the critical care areas including HDU and ICU. Waiting area for the patient's attendants, with facility for sitting capacity for at least two relatives per patient, facility of drinking water, a large TV with LCD display, toilets and educational, IEC material. The waiting area can be shared with the waiting area of other important areas such as Labor room or OT and efficient electronic communication system should be ensured in the waiting area. Crowd management in the waiting area is the responsibility of the guard on duty. He or she must ensure that only one attendant per person is allowed in the patient interaction room. A communication system should be suitably accommodated to establish communication with the patient's attendants.

II. Counselling area

Since the attendants of the admitted patients remained anxious about the status of the patient, the waiting area should have a space demarcated for the interaction with doctors regarding patient's condition.

III. Trolley area:

Lay out of critical care area tends to have one-time trolley change while moving patients from Ward/Operation theater/Emergency department to the Critical Care complex. After each use, the trolleys need to be brought back into trolley area, after disinfecting.

B. Changing Room:

a) Patient's attendant changing room

This area should be used for attendants of patients who gets permission to visit the patient. This will be located close to the reception area. Provision of shoe cover or sandal change needs to be ensured.

b) Staff Changing room:

This area will be used for staff in order to make provision for personal protective equipment as well as changing shoes/sandals.

Critical Care Complex

Location of Nursing station— Station inside the unit should be placed in such a way that the patients are visible from the station. Nursing station should be equipped with piped suction, medical gas supply, central monitoring station, nurse call system, desktop computer, telephone system, file cabinets and cupboards.

Linen Store—Linen store room should be made separately for keeping bed linen and personal protective attires.

Critical Equipment Store – separate room should be made to keep critical equipment

Therapeutic diet preparation area– Separate room for preparing therapeutic diet as per patients' chart needs to be made available as per guidelines.

Isolation Room– Separate room should be kept for critical equipment as well as for therapeutic diet preparations respectively. Positive air flow relative to corridor should be maintained.

Civil Works

1.Floor – The ideal floor should be easy to clean, non-slippery, able to withstand abuse and absorb sound while enhancing the overall look and feel of the environment, carts and beds equipped with large wheels should roll easily over it.

- Vitrified non-slippery tiles seem to be the best option which can be fitted into reasonable budgets, easy to clean and move on and may be stain-proof.
- The life of Vinyl flooring is not long and a small damage in one corner may trigger damage of entire flooring and make it accident-prone.
- The tiles should be of light color (preferably white or off-white, to avoid interference with clinical assessment)

2.Walls– Durability, ability to clean and maintain, flame retardance, mildew resistance, sound absorption and visual appeal are the major requirements.

- It is preferable to have a height up to 6-7 feet finished with similar tiles.
- Door stoppers and handrails should be placed well to reduce abuse and noise to minimum; it helps patient movement and ambulation.

3.Ceiling – Ceiling surface is most commonly seen by patient. Bright spotlights or fluorescent lights can cause eye strain, ceiling should be soiling and break-proof due to leaks and condensation.

- Ceiling design should be more patient friendly and staff friendly.
- It is recommended that no lines or wires be kept or run over ceiling or underground because damages do occur once in a while and, therefore, it should be easy to do repairs if the lines and pipes are easily explorable without hindering patient care.
- Ceilings, flooring and walls should be constructed of materials with high sound adsorption capabilities.

4.Furniture and Furnishings – The counters and furniture should be tough to withstand a lot of heavy use, easy to clean and maintain.

- Cabinet-quality wood construction should also be tough and strong, surfaces for counters should be solid, nonporous and stain-resistant. Fabrics should be durable, color fast, flame- and static-resistant, if possible.
- Chair number and types: Individual units should decide about the number, usually enough number to accommodate the care-giving staff/doctors and nurses and additional chairs may be stored and used whenever needed.

5.Electrical Services – The emergency power source like electricity generator power should quickly take over in case of city power failure.

6. Heating, ventilation and air conditioning (HVAC) system of ICU – 10-12 Air Changes Per Hour (ACPH) with 4-5 fresh air changes can be provided in the unit. AHU should be equipped with fine filters and continuous air circulation system. Temperature of about 23 ± 2 degree C and relative humidity of 45-65% throughout the year should be maintained.

- Air movement should always be from clean to dirty areas. Where air-conditioning is not universal, cubicles should have fifteen air changes per hour and other patient areas at least three per hour. The dirty utility, sluice and laboratory need five changes per hour, but two per hour are sufficient for other staff areas.
- Air from room preferably exhausted to the outside but may be re-circulated provided it is through HEPA filter except in case of isolation of TB patients.
- Smoking should not be allowed in the ICU complex.
- The ICU should have its own power backup as well as UPS system which should start automatically in the event of a power failure

7. Lighting – Clean LED light fitting should be used and it should be sealed and flushed to the ceiling. Illumination at bedside must be at least 300 lux. All switches and sockets inside unit should be antimicrobial.

8. Window – Toughened glass windows that are flushed to the inside wall should be hermetically sealed. Aluminum window frames with powder coat finishes should be flush mounted to the wall. A silicon/EPDM gasket should be used to completely seal the assembly, and the appropriate aluminum profile should be installed. The window should be made of two pieces of toughened glass sandwiched between two pieces of frosted, film-wrapped, or motorized venetian glass.

9. Bed Head Panel (BHP)/Pendant – Each bed in the unit should have a BHP/Pendant equipped with antimicrobial switches and clutter of wires should be avoided thereby enabling free movement around patient's bed.

10. Gas Pipeline – Gas pipeline s should be laid in the unit with oxygen outlet and flow meter, vacuum outlet and ward vacuum unit and medical air outlet. Each unit should have an individual valve box and alarm system. Gas outlets should be fixed to the BHP/Pendant.

11. Coving – All corners of the unit should be coved.

12. Noise Level – The Indian Public Health Standards recommends noise levels to be in the range of 35 to 50 dB. The noise levels in the hospital acute care areas should not exceed 45dB in the day time, 40 dB in the evening and 20 dB at night, as per International Noise Council (INC) recommendation.

13. Cleaning Area –

- I. Toilets
- II. Bed Pan cleaning area

Recommended Human Resource for ICU and Recommended Job Description {Refer: Guidelines for High dependency unit (HDU) and Intensive Care Unit (ICU) March 2022}

Infection Prevention

- ICU is vulnerable area for spread of Infection; therefore, it is imperative that all protocols and recommendation practices about infection control and prevention are observed and if there is a breakout then adequate steps taken to control this and disinfect the ICU if indicated.
- Infection control practices must be in top of the priority list of every ICU.
- All the Recommendations of State Pollution Control Boards and Biomedical Waste guidelines must be followed in letter and spirit.
- All beds must have 24x7 Hand rub solution bottle hanging by the bed foot end or around
- There should be one hand wash basin with elbow operated water tap for at least 5 beds. A hand wash basin for every bed may require lot of space and may lead additional problems.
- All linen/equipment used in ICU procedure should be sterilized by autoclave or any other standard methods

- Dedicated ICU autoclave/ETO rooms are desirable for larger ICU
- Standard methods/protocols should be adopted to dispose off single use disposable tubes/catheters and lines and should be transported out of ICU either by dedicated ducts or by closed cart.

Hybrid Model

It is recommended to have hybrid model consisting of invasive and non-invasive ventilator supported beds. Hybrid model should be functioned under supervision of specialists. Hybrid models are suitable and cost effective in the context of space crunch or shortage of human resource.

Step-up criteria for transfer from HDU to ICU

- Requiring invasive ventilatory support.
- Hemodynamic instability requiring significant/increasing vasopressor/inotrope support.
- Multi-organ failure syndrome involving 2 or more organ system dysfunction.
- Continuous or intensive monitoring required for any condition

Step-down criteria for transfer out from ICU to HDU

- Resolution of the above criteria with reasonable clinical stability for at least 12-24 hours.

Space Requirements as per IPHS for a hybrid critical care unit

Type of bed	Floor space per bed	Space between head end and wall	Space between foot end and wall	Space between center of two adjacent beds
ICU Bed	25-30m ²	0.9m	1.2m	3.5m
HDU Bed	20-24m ²			
Pediatric ICU Bed	12 m ²			

Bed Distribution of ICU should be as per the standards given in annexure 6.3

Similarly, norms for human resource and job responsibilities of staff in ICU should be as per annexure 6.4 and 6.5, respectively.

References

- 1) Guidelines on Critical Care hospital block, Pradhan Mantri Ayushman Bharat Health Infrastructure Mission, Ministry of Health and Family Welfare, Government of India, 2022
- 2) Indian Public health standards, Ministry of Health and Family Welfare, Government of India, 2022
- 3) Indian Society of Critical Care Medicine Experts Committee Consensus Statement on ICU Planning and Designing, 2020
- 4) आयुक्तालयाचे पत्र क्र आ से आ/कक्ष-३/फायरसेफ्टीऑडीट/टे.६/ /१९ दि. ९ जानेवारी २०२१
- 5) आयुक्तालयाचे पत्र क्र आ से आ/कक्ष-३/ टे.३/ जीवायो/नावित्यपूर्ण/प्रस्ताव/तांमा/७०३-८५३/२१, दि. १५ जानेवारी २०२१
- 6) मा. प्रधान सचिव यांचे पत्र क्र संकीर्ण २०२१/प्र क्र ४०/आरोग्य ३/सार्वजनिक आरोग्य विभाग. दि. ५ मार्च २०२१
- 7) मा. मंत्री महोदय, सार्वजनिक आरोग्य व कुटुंब कल्याण महाराष्ट्र राज्य, मंत्रालय, मुंबई यांचे पत्र जा क्र/मंत्री/सा.आ. व कु.क/व्ही आय पी/नोट/ २३९/२०२१. दि १९ मे २०२१
- 8) संचालक, महाराष्ट्र अग्निशमन सेवा, यांचे क्र मअसे/२०२१/३२-एफ/१६२३ दि. १० नोवेंबर २०२१
- 9) सह संचालक आरोग्य सेवा (रुग्णालये) यांचे पत्र क्र आ से आ/कक्ष-३/टे-७/अग्निशामक/पद्धिमिती/२१९२६/२१ दि. १५ डिसेंबर २०२१
- 10) सार्वजनिक विभागाच्या अखत्यारीत रुग्णालयातील Earthing नियमित तपासणी करण्यासाठी स्वीय प्रपंजी खात्यामधून निधी खर्च करण्यास परवानगी देणेबाबत शा नि क्र:संकीर्ण २०२१/प्र क्र १३१/आरोग्य ३ २२ जून २०२१
- 11) सार्वजनिक आरोग्य विभागांतर्गत असलेली निर्लेखित वाहने, रुग्णालयीन आणि शीतसाखळी उपकरणे व इतर साहित्य यांचे निर्लेखन करण्याबाबत.
- 12) क्र आ से आ/कक्ष ३/टे ३/व्ही १७०११/६३/२०२०/निर्लेखन/१६७७-१७५६/२१. दि ३ फेब्रुवारी २०२१
- 13) क्र आ से आ/कक्ष ३/ अग्निसुरक्षा/ मॉक ड्रिल/मोहीम/ १२०६६-१२१५०/२३. दि २३ ऑक्टोबर २०२३
- 14) सहसंचालक आरोग्य सेवा (रुग्णालये), राज्यस्तर, मुंबई यांचे पत्र क्र सं आ से/रुग्णालयीन कामकाज/कक्ष-०३/२०१०
- 15) मा. आयुक्त (आ से) आणि अभियान संचालक यांचे पत्र क्र रा आ सो म/व्ही सी सूचना/९२८५७-९३७/२०२१
- 16) सह संचालक आरोग्य सेवा (रुग्णालये) यांचे पत्र क्र आ से आ/कक्ष-३/टे-३/संकीर्ण/सी सी टी व्ही/२१६२५-६७४/२१ दि. ९ डिसेंबर २०२१

CHAPTER VII

OPERATION THEATRE

Surgical techniques now a days have advanced considerably & in present time the **Operation Theatre (OT)** has become the most critical point of any hospital setup. The surgical procedure itself is the most important event that happens to the patient, proper management of this critical act requires a team effort. Each member of the team plays an important role in the overall success of the surgery. It is thus important that the responsibilities of all operation theatre staff as regards various vital functions of the operation theatre are clearly defined, documented and brought to notice of all concerned.

The structure of the operating room is as crucial as the functioning team.

7.1 Infrastructure of Operation Theatre complex

Modular operation theatre complex when available can offer efficient and modern tools such as touch screen control panel, LISEP integrated panel, digital patient information viewer, software integrated with HMIS, video/audio recording sessions and live audio video, integrated server for operation notes etc., Integrated camera with automatic manoeuvre as per position of surgeon, motorized pendants for surgeon and anesthesiologist. It also ensures compliance of the environmental requirements and allows easier maintenance of asepsis.

Layout and design should be as per IPHS and NQAS Guidelines.

1. Every institute should have minimum two OT in OT complex: One as Emergency and other as a routine OT.
2. OT complex should have close linkages with all types of surgical wards, ICU, HDU and support services like CSSD, laboratory, blood bank and X-ray department etc.
3. It also needs constant specialized services such as piped medical gas supply, suctioned, electric supply, heating and air-conditioning, in addition to 24*7 separate electrical back up. It is desirable to have independent air handling unit with control of ventilation, temperature, humidity etc.
4. Laminar air flow/Air curtain at entry point
5. Construction should be seismically safe, with secured nonstructural components, without loose hanging wires/temporary connections/extension cords/multiple plugs. It should ensure a three-phase electricity supply, hard, non-porous, fire resistant, water proof, stain proof, seamless and easy to clean surfaces with curved corners and non-slip floor. Corridors should be 2-3 meters wide. Doors should be sliding/self-closing and have viewing glass. Windows should have sealed glass. Size of the operation room with a single operation table should be 40 sq. m.
6. Spark proof lighting with 24*7 electricity supply and back up arrangements with automatic switch over.
7. Antibacterial and anti fungal paint of appropriate colour should be used, so that glare and eye strain can be avoided

The operation theatre should have rooms for the following purposes, in addition to the regular Operation Theatre:

- 1) Sterilization and instruments room
- 2) Doctor's room
- 3) Nurses room
- 4) Scrub area for Sisters and Surgeons
- 5) Linen and Store Room
- 6) Recovery Room
- 7) Dirty utility room

- 8) If possible, there should be a room for plaster cases and for mobile X-Ray machines.
- 9) Theatre complex should also have three sets of toilets cum showers for doctors, nurses and other staff
- 10) Where feasible, separate space can be made available for trolley bay, waiting area for relatives of the patients, office of surgeons, anesthesiologist, nurses.

Number of operation rooms in an OT complex:

- DH 300 beds or more: 5 (General, Emergency, Ob & Gy, Eye and Orthopaedics)
- DH 200 beds: 4 (General, Emergency, Ob & Gy, Eye)
- DH 100 beds: 3 (Emergency, Ob & Gy, Eye)
- SDH 100 beds: 3 (Emergency, Ob & Gy, Eye)
- SDH 50 beds: 2 (Emergency, Eye)
- FRU CHC 30 beds: 2 (General, Ob & Gy)
- Non FRU CHC 30 beds: Desirable: 2 (General, Ob & Gy)

Minimum size of operating rooms:

- For minor surgery: 4m X 3m
- For major surgery: 6m X 5m
- For super speciality surgery: 7m X 6m (IPHS guidelines 2022)

Regular Operation theatre

All Hospitals should have at least two operation theaters located preferably on the first floor in a multi storied building. Arrangements should exist so that the operation theatre itself and the surroundings are dust-proof, away from public movement. The sterile and unsterile areas are segregated. This is necessary to avoid post-operative infections. The most sterile section of the field should be in the centre. All operation theaters should be air conditioned with split air conditioners. The doors should have auto door closer and OT should not have exhaust fan's / outlets. Modern day OT design incorporates zoning of areas within the OT complex. The four major zones are:

- Outer zone (Preparatory zone).
- Clean zone.
- Aseptic zone. (Sterile zone)
- Disposal zone

Sterilization in operation theaters

The facilities for sterilization should be satisfactory in all respects. The sterilizers should be in top working conditions. The persons in charge and those who are handling the sterilization process should be trained persons. They should carry out their duties intelligently and not mechanically. They should be trained to follow all OT sterilization protocols. Their duties should not be changed from time to time.

Whenever new sterilizers are purchased the Medical Officer or person I/C should ensure that he/she gets the necessary working pamphlet giving details as to how the apparatus should be used and the precautions should be observed. If there is any doubt about its working, the Medical Officers or I/c OT should contact the manufacturing firm or their authorized representatives. The point is that the Medical Officers should thoroughly understand the working of the apparatus and should know what precautionary measures have to be taken to prevent frequent break-downs and also what steps have to be taken for repairs. It is advisable that the representative from the manufacturers train at least one member of nursing personnel and Group D Personnel, each thoroughly in the handling of the apparatus. Later on, these persons can in turn train the other persons.

The details about the pressure need to be achieved during autoclaving and the time for which it is to be maintained, and the SOP should be displayed and mandatorily followed. It is necessary to attend to minute details while carrying out sterilization and to exercise strict supervision. It should particularly be ascertained whether a sterilizer has been subjected to the hydro-static test or not before purchasing it.

7.2 Human Resources

Nurses: Two per shift. Six nurses for a 24x7 OT. There should also be a Nurse in charge of the OT and two nurses for common Preoperative and postoperative areas. More details of specialists and other HR needed at DH, SDH, RH as per IPHS 2022 guidelines.

7.3 Equipments

Maintenance of equipment

Special efforts should be made towards maintenance of various equipment in the operation theatre; otherwise in the midst of an operation one has to face complications. The anesthetist as well as the sister in charge of the operation theatre should make it a point to examine various parts of equipment (regularly once or twice a week).

Please see the list of equipments at District/Sub-district hospitals as well as Rural Hospital (RH)/Community Health Center (CHC) as given in annexure 7.4

7.4 Cleaning and Disinfection

These are indispensable steps for avoiding post operative infection and thus form an integral part of the functioning of an operation theatre.

Cleaning and disinfection are carried out after each operative procedure and also when the list is completed at the end of the day in addition to routine cleaning every two hours and an intensive deep cleaning every week/on holiday. The schedule of fumigation along with the standard operating procedure of cleaning and disinfection must be established, documented and posted. It is necessary to test from time to time, the sterility obtained in the operating room, is as per the norms required and whether the autoclaves are capable of sterilizing efficiently or not. Fumigation of the operating room is done properly. This should be done by testing samples with the help of culture tests & monitoring the presence of organisms, by using air settle plate. (**Circular No.DHS/Desk-3/Formalin/20.05.14**)

The records of such monitoring should be maintained. Such a check should prevent postoperative infections. Clean cases should be operated first. High risk cases should receive special attention and care.

Fogging:

The use of formalin as a fumigating agent has been stopped because of its irritant and potential carcinogenic properties. It can cause respiratory irritation, watery, itchy runny stuff nose, dry or sour throat, headache and dermatitis. Use of formalin as a preservative can be continued.

For fumigation and surface disinfection, Hydrogen peroxide 11% w/v with 0.01% w/v, stabilized with silver nitrate should be used.

Guidelines for surface disinfection:

For surface disinfection, 5% dilute solution is prepared. It is prepared by adding 250 ml of hydrogen peroxide 11% w/v with 0.01% w/v, stabilized with silver nitrate + 4750 ml (total 5 litres) of deionised water with contact time of 60 minutes

The staff must have been trained in the management of biomedical waste and should be well conversant with the Infection Prevention Measures. The Standardized Sterilization protocol for cleaning of instruments, cleaning and fumigation should be followed as given in annexure 7.2

Asepsis:

There should be no relaxation in the precautions regarding sepsis in the operation theatre. All protocols of

OT must be followed. This includes protocols for preparation of skin, scrubbing, gowning, gloving, draping, management of spills and bio medical waste etc. Outsiders should not be allowed to enter the operation theatre without having donned the appropriate apparel, including over shoes. The operation theatre should not become a centre for discussions. There is a natural curiosity on the part of Medical Officers to watch interesting operations done by others. It often happens that they have got some loose time hanging on them and at such times, their impulses may drag them to the operation theatre. They should dress invariably, as per rules and then only enter the operation theatre. Sometimes, private practitioners are interested in a particular case and they desire to attend the operation. If they do not come at the start of the operation, they are also likely to enter in their own dress. Medical representatives who want to contact the medical officers should not be allowed in the surgeon's room. All persons should dress invariably, as per rules and then only enter the operation theatre.

Talk should be reduced to a minimum. Movements should be minimal. The nursing staff, as well as the Group D servants, should not move about in the operation theatre, in such a way that their garments touch the sterilized towels covering instrument trays and instrument tables.

The removal of sterilized surgical linen from the drums should be done with meticulous attention to details.

All staff who are on duty, should put on operation shoes, gowns and masks. All operation theatre staff, including anesthesiologists, should not go out of the operation theatre from time to time unless there's a compelling reason to do so.

One cannot be too particular and too exact about the various precautions mentioned above. The operating surgeon must be bold enough to displease outsiders who want to enter the operation theatre just for some discussion. If any persons are desirous of observing an operation, the permission of the Surgeon should be obtained beforehand, and they should be allowed to enter only after changing their dress. Theatre Group D servants should be supplied with operation theatre uniforms and shoes. Such persons must be told that they are not to go outside the theatre area with the Operation Theatre shoes and OT uniform.

7.5 Operation Theatre Management

Timing and list of operations

1) The Medical Officer in-charge of the ward should prepare a list of operations, to be performed on the succeeding day, by 1 to 2 p.m. of the previous day. This list should be prepared in consultation with the head of the unit, as the head of the unit should be aware of particular operations to be done on a particular day. After having finalized the list of operations, it should not, as a rule, be changed except in case of emergency. The list should be prepared after fully apprising the patients as well as the responsible relatives and after taking proper consent. The list should be given to the operation theatre Sister, immediately after preparation, so that she has sufficient time to arrange for sterilization of linen as well as to arrange for instruments. The list should ordinarily always denote the order in which the operations are to be undertaken and this order should not be changed except in case of emergency. The clean cases will naturally take precedence over the other cases. It is quite necessary to be precise in arranging this order of operations because the pre-operative medication can then be methodically given.

The operations should always start by 8-30 to 9-00 a.m. on any morning. There should not be any delay except on very rare occasions when there is some major upset. The ultimate responsibility for any operation resolves on the main surgeon and no operation should be started without his presence.

For carrying out operations with ease and efficiency, it is necessary that one unit should have the facility of using two operation theaters simultaneously so that by the time an operation is over, in one of the operation theaters, the other operation theatre can be prepared and kept ready and the second patient also can be taken on the table without loss of time. If this system is followed, the disposal of operation

cases would be quicker and easier. Moreover, there would be no loose time hanging on the medical staff causing unnecessary irritation. If only one operation theatre is to be utilized for successive operations, the induction of anaesthesia also becomes a great problem as the Surgeon is anxiously waiting for the next operation. There is a sort of pressure on the anaesthetist to induce anaesthesia as quickly as possible and after all, the induction cannot be hurried beyond a certain limit. The nursing staff also does not get adequate time to wash and sterilize instruments and lay the table.

II) Now-a-days it is usually necessary, especially in district hospitals with only two theaters available, to allow one day for two surgeons. If two surgeons are allowed to work at the same time, it is not possible for either one of them to get the advantage of two theaters at a time. Under these circumstances, it is absolutely necessary that one Surgeon may be given the time, say 8-30 a.m. to 11-00 a.m. and the other time 11-00 a.m. to 1.30 p.m., so that each one has the advantage of two operation theaters for simultaneous utilization. It may also be necessary to allot days/time slot for various specialties

Since the nursing and Group D staff have to start working a considerable time (before the Surgeons themselves arrive and have also to work for a considerable time) after they leave, it is necessary for the medical officers to have humane and sympathetic considerations for this staff and not to stretch the operations in the afternoon. Except in respect of unforeseen emergency cases, even minor cases, should not be taken-up at the eleventh hour. They take considerable time for preparation and anaesthesia.

(III) Operations, once fixed, should not be postponed for any reason, other than that required by the patient's condition.

Patients to be operated upon may have to go from various wards. The usual tendency of the ward sisters is to send all the patients to be operated upon early in the morning. Such patients, from various wards, gather in the verandah attached to the operation theatre. Since all these patients cannot be attended to at one and the same time, it is quite useless to gather the patients in such a manner. The movement of patients to the operation theatre should be arranged in such a smooth way that only those who will be taken up in a short while are sent. The rest of the patients should remain in the wards only. There is a considerable difference between waiting in the wards and waiting near the operation theatre. Patients wheeled out remain under unnecessary tension and moreover, the premedication time schedule also gets disturbed. It is also to be remembered that some of these patients have dulled senses and subdued alertness on account of premedication and it is not advisable for such patients to be left on a stretcher near the operation theatre with no one to observe them.

Preoperative Examination

The Medical Officer in-charge of the case and also the anaesthetist should carry out whatever preliminary examinations are necessary, before the patient is taken to the operation table. The anaesthetist should not be in a hurry. He should take his own time in checking the pulse, heart, blood pressure, respiratory system, etc. The Medical Officer should also check whether consent, in proper form, has been taken and whether the necessary preparations, local and general, have been made. It should also be seen, if a responsible relative is present or not. This fact, of course, should have been ascertained on the previous day and should not complicate matters at the eleventh hour.

Scrubbing

The process of scrubbing and dressing up for operations should be done with due attention to details. The minimum time necessary must be spent for scrubbing properly. The dressing up must also be done with due precautions so that the hand and articles of dress are not allowed to come in contact with anything that is not sterilised. The exterior of the gloves must not be touched by hands while putting them on.

Lithotomy operations

Cases requiring operation in the lithotomy position, especially in women, there should be proper arrangements for privacy and confidentiality.

Consent and Side to be operated

The operating Surgeon should always verify some facts before starting any operation. He should personally check whether separate consent for surgery and anaesthesia in the proper form, has been taken and whether the requisite preoperative examination and medication has been done. He should also confirm by asking the patient, that he is in fact the same person who requires the particular operation and should also ensure that the side / organ to be operated upon, is the correct one for example, herniotomy, nephrectomy etc.

Availability of blood in adequate quantity when indicated along with consent for blood transfusion must be confirmed.

Surgical Safety Checklist (WHO)

World Health Organization		
SURGICAL SAFETY CHECKLIST (FIRST EDITION)		
Before induction of anaesthesia	Before skin incision	Before patient leaves operating room
<p>SIGN IN</p> <ul style="list-style-type: none"> <input type="checkbox"/> PATIENT HAS CONFIRMED <ul style="list-style-type: none"> • IDENTITY • SITE • PROCEDURE • CONSENT <input type="checkbox"/> SITE MARKED/NOT APPLICABLE <input type="checkbox"/> ANAESTHESIA SAFETY CHECK COMPLETED <input type="checkbox"/> PULSE OXIMETER ON PATIENT AND FUNCTIONING <p>DOES PATIENT HAVE A:</p> <p>KNOWN ALLERGY?</p> <ul style="list-style-type: none"> <input type="checkbox"/> NO <input type="checkbox"/> YES <p>DIFFICULT AIRWAY/ASPIRATION RISK?</p> <ul style="list-style-type: none"> <input type="checkbox"/> NO <input type="checkbox"/> YES, AND EQUIPMENT/ASSISTANCE AVAILABLE <p>RISK OF >500ML BLOOD LOSS (7ML/KG IN CHILDREN)?</p> <ul style="list-style-type: none"> <input type="checkbox"/> NO <input type="checkbox"/> YES, AND ADEQUATE INTRAVENOUS ACCESS AND FLUIDS PLANNED 	<p>TIME OUT</p> <ul style="list-style-type: none"> <input type="checkbox"/> CONFIRM ALL TEAM MEMBERS HAVE INTRODUCED THEMSELVES BY NAME AND ROLE <input type="checkbox"/> SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE VERBALLY CONFIRM <ul style="list-style-type: none"> • PATIENT • SITE • PROCEDURE <p>ANTICIPATED CRITICAL EVENTS</p> <ul style="list-style-type: none"> <input type="checkbox"/> SURGEON REVIEWS: WHAT ARE THE CRITICAL OR UNEXPECTED STEPS, OPERATIVE DURATION, ANTICIPATED BLOOD LOSS? <input type="checkbox"/> ANAESTHESIA TEAM REVIEWS: ARE THERE ANY PATIENT-SPECIFIC CONCERNS? <input type="checkbox"/> NURSING TEAM REVIEWS: HAS STERILITY (INCLUDING INDICATOR RESULTS) BEEN CONFIRMED? ARE THERE EQUIPMENT ISSUES OR ANY CONCERNS? <p>HAS ANTIBIOTIC PROPHYLAXIS BEEN GIVEN WITHIN THE LAST 60 MINUTES?</p> <ul style="list-style-type: none"> <input type="checkbox"/> YES <input type="checkbox"/> NOT APPLICABLE <p>IS ESSENTIAL IMAGING DISPLAYED?</p> <ul style="list-style-type: none"> <input type="checkbox"/> YES <input type="checkbox"/> NOT APPLICABLE 	<p>SIGN OUT</p> <p>NURSE VERBALLY CONFIRMS WITH THE TEAM:</p> <ul style="list-style-type: none"> <input type="checkbox"/> THE NAME OF THE PROCEDURE RECORDED <input type="checkbox"/> THAT INSTRUMENT, SPONGE AND NEEDLE COUNTS ARE CORRECT (OR NOT APPLICABLE) <input type="checkbox"/> HOW THE SPECIMEN IS LABELLED (INCLUDING PATIENT NAME) <input type="checkbox"/> WHETHER THERE ARE ANY EQUIPMENT PROBLEMS TO BE ADDRESSED <p><input type="checkbox"/> SURGEON, ANAESTHESIA PROFESSIONAL AND NURSE REVIEW THE KEY CONCERNS FOR RECOVERY AND MANAGEMENT OF THIS PATIENT</p>

Anaesthesia

The Anesthesiologist must see the cases sufficiently in advance of the actual operation and study the condition and prescribe the premedication and also the nature of anaesthesia. It is necessary for the Anaesthetist to concentrate on his work during the time of induction and the actual operation. The anaesthetist should not primarily concentrate on the various steps of operation. The induction should be unhurried and smooth.

Attention should be paid to the presence of false teeth, prosthesis, allergy, jewellery etc. Care of limbs, eyes, nerves and tourniquets is necessary.

The modern techniques of anaesthesia are complicated and varied. It is, therefore, necessary to take special care before sending the patients back to the respective wards. Correctly speaking, it is necessary for the operation theatre to have a recovery room by the side of it so that all operated patients are put in this recovery room after the operation and observed and watched, until they come out of anaesthesia. Only when they have come out of danger should they be sent to the wards. If such a recovery room does not exist, the anaesthetist and the Medical Officer should give clear written instructions on the case paper and send a nurse with the patient right up to the ward.

Surgical Swabs and Sponges

It is necessary to consider the point regarding accidental loss of mopping swabs and instruments during a surgery. Surgical towels / mops / swabs must be counted by the sister assisting in the operation theatre. If there is any discrepancy. She should inform the Surgeon in time about it, before the closure of surgery. On no account should she hesitate to do so and for this purpose, it is necessary that the count should be done by the sister with confidence. It is also simultaneously the responsibility of the operating surgeon to see that this step is being followed. He should not close the cavity unless the sister confidently declares the count as correct. As regards the swabs, those once used must be disposed of. Small swabs should not be used for temporary packing and isolating of areas, for example, in cases of isolation of the base of the appendix during appendectomy. Any towels to be used during the operation must have tapes to which artery forceps should be invariably attached. It would be also convenient to follow the method of using continuous gauze tape as described by Crossen and Crossen. Abdominal sponges should be kept in bundles of six. Discarded towels should be hung up for counting.

Similarly, a good count must be kept of all the instruments used during the surgery, as artery forceps are used for work in the interior, in deep cavities, so that they should not be lost sight of on account of the very nature of their size.

Operative Notes

The recording of operation notes is very important. The details of anaesthesia should be invariably mentioned for this purpose, standard forms are available from the Indian Oxygen and Acetylene Co. and there are standing orders that such form be used. The type of anaesthesia which is given and the name of the anaesthetist must be mentioned. Duration and amount of anaesthetic agent used are also important and should be mentioned.

As regards the actual operation notes, the time of starting the operation and time when operation is over should both be mentioned. The names of the Surgeons and the assistants should be clearly mentioned and the important steps of the operation should be described. All operative findings should be entered. The entries made must be accompanied by the name and signature of the writer along with the date and time.

An operation register should always be there in the theatre. The three columns, viz. diagnosis, the operation carried out and the type of anaesthesia should invariably be filled in by the Medical Officer himself. There should not be any entries like only "Laparotomy", "Fracture" "Enlarged glands" as they are not informative. Such entries give rise to a great difficulty in collecting statistical information and are also responsible for spoiling the record of the patient's case, and are not helpful for subsequent correspondence. The hospital is thus not able to show the actual work which is being done.

Another important point is that the income of the patient should be checked and it should be seen if it has been written on the case paper. This is an important matter from the audit point of view.

The Medical Officer in-charge of the case should also write out the post-operative instructions explicitly. There should not be any oral orders. Clear instructions should be given as to when, if at all, a call is to be sent to the Medical Officer. The Medical Officer should also write if any section of a tissue has been taken for pathological examination. The fact should be noted on the case paper, so that the sister remembers about it. The specimens kept in a proper preservative should accompany the case sheet. Cases may occur where valuable clues may disappear on account of lack of such simple precautions. Some particular person should be held responsible for preserving tissues or fluid meant for examination and such tissues should be kept in a small almirah, which could be locked.

7.6 Emergency Cases and Deaths

There must be arrangements for the operation theatre to receive emergency cases at a short notice. As a matter of fact, it should be possible to undertake any operation within a course of 15 to 30 minutes and

instruments should be kept handy prepared for emergency tracheotomy or open cardiac massage or any other emergency procedure. The staff on emergency duty therefore must never leave the headquarters and should be available at a moment's notice. Substitution of one person by another by mutual arrangement should not be allowed, as it is an unreliable method. Emergency cases should not be handled entirely by junior Medical Officers. Allowing a Junior Medical Officer to work under the supervision of a senior man is one thing but to give him permission to operate entirely on his own is another.

In respect of emergency operations, the casualty medical officer / the Medical Officer on duty is on many occasions, not able to decide whether a particular patient requires the operation or not. The surgeon has, therefore, to attend once, for examination of the case and if surgery is necessary, thereafter, again for the surgery. The two steps are sometimes separated by an appreciable amount of time interval and this is a source of great annoyance to the Surgeon. This is a matter which, however, cannot be helped and the Surgeon should not give orders for surgery without examining the patient.

All equipment for blood transfusion, venesection and infusion should always be kept up-to-date. Resuscitation measures have to be applied within a matter of minutes and there should be complete readiness to carry them out, irrespective of the magnitude of the operation. The theatre staff should have exercises in the work to be carried out during emergencies and should always be fully prepared to meet them, so that the work is not thrown out of gear. A good organization is required to achieve this. The staff of the operation theatre must be trained in the fire safety measures and know the protocol. Periodic fire mock drills should be performed and documented.

Deaths on operation table:

Deaths occurring on the operation table should be thoroughly investigated. The statements of the persons concerned should be taken independently and a complete report, with conclusions, should be sent to the office of the civil surgeon.

All instances of sudden unexpected and inexplicable death on the operation table must be dealt with by thorough investigation into the cause of death and a report should be submitted to the head of the institution especially in view of the possible medico-legal context of such cases.

7.7 Support Services

Mobile X-Ray Machine / C arm machine, etc.

The operation theatre wing is often equipped with a mobile X-Ray Machine / C arm machine, etc. The staff handling these machines should be aware of the rules for working of the machine and about the precautions to be taken for protection from radiation hazards.

Stretcher Service

The stretcher service to and from the operation theatre should be organized thoroughly. The difficulty commonly encountered in the operation theatre as well as in the wards is that patients, operated upon and fit to go to the wards, cannot be shifted because the concerned ward servants are not available and the call has to be sent for them. Many a time, these ward servants have also vanished from the respective wards after informing the sister that they are going to fetch the patients. Similarly, when patients are to be sent from the wards to the operation theatre the concerned ward servants are not easily available. This upsets the whole time-table of the operation theatre and causes inconvenience to one and all. It is definitely possible to coordinate, even taking into consideration the factor of unpredictability of time required for a surgery, to anticipate and make proper arrangements by a close contact between the theatre and ward nursing personnel.

Boards and signages

There should be a board outside the operation theatre, where the patients' relatives are waiting, giving the

list of operations which are to be performed on a particular day. There should also be a board embodying the important instructions as to how to prevent soiling of the operation theatre by movements of extraneous persons. Appropriate display of duty list, user friendly signage for restricted areas, zones, directional signage, labels for various rooms should be available.

Water Supply and Electricity

The Sister in-charge of the operation theatre should always ensure about water supply and electricity arrangements. It often happens in the district that announcements are made that there will be a stoppage of water supply or electric supply for specific hours on specific days. It is necessary to keep these dislocations in mind and inform all the persons concerned. In many districts, the water supply arrangements being faulty, the operation theatre, along with the other sections of the hospital receives turbid water during the rainy season. Such water is not suitable for use in the operation theatre. It is, therefore, necessary to use alum and to strain the water before use

It is necessary to make available and use, purified and clean water. Sufficient electrical lines should be provided as per NQAS guidelines.

Emergency Light Arrangements

There should be some arrangement for emergency lighting in every operation theatre in case electric supply goes out of order. This can be done by having separate emergency generators or by providing electrical inverters or other emergency UPS (uninterrupted power supply) batteries,

Loan of Instruments

It often happens that the various sections of a hospital demand instruments from the operation theatre on temporary loan. As a matter of fact, the ward equipment should be like that, it should not ordinarily be necessary to requisition items from the operation theatre, but sometimes such a step is required to be taken. In such cases, the sister should be careful to maintain a separate register. She should entertain written requests only and not oral. The written requests should be attached in the register and as against them the necessary instruments issued. The signature of the persons, who have brought the requisition and received the articles, should also be taken in the register, along with the time and date.

Emergency bell

The operation theatre should have in it an electric installation for ringing an emergency bell. This should be operated in case very quick help is needed from outside, so that no time is lost in sending messages here and there. The emergency connection should be in the room of the Additional Civil Surgeon who should, upon hearing the signal rush for making the necessary arrangements.

7.8 Records and registers:

- Dead stock register
- Operations register
- Registers for postponed operations,
- Record of fumigation,
- Cleaning activity,
- Autoclave, BMW disposal, swab and culture reports, logbook of heavy and
- Costly equipment, fire mock drill

Dead Stock Register

The dead stock register of operation theatre equipment should be up-to-date and well maintained. The equipment in an operation theatre is not only for day-to-day use but subject to more wear and tear than in

other sections. Moreover, any replacement becomes difficult unless the register is kept up-to-date. The Sister in-charge of the operation theatre should make immediate records, in the prescribed forms, about any breakages and see that the necessary stock is replaced. For this purpose, it is advisable to give to the sister in-charge of the operation theatre at least 10 to 20 per cent additional stock over and above the minimal stock in respect of articles which are likely to be broken.

For Registers and formats to be used in Operation Theater, please refer Annexure 7.3

7.9 Training

- Concerned staff should be trained and periodically re sensitized in:
- Advanced life support
- Cardio-pulmonary resuscitation
- BMR management
- Infection Prevention and Control measures
- Fire safety
- Quality management
- Various S.O.P.s and protocols

7.10 Quality Management

Formation of quality circle, SOP for all key processes, mapping of critical processes, identification of non-value adding activities, internal assessment, PDCA reporting, deciding short term objectives and monitoring of indicators of productivity, clinical care, safety and service quality (NQAS guidelines)

Technical Requirements for Surgical Operation theaters from the Surgeon's Viewpoint are given in annexure 7.5

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CHAPTER VIII

RADIOLOGY DEPARTMENT

In all District Hospitals radiology department is functioning separately. Well-equipped Radiology department consists of following modalities.

- 8.1. X-Ray: (Conventional Radiology & Digital Radiology)
- 8.2. CT Scan
- 8.3. USG
- 8.4. MRI

Efficient & effective Radiological services are most essential healthcare facilities for delivering quality treatment to patients, based on accurate diagnosis. Radiology plays a central role to disease management for detection, staging and treatment of disease.

8.1. X ray Unit:

Staff – (Man Power):

- 1) It is necessary to have sufficient staff in X-Ray department. A qualified radiologist is essential in all DH, GH, SDH & Speciality Hospitals. As per IPHS Guidelines following HR in X-Ray unit is recommended.

Sr No	SDH		DH											
	100 beds		50 beds		100 beds		200 beds		300 beds		400 beds		500 beds	
	E	D	E	D	E	D	E	D	E	D	E	D	E	D
1	-	1	-	1	1	-	1	-	1	1	2	-	2	-
2	1	2	1	2	1	2	1	2	3	1	4	-	5	-

- 2) The X-Ray technician should be assisted by one or more X-Ray assistants as required. Sufficient Group D servants should be provided to avoid delay in removal of patients from X-Ray department after investigation. At least one staff nurse is necessary; as female patient should not be screened without a nurse and a nurse is also required for certain technical procedures concerning female. The Group D servants, working in X-Ray department also trained for a special purpose and they should not be transferred frequently to other departments.
- 3) Ideally, Radiation safety officer (RSO), preferably trained in BARC should be appointed for radiation safety in X-Ray department as per the approval from AERB.

If Radiation safety officer post is not sanctioned or not filled up, a technical person from the Hospital Radiation safety officer (RSO) can be deputed in BARC for in-service training.

Timing & Emergency Duties:

The X-ray department should be open in the morning and in the evening. In the morning it should be open from 8:30 am to 12:30 pm and in the evening it should be open from 4 pm to 6 pm. In addition to the regular working hours, it is also necessary that the X-ray unit should be working for any emergency at any time of the day or night.

Examination of Outdoor & Indoor Cases

It is advisable to have some sort of plan for carrying out X-Ray examination of outdoor & indoor patients separately. During morning hours, there is a great rush of outdoor patients. Mixing-up of X-ray

examination of indoor patients during morning hours can create a great confusion and both outdoor and indoor patients are required to wait for long time. To avoid such situation, it is definitely possible by judicious consideration to divide work of examination of outdoor and indoor cases by fixing separate times for them.

A Separate radiologist can be assigned for outdoor and indoor patient

Examination And Reporting Of X–Ray Films

The X-ray films examination should be carried out by radiologist OR via Tele radiology.

- Examination of X-Ray of emergency and urgent cases (to be operated) should be done immediately.
- Timely reporting of X-rays should be ensured.
- Record of Patients in radiology department should be kept separately. One register for MLC cases record should be kept in lock & key with the radiologist. A general Proforma for the registers to be kept should be as follows.

Month & Year:										
Sr. No	Reg. No	OPD/ IPD	Paid Or Free	Name of the Patient	Age	Sex	X-ray View	Part to be viewed/ X-ray view	MLC/ Non MLC	Remark
1										
2										
3										
4										
5										

It is necessary that x-ray plates should be carefully marked with name and register number of concerned patient. The date on which x-ray is taken should be carefully marked and so also words "Right" "Left" "Dorsal" "Lateral" etc.

- The Medico Legal Cases reporting to be done by a radiologist. The films and reports of these cases should be kept in lock and key and produced on request from legal authority, by hospital medical record section as and when required.

X– RAY UNIT:

X- Ray services should be located in a place that is accessible to both OPD and wards and also to the emergency & OT Complexes.

Flooring of X- Ray department should be anti-skid & non-slippery, Corridors should be at least 3 meters wide. Corridors should follow fire safety norms.

Appropriate structural shielding should be provided for walls doors and ceilings and floors of room housing the X- Ray machines so that radiation exposures received are kept to minimum and do not exceed the respective limits as per directives of competent authority . Appropriate shielding materials should be provided at joints or discontinuities.

a) Standard Layout for X–ray Room Installation

- Wall of the X-ray rooms on which primary X-ray beam falls should **not be less than 35 cm thick** brick or equivalent.
- Walls of the X-ray room on which scattered X-rays fall should **not be less than 23 cm thick** brick or equivalent.

- There should be a shielding equivalent to **at least 23 cm thick brick or 1.7 mm lead** in front of the doors and windows of the X-ray room to protect the adjacent areas.
- Unshielded openings in an X-ray room for ventilation or natural light, should be located above a **height of 2 m** from the finished level outside the X-ray room.
- **suitable warning signal such as red light** and a warning placard should be provided at a conspicuous place outside the X-ray room and kept 'ON' when the unit is in use to warn persons.
- The location of control booth, which should not be located where the primary beam falls directly, and the radiation should be scattered twice before entering the booth.
- In case of X-ray equipment operating up to 125 kVp, the control panel can be located in the X-ray room.

While establishing X ray unit AERB norms are to be followed.

IVP IVU

Intravenous pyelography, Urography can cause allergic reactions and the department should be equipped to treat the same. is one of the procedures carried out in X-Ray department. Patients subjected to I.V.U sometimes get allergic reaction. The nature of the reaction may vary from mild to extreme severity. It is therefore, quite mandatory to test the sensitivity earlier and also to keep sufficient equipment and emergency medicine tray for treating allergic reactions and shock in the X-Ray room. In fact there should be a resuscitation equipment kept absolutely ready.

Care and maintenance of X-ray machine handling/servicing repairs:

X ray machine should be handled by trained and authorized manpower. Great care should be taken in handling X-ray machines. To avoid this contingency, sufficient Radiation safety officer (RSO) and radiologist post should be filled up according to IPHS standards for a particular DH or SDH. At least, extra Medical Officer and all technicians should be taught the use of the machine properly.

Radiation safety officer (RSO) should ensure proper maintenance of X ray equipment on regular basis. A log book of each x-ray machine should be maintained. In this log book name of x-ray machine Company, date of purchase, history of breakdown, and history of repairs should be mentioned.

Servicing and Repairs

General preventive maintenance of X-ray machine and related electrification can be conducted at user level and begins with proper usage of machine and routine cleaning. Servicing and repair of X-ray machines should be done as per prevailing guidelines..

For proper working, maintenance & repairs of X-ray machines as well as of radiological equipments ,the committee should be formed in hospital as follows. :

District / General / Women s Hospital

- | | |
|--|-----------------------|
| 1. Additional Civil Surgeon / Medical Superintendent | Chairman |
| 2. Radiologist |Member |
| 3. Radiation safety officer (RSO) | Member Secretary |

100 / 50 Bed SDH & RH / Trauma Care Unit

- | | |
|-----------------------------------|------------------------|
| 1. Medical superintendent | Chairman |
| 2. Radiologist/ MO | Member |
| 3. Radiation safety officer (RSO) | Member Secretary |

Regional Referral and Orthopedic Hospital

- | | |
|---|------------------------|
| 1. Officer on Special Duty/Medical Supdt. | Chairman |
| 2. Radiologist | Member |
| 3. Radiation safety officer (RSO) | Member Secretary |

The equipment purchased should ideally have 3 years warranty with annual maintenance contract of 7 years with availability of spare parts.

8.2. CT SCAN:

The CT SCAN room should be situated on ground floor only, so that it can be approached easily from the outdoor department; the indoor wards and the casualty department.

Staffing Pattern:

Staffing pattern should be according to Annexure 6 of IPHS guidelines 2022 Volume I. Regular blood examination of the staff in radiology department is necessary, every 3-6 months as per AERB guidelines.

Care Of The CT Scan Machine:

For better functioning of a CT scan machine following additional things are necessary.

- 1) Adequate cooling of CT scan room
- 2) Adequate electricity supply to CT scan department along with adequate power back up through UPS and generator
- 3) Adequate rodent pest control
- 4) Separate transformer of adequate capacity should be there to provide electricity to run a CT scan machine properly.

Every CT scan machine gets inherent minimum 2 years warranty by vendor Company itself, usually. It is better to enter into service contract with the manufacturer for periodical inspection and rectification of defects thereafter through proper AMC. Usually, after warranty period, agencies are appointed by concerned authorities for any kind of maintenance.

The CT technicians should keep a record of all the events which occur during CT scan operations such as the nature of damages, breakdown, stoppage of items attended to, instructions given at the time of servicing, the details of parts replaced etc. In short, the CT technician should have the complete knowledge of the condition of machines at any given time.

If the In-charge of radiology department finds that, the vendor firm which has supplied the machine is not carrying out the repairs satisfactorily or is carrying them out tardily, he should at once communicate this fact to the office of the concerned authorities, through proper channels, so that this matter can be taken up seriously by company engineers.

Timing And Emergency Duties:

The CT scan unit should be operational 24 hours a day. In the morning time, until 2 pm, all elective referred patients from OPD and IPD sections should be scanned. After that, CT scan services should be available to only emergency or urgent cases which are referred from Casualty section or IPD wards. For this purpose, after routine OPD hours, there should be availability of CT technicians round the clock.

In the case of emergency scans, radiologist should report the scan as soon as possible after the scan completion so as to guide further management by clinical specialist as per the need.

For this purpose, it is necessary that sufficient staff members from those working in the radiology department, have residential quarters in the premises of the hospital i.e. able to carry out emergency work.

Scanning Of Outdoor And Indoor Cases:

It is advisable to have efficient plan for carrying out the CT scanning of the outdoor and the indoor patients separately. Appointment system will also help in managing the work load.

Preparation Of Patients Prior to the Scan:

Every referred patient either from OPD/IPD or Casualty section should be sent to the CT scan department with duly filled CT scan requisition form signed by concerned clinical specialists mentioning probable clinical suspicion or provisional diagnosis and body parts to be scanned, precisely.

There should be typed instructions which should be mentioned on CT referral forms for the preparations, which are required to be made before the patients are sent to CT department. For example, Instructions such as nil by mouth (NBM) for minimum 8 hours and Kidney function tests reports particularly for scans to be done with a contrast material.

Patients after coming to CT scan department for scanning along with properly filled CT requisition forms by concerned referring physician/surgeon, following things to be done by technician:

CT Reporting :

After the CT scan of the patient done, radiologist should report it. Priorities to be given to the emergency patients referred from casualty section over an electively referred patients for scanning from OPD / IPD sections.

Reporting of emergency patients like patients of road traffic accidents (RTA) should be done as soon as possible. CT scan reporting of elective patients should be made available to the clinician in reasonable time so as to get further appropriate management and advice from a clinician.

After Dispatch of CT reports of both electively referred as well as of emergency patients, CT technician should take sign of the concerned to whom report is given in the separately maintained CT dispatch register. Another one printed copy of the each CT report can be maintained in a separate file in the department for record purpose.

Separate dispatch register with mentioning the CT reports in brief and signature of the persons on behalf of, received status should be maintained.

Record Keeping:

CT technicians working in the CT department should maintain the following registers for record keeping:

1. Routine Entry register mentioning
Date, Sr. no. of patient, CT scan no., part of scan to be done, Name of referring doctor, MLC no. if any, paid fees or free status and signature
2. Separate Dispatch register
3. Complaint call log register
4. Cleanliness Maintenance register - routine cleanliness and about rounds of pest control.....
5. File compiled of all monthly reports

8.3 Ultra Sonography

Human Resources :

Ultra Sonography department should have adequate number of staff nurse, Radiologist, Female attendant for smooth functioning of department. Sonography services are provided in-house or outsourced if, USG facility is not available.

Timing and Emergency Duties :

The USG department should be opened both in the morning and in the evening. In the morning it should be open from 8.30 a.m. to 12.30 p.m. and in the evening, it should be open from 4 p.m. to 6 p.m. In addition to the regular working hours, it is also necessary that the USG department should be available for any emergency at any time of the day or night.

Infrastructure:

- Ultrasonography room should have attached toilet, separately for male and females both along with hand washing facility.
- It should have changing room facility.
- It should have adequate space for equipment and patient's bed.

- It should have appropriate area to facilitate easy movement of staff and patient.
- Lighting must be appropriate for proper examination.

Condition to be fulfilled by Sonography department:

- Place, person and machine should be registered as per legal rules under PCPNDT act.
- Display notices/boards/registration certificate of the doctors in waiting room as per PCPNDT act. Size, Colour, and font of the notice should be such that it can be read easily at the distance of three feet.
- A notice of routine timing of the individual doctors should be displayed in waiting the room, confirming availability at specified time.
- Certificate of PCPNDT Registration should be displayed in waiting room and examination room.
- Machine registration number (MRC) should be displayed on the Sonography machine and certificate should be made available for inspection on demand.
- Latest / amended copy of PCPNDT act should be made available in two languages and on request, it should be made available to the patient.
- For renewal of the centre, the application should be submitted 30 days in advance from the date of expiry of the present certificate.

Guidelines for Record Keeping: –As per PCPNDT ACT:

Information of all patients undergoing sonography examination should be entered in register. All ANC patients should be registered separately in 5 column Register.

- 5 Column Register should be filled up for all the patient whose form 'F' has been filled while doing the obstetric Sonography.
- Requisition slip from the referring doctor is required for Obstetric Sonography in given format.
- Written consent/declaration of pregnant women on form “F” should be preserved.
- All the relevant data pertaining to obstetric sonography of the pregnant female is filled in Form F and is submitted on the Online Portal of the Government of Maharashtra. All the information of the Form F should be submitted Online correctly, within the stipulated time frame.

Role of appropriate authority/ Civil Surgeon / Medical Superintendent:

- Supervise the USG department frequently to prevent violation of PCPNDT Act.
- Monthly records should be monitored.
- Random checking of records of ANC patients should be done.
- Observe and implement the provisions of the act and rules in a balanced and standardized manner in the course of their work.
- Regular timely reporting is mandatory.
- Should take appropriate legal action against the use of any sex selection or prenatal determination of sex.
- Should create public awareness against the practice of sex selection or prenatal determination of sex.

Guidelines for scrapping of old Sonography machines which cannot be repaired/reused.:– Application with details of machine regarding make, model, and probe should be submitted along with affidavit to district appropriate authority. (as per.....)

8.4. MAGNETIC RESONANCE IMAGING (MRI)

The MRI SCAN room should be situated on the ground floor with easy approach to Consultants Doctors, medical and paramedical staff, indoor and outdoor patient

At present, in Public health department, Maharashtra, MRI scan machines are installed on the basis of Public Private Partnership (PPP) at few district hospitals which are above 200 bedded.

STAFFING PATTERN: MRI scan of indoor & outdoor patient can be done with proper prior appointment. It can be done for stroke or trauma patient on emergency basis, as well.

MRI unit requires radiologist for scan reporting and proper functioning of the department as per guidelines. At present, number of posts sanctioned for radiology department at 200 bedded District hospital:

- Radiologist (MD/ DMRD)
- MRI technician Qualification:- Degree or diploma from an Institute recognized by Paramedical Council in India. Minimum two years work experience as MRI scan technician. Staff requirements is as per working pattern in government medical colleges in Maharashtra.
- Nursing staff Qualification: - An ANM/ GNM Diploma or B.Sc. Degree in Nursing from an Institute recognized by Indian Nursing Council. He/She should be experienced as nurse for at least one year in MRI scan.
- Group D servants:- as per requirements of working pattern of MRI scanning

Handling Of A MRI Scan Equipment :

Concerned outsourcing agency will Install, Operate, Calibrate & maintain MRI machines as per guidelines. It shall provide online software driven dashboard for monitoring of service delivery.

- The other terms & Conditions regarding maintenance of MRI machine as per contract are as per Tender RFP document and final MOU done with DHS.
- Regular and daily record keeping of Helium levels should be done by technician
- Proper electricity supply with separate DP from MSEB board as per norm.
- Adequate power back up through UPS and generator.
- Adequate cooling of MRI center.

Care Of The MRI Scan Machine:

Concerned outsourcing agency will Install, Operate, Calibrate & maintain MRI machines

- Responsibility of service provider is to undertake regular servicing and repair whatever required as per time to time.
- The other terms & Conditions regarding maintenance of MRI machine as per contract are as per Tender RFP document and final MOU done with DHS.
- The terms & Conditions regarding maintenance of MRI machine as per contract between concerned outsourcing agency and public health Department, Government of Maharashtra and it should be informed to institute head of civil or sub district hospital.
- Time to time monitoring of Helium level.
- Proper electricity supply & power back up through UPS and generator.
- Maintain cooling of MRI scan room.

Instructions for MRI technician:

MRI technician should take history of any previous surgery or metallic implant inside the body. He/she should do thorough examination by metallic detector.

Consent and Procedure information should be given to the patients as per the protocol.

During scanning patient, technician should inform about procedure of scanning , time required to scan.

Provide relative with patient in scanning room in case; if patient has claustrophobia (fear of enclosed spaces) or anxiety.

Provide head phones to patient for feeling better in MRI room; if available.

Technician should supervise the patient during scanning through glass window.

MRI Scan Reporting:

Concerned outsourcing agency may appoint an in-house Qualified and registered Radiologist (MD, DMRD)

- Radiologist should check patient's MRI scan before sending patient back after completion of MRI scan.
- Radiologist should go through all the scans during his working hours, prepare report, shall provide the duly signed report.
- Teleradiology system can be used if in house Radiologist is not available

- Service provider should appoint adequately trained Radiologists, Radiographer and Paramedical staff to run the facility round the clock.

Teleradiology Services Outsourcing :

Concerned authorities have decided to start Tele-radiology Services through outsourcing agencies through MOU wherever needed. Since, Radiological investigations like MRI plays key role in deciding further management of patients, the installation of tele-radiology services at the health facilities has proven its supportive role in the places, where full time radiologists are not available yet.

Responsibilities Of Institute Head :

Incharge of institute head, at the level of 200 bedded district and sub district hospital level, should monitor proper functioning of MRI unit on PPP mode.

- As locations of the MRI scan centers are in government Hospitals, supervision should be done by Civil Surgeon/Medical Superintendent of the concerned institute.
- Civil Surgeon/Medical Superintendent should have the technical control over the work of MRI Scan Centre.
- If technical issues arise resulting in the stoppage of MRI services, then successful Bidder should rectify & repair machine within 72 hours at his own contract. The agency should have alternate arrangement for MRI scan of government patients during these hours till the problem is resolved.
- The alternate arrangement should be at the same cost. The transportation cost for the alternate arrangement should be at the same cost, too.
- There will be annual review of performance or as and when required by purchaser, the service provider needs to provide all documents to purchaser.
- The other terms & conditions regarding payment or termination of contract should be as per Tender RFP document and final MOU done with DHS.
- Since Radiological investigations play a pivotal role in deciding further management of patients, the installation of Tele-radiology services at the health institutes has really proven to be helpful where full-time radiologists are not available yet.

CT Scans In Medico– Legal Cases:

The CT films and reports should not be handed over to the party.

In medico-legal cases, a separate register should be maintained, with an extra copy of the printed CT report kept as an O/C.

Disposal Of Used X–Ray/CT Films Used In Radiology Department:

Exposed and unserviceable X-ray films and unused, wasted CT films in the Radiology department of Government Hospitals should be disposed of by supplying them to agencies agreed to by the government according to the approved terms and conditions.

Regarding the disposal of used X-ray films in the radiology department, the Director of Health Services gives recent guidelines with the help of a Circular from time to time, which are mentioned in the appendix.

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CHAPTER IX

LABORATORY SERVICES

9.1 Diagnostics

Diagnostics is an integral part of the health care system and provide information needed by service providers to make informed decisions about care provision related to prevention, screening, detection, treatment and management. Limited availability and access to quality laboratory and radiology services contributes to the major challenges, leading to delayed or inappropriate responses to disease control and patient management.

The diagnostics mentioned under Annexure 9 of IPHS guidelines should be included in the list of tests being offered at the different levels of facilities. Additional diagnostic tests for the management of locally prevalent diseases should also be included (e.g screening tests for Kala Azar in locally endemic areas). These norms do not preclude the inclusion of other diagnostic tests that the state decides to provide at public health facilities. All tests mentioned under the 'Free Diagnostics initiative' of the Government of India must be offered in the facilities within the public health system. The complete list of all tests being provided should be clearly displayed to all patients in the public health facilities. The details of the laboratory tests are given in annexure 9.1

Linkages with medical Colleges and national reference laboratories should be established for specialised, advanced and specific diagnostic tests. In all cases, transport must be managed carefully in order to maintain integrity of the sample, giving attention to temperature, preservation needs, special transport containers and time limitations. It is also important to ensure the safety of the staff handling the material before, during and after transport.

There should be an integrated public health laboratory with comprehensive testing facilities for pathology, bio-chemistry, microbiology, serology and other samples in every district. The district hospital is well positioned to take on this role and should be able to perform all tests required for common outbreaks of communicable diseases and incidents of public health relevance. Linkages with national reference laboratories should be established for novel pathogens and illnesses of unknown etiology.

A regular programme of diagnostic audits should be conducted to monitor the quantity and quality of diagnostic tests being offered through public health facilities. The test results should be provided to patients during the same day whenever possible so as to avoid repeated visits by the patient or their family members. Round the clock functionality is recommended in larger health facilities, in order to cater the needs regarding emergency services and intensive care in high dependency areas. The turnaround time for test results should also be standardized, adhered to standards and monitored. The availability of necessary reagents and equipment, trained laboratory personnel's, mechanisms for internal as well as external quality assurance and follow-up with clinicians should be strengthened.

Internal Quality Control (IQC) for detection, evaluation and correction of errors due to laboratory system failure, environmental conditions and operator performance, before patient results gets generated can be considered as an essential measure. Validation of procedures and equipments should be carried out by running samples in parallel using both old and new equipments and methods for a period of time to determine that the expected results can be obtained. These validation procedures should be completely recorded. The staff posted in diagnostic services can be trained under EQAS programme run by AIIMS, New Delhi and CMC Vellore.

At various level of hospitals, the tests which are to be performed in-house by Laboratory Scientific Officer (LSO) are defined. The tests which are to be performed through outsourced agency are also defined and the instructions are already given to hospitals accordingly.

9.2 Clinical/Central Laboratory

Departments of a Laboratory– The Laboratory services are divided into following departments:

- i) Microbiology and Serology.
- ii) Biochemistry.
- iii) Hematology.
- iv) Clinical Histopathology.

There can be many sub–sections in each one of these departments.

The laboratory should be easily accessible to emergency, IPD, and OPD patients. Laboratory services should be available during the daytime (general working hours), whereas emergency laboratory services should be functional round the clock (24x7). Both general and out-of-hours laboratory services (e.g., emergency services) should be provided from one central laboratory.

The collection point must provide space for patient reception, registration, waiting area and toilet facility. There should be an adequate specimen collection area for blood, urine, and faces. Hatch windows may be provided through which the specimens may be passed. The laboratory should have adequate space from the point of view of workload and maintain cleanliness and hygiene to prevent cross-contamination and infections. A minimum area of 150 m² is suggested for a laboratory load with 100 collections. This may be scaled up as per requirement.

The sample collection point must provide space for patient reception, registration, waiting area and toilet facility. The design should help in implementing a “Single Prick Policy” i.e., irrespective of the number of tests or location of the testing labs, blood sample of a patient would be taken only once, at the first point of contact. The laboratory area should not be a thoroughfare and various testing areas should be clearly marked.

The layout should ensure logical flow of specimens from receipt to disposal. Zoning must clearly identify areas of restricted access while ensuring efficient functionality of the lab i.e., testing for routine, emergency, and critical care cases, demarcated areas for collection and delivery of reports, sample collection, sample processing and reporting, etc.

The tabletop should be acid and alkali proof. There should be provision for safety, including eye flushing devices, emergency shower and fire extinguishers. The drainage system of work areas where highly corrosive liquids are used should consist of glass lined iron traps and pipes. Counter sinks for hand washing should be provided. Chemical and stain resistant materials should be used for laboratory work.

Storage space should be adequate to facilitate storage for refrigeration, reagents and supplies, maintenance of patient records with separate storage space for inflammable items. Vented storage for volatile solvents should be provided. The laboratory should be cleaned regularly including at the beginning and end of the day and at times of spill. The use of personal protective equipment (full body suit, apron, gloves, mask, face shield, etc.,) and scrupulous attention to hand hygiene must be adhered to.

Every block head quarter, public health facility which may be SDH or RH have been sanctioned as a block public health unit with the public health laboratory. All these labs should be integrated to avoid duplication.

Human Resources:

For efficient and effective functioning of the laboratory, it is important to have motivated, empowered, trained and skilled workforce. The number and type of staff in terms of specialists, paramedical and support staff is expected to be as per IPHS, any additional requirement of work force will be guided by the services and the performance parameters. The roles and responsibility of each category of staff should be clearly specifying in the Terms of Reference (TORs).

Sr No	Name of health staff	SDH		DH											
		100 beds		50 beds		100 beds		200 beds		300 beds		400 beds		500 beds	
		E	D	E	D	E	D	E	D	E	D	E	D	E	D
1	Pathologist	1		1	1	1		1	1	1	1	1	1	2	1
2	Medical Lab Technician/Laboratory Technician	8		8		9		11		14		17		18	
3	Blood Bank (Medical Officer)	1		3		3		3		3		3		3	
4	Blood Bank Technician/Haematologist	1		1		1		1		1		1	1	2	

- I. For instance, a facility with approximately 1000 OPD per day, will conduct roughly amount to 1200 tests. In addition to above, samples from around the district will also be received at this laboratory through hub and spoke model. These will roughly be additional 1000 tests per day.
- II. For the above load, the following laboratory staff will be required for a 24x7 running laboratory with the minimum performance standard for LTs as 200 tests per day. (as per IPHS 2022, for a 300-bedded DH)

Laboratory Scientific Officer (LSO)

Presently the Laboratory Scientific Officers might be supported under various programmers like NTEP, HIV/AIDS, NVBDCP, DEIC and also existing DH. Laboratory Scientific Officer (LSO) conducting other clinical lab tests, but all these Laboratory Scientific Officer (LSO) are the employees of SDH/DH and as such will work in an integrated manner for each and every programme as per the duty assigned by the laboratory and Hospital In-Charge. All Laboratory Scientific Officer (LSO) will perform integrated functions even if their source of salary is from different programmers. The state should ensure to give refresher Trainings to all Laboratory Scientific Officers (LSO) so that they are proficient in performing various lab tests/assignments.

All laboratory staff should report to the central lab which is the Integrated Public Health Lab at district hospitals to identify their duty allocated for the week/month (routine tests in the main lab, Emergency Unit/critical care, programme tests, etc.). All district labs will be functional 24 x 7. Since a lot of samples are to be collected early in the morning, it is expected that the OPD lab will be functional from 8 am onwards. However, if fasting samples are to be collected prior to 8 am, night shift staff may collect the

samples and hand them over to the morning shift staff/ Laboratory Scientific Officer (LSO). For blood bank, apart from Laboratory Scientific Officer (LSO), a dedicated blood bank technician/medical laboratory technologist with additional experience based on Schedule F, Part XII B, Drugs and Cosmetics Act, 1940 should be provisioned for.

While calculating the total number of Laboratory Scientific Officer (LSO) the expected workload of the health care facility and also the presently functional Laboratory Scientific Officers (LSO) under various health programmers have been considered for an integrated functioning of laboratory services. Now onwards, Laboratory Scientific Officer (LSO) under all programmers will have a single umbrella of Laboratory Scientific Officer (LSO) working for district integrated public health laboratory. (Integrated Public Health Laboratories (2022) Page No. 53)

Roles & Responsibilities of Laboratory Scientific Officer (LSO)

1. Receiving and processing samples.
2. Drawing blood samples for testing (primarily by performing vein punctures).
3. Labeling specimens/vials accurately and distributing them to the appropriate departments/ processing centers at the recommended transportation condition.
4. Preparing samples/slides for testing using various types of laboratory equipment.
5. Conducting all the necessary laboratory investigations including routine microscopy.
6. Giving instructions to the patient regarding sample collection.
7. Being friendly, courteous and sympathetic while working with patients.
8. Writing, printing and issuing the laboratory reports to the patients.
9. Ensuring patient confidentiality is maintained at all times.
10. Being responsible for the upkeep and routine maintenance of instruments in the laboratory and updating instrument maintenance records.
11. Cleaning/sterilizing and maintaining the work area and all lab equipment, accessories and supplies.
12. Making timely indents for chemical, reagents & equipment repairs.
13. Preparing chemical reagents, stains, solutions and biological media according to formulae; and accurately labeling all reagents and other stock in the laboratory.

The guidelines on Integrated Public Health Laboratories (2022) should be referred for further details.

For list of equipments, please refer the annexure 9.2 and 9.3.

Format for Standard Operating Procedures (SOP):

SOP for each test shall be write-in language commonly understood by the staff in the laboratory and be available in appropriate locations. Each SOP should have the following components;

- Purpose of the examination / test
- Principle and method of the procedure used for examinations
- Performance characteristics (sensitivity, specificity, detection/ quantization limit /range etc)
- Type of sample (e.g. plasma ,serum ,urine)
- Patient preparation (pre collection)
- Type of container and additives
- Required equipment and reagents
- Environmental and safety controls
- Calibration procedures
- Procedural steps
- Quality control procedures
- Interference (e.g. lipaemia ,haemolysis, bilirubinaemia, drugs) and cross reactions
- Principle of procedure for calculating results
- Biological reference inter valor clinical decision values
- Alert/critical values ,where appropriate
- Laboratory clinical interpretation

- Principle of procedure for calculating results
- Biological reference interval clinical decision values
- Alert/critical values, where appropriate
- Laboratory clinical interpretation
- References

Laboratory documentation:

The laboratory shall have a documented procedure to ensure that the following conditions are met.

- All documents, including those maintained in a computerised system, are reviewed and approved by authorised personnel before issue.
- All documents are identified to include:
 - A title
 - A unique identifier on each page
 - The date of the current edition and/or edition number where applicable (e.g. SOPs, Quality Manual)
 - Page number to total number of pages (e.g. "Page 1 of 5," "Page 2 of 5,")
 - Authority for issue
- Documents are periodically reviewed and updated at a frequency that ensures that they remain fit for purpose.
- Obsolete controlled documents are dated and marked as obsolete.

Control and Archival of records

The laboratory shall have a documented procedure for storage and an amendment of the record system, including at least the following:

- List of approved suppliers
- Staff qualifications, training and competency records
- Test requisition forms
- Specimen logbook and worksheets
- Information on reagents and materials used for testing (e.g. documentation, certificates of supplies, package inserts)
- Instrument printouts (e.g. calibration prints, charts, ELISA readings etc.)
- Test results and reports
- Instrument maintenance records, including internal and external calibration records
- Quality control records
- Incident/accident records and action taken
- Corrective Actions and Preventive Actions (CAPA) taken
- Complaints and action taken
- Record of internal and external audits
- Inter-laboratory comparisons (ILC) /EQAS results
- Record of quality improvement activities
- Minutes of meetings that record decisions made about the laboratory's quality management activities.

9.3 Integrated Clinical and Public Health Laboratory

The design/workflow of the laboratory should conform to the layout plan of Integrated Public Health Lab (IPHL). The processing areas of the laboratory do not necessarily have to be accessible to patients but the collection point for specimens must be conveniently located, especially for ambulatory patients. The collection point must provide space for patient reception, registration, waiting for the area, and toilet facility. There should be an adequate specimen collection area for blood, urine, and faeces. Hatch windows may be provided through which the specimens can be passed.

The Laboratory should have adequate space from the point of view of workload as well as maintenance of cleanliness and hygiene to prevent cross-contamination and infections.

The details of monitoring indicators is given in annexure 9.4.

References

- 1) Guidelines on Integrated Public Health Laboratories, Ministry of Health and Family Welfare, Government of India (2022)
- 2) Indian Public Health Standards for District/Sub District Hospitals, Ministry of Health and Family welfare, Government of India, 2022

CHAPTER X

BLOOD CENTRE (BLOOD BANK)

10.1 BLOOD CENTRE

A Blood Centre is defined as an authorized premises in an organization or institute as the case may be, for carrying out all or any of the operations including collection, apheresis, processing, storage and distribution of blood drawn from donors or received from another licensed Blood Centre and for preparation, storage and distribution of blood components.

Estimation of donor requirement is essential for the development of blood transfusion services.

Estimate of blood needs on number of hospital acute beds is more realistic. The figure may vary from 5-15 units per bed per year. The lower ratio applies to hospitals where blood is needed in the management of bleeding as a complication of pregnancy or trauma or simple surgery. The higher ratios apply to hospitals with more specialized facilities like oncology, open-heart surgery, renal dialysis/transplant or replacement therapy in thalassemia, haemophilia, leukaemia.

General:

The blood center should be in close proximity to the laboratory and at an accessible distance from the OT complex, ICU and Emergency department.

The Blood Centre shall be located away from open sewage, drain, public lavatory or similar unhygienic conditions.

The building or premises shall permit operation of blood centre under hygienic conditions and shall avoid the entry of insects, rodents and flies. It shall be well lighted, ventilated and screened (mesh). The walls and floors of the rooms shall be smooth, washable and capable of being kept clean. Drains should be of adequate size and shall be directly connected to sewer and shall be equipped with traps to prevent back siphonage. The ergonomics of the workbenches, stools, cabinets, chairs should be such that staff does not have to work in awkward postures such as reaching overhead, twisting, bending too often, kneeling or squatting.

The employees shall be free from contagious or infectious diseases. They shall be provided with clean overalls, head-gears, foot-wears and gloves wherever required. There shall be adequate clean and convenient hand washing and toilet facilities.

Accommodations:

Blood center should have proper signages and restricted area demarcation for the safety of staff, donors, patients and others. A blood centre shall have an area of 100 square meters for its operation and an additional area of 50 square meters for preparation of blood components and 10 square meters for Apheresis. A blood storage units situated at SDH/RH should have a minimum area of 10 square meters. The access to BSU area should be restricted to blood storage staff and there should be demarcated areas with adequate space for sample receiving, blood grouping, red cell antibody screening (Coombs Test), issue of blood/blood component storage, documentation etc.

Units in Blood centers :

- i) Registration and medical examination room.
- ii) Blood collection (Air-conditioned).

- iii) Blood component preparation (Air conditioned, the temperature is to be maintained between 20 to 25 degrees Celsius).
- iv) Laboratory for blood group serology (Air conditioned).
- v) Laboratory for blood transmissible diseases like hepatitis, syphilis, malaria, HIV antibodies (Air conditioned)
- vi) Sterilization-cum washing (to be linked with CSSD and mechanized Laundry)
- vii) Refreshment-cum-rest room (Air conditioned)
- viii) Store-cum-records.
- ix) Counselling.
- (x) Quality Control (Inside room number (iii))
- (xi) Apheresis

Supervision.:

The work of a blood center requires good supervision. The collection, storage, technique of grouping and matching etc. must be reviewed by higher inspecting authority if necessary with the help of competent technical persons. When higher Officers visit the hospital for inspection they should make it a point to go into the details of working of the hospital blood center. The inspecting authority should also invite suggestions from donors and members of the public for improvement in the work of the blood center. For this purpose the inspecting authority should give advance intimation of his visit. The Blood center Officer should prepare a monthly statement of number of bottles used and number of bottles replaced by different units in a hospital. This should be circulated by the Civil Surgeon/Superintendent of the hospital to the different unit heads with his remarks so that they are aware of the efforts made by them for replacement.

In General, it can be said that a full-fledged Blood Centre would require Medical Officers, Laboratory Technicians, Nurses, Laboratory Assistants, Housekeeping staff, Clerk, Driver and Counsellor or Medical Social worker.

Human Resource	Qualification
Medical Officer	<p>(A) The operation of Blood Centre or processing or both of whole human blood for components shall be conducted under the active direction and personal supervision of competent technical staff consisting of at least one person who is whole time employee and who is Medical Officer, and possessing</p> <ul style="list-style-type: none"> a) Degree in Medicine M.B.B.S. having experience of working in Blood Centre, not less than one year during regular service and also has adequate knowledge and has adequate experience in blood group serology, blood group methodology and medical principles involved in the procurement of blood or preparation of its components or both; or b) Degree in Medicine M.B.B.S. with Diploma in Clinical Pathology or Diploma in Pathology and Bacteriology with six months experience in a licensed Blood Centre; or c) Degree in Medicine M.B.B.S. with Diploma in Transfusion Medicine or Diploma in Immuno hematology or Blood Transfusion with three months experience in a licensed Blood Centre or d) `Doctor of Medicine Pathology or Diplomate of

	<p>National Board Pathology with three months experience in a licensed Blood Centre; or</p> <p>Explanation - For the purposes of this condition, the experience in Blood Centre shall not apply in the case of persons who are approved by the Licensing Authority or Central Licence Approving Authority or both prior to the commencement of the Drugs and Cosmetics (Second Amendment) Rules, 1999.</p>
(B) Blood Centre Technician	<ul style="list-style-type: none"> i) Diploma in Medical Laboratory Technology (DMLT) or Transfusion Medicine or Blood center Technology after 10+2 with one year experience in the testing of blood and/or its components in licensed Blood Centre; or ii) Degree in Medical Laboratory Technology (M.L.T.) or Blood center Technology with six months experience in the testing of blood and/or its components in licensed Blood Centre; or iii) B.Sc. in Haematology and Transfusion Medicine with six months experience in the testing of blood and/or its components in licensed Blood Centre; or iv) M.Sc. in Transfusion Medicine with six months experience in the testing of blood and/or its components in licensed Blood Centre; or v) Post Graduate Diploma in Medical Laboratory Technology (PGDMLT) / Post Graduate Diploma in Medical Laboratory Science (PGDMLS) with six months experience in the testing of blood and/or its components in licensed Blood Centre.
(C) Technical Supervisor (where blood components are manufactured)	<ul style="list-style-type: none"> i) Diploma in Medical Laboratory Technology or Transfusion Medicine or Blood center Technology after 10+2 with one year experience in the testing of blood or its components or both in licensed Blood Centre; or ii) Degree in Medical Laboratory Technology or Blood center Technology with six months experience in the testing of blood or its components or both in licensed Blood Centre; or iii) B.Sc. in Haematology and Transfusion Medicine with six months experience in the testing of blood or its components or both in licensed Blood Centre; or iv) M.Sc. in Transfusion Medicine with six months experience in the testing of blood or its components or both in licensed Blood Centre; or

	<ul style="list-style-type: none"> v) Post Graduate Diploma in Medical Laboratory Technology or Post Graduate Diploma in Medical Laboratory Science with six months experience in the testing of blood or its components or both in licensed Blood Centre; or vi) Post Graduate Diploma in Transfusion Technology (PGDTT) approved by the Central Government or State Government with experience of 6 months in testing of blood or its components or both in licensed blood centre.
(E) Counsellor or Medical Social Worker:	<p>Blood Centre organizing blood donation camps shall have following whole time or part time counselling staff (Counsellor or Medical Social Worker) possessing</p> <ul style="list-style-type: none"> a) Master's degree in social work, sociology, psychology with six months of experience; or b) Degree in Science or Health Science with one year of experience; or c) Person with 10+2 having three years of experience in the field of counselling in the Blood centers collecting blood less than 3000 units per annum can share counsellor or medical social worker within the institution.

Equipment:

Equipment used in the collection, processing, testing, storage and sale/distribution of blood and its components shall be maintained in a clean and proper manner and so placed to facilitate cleaning and maintenance. The equipment's shall be observed, standardized and calibrated on a regular scheduled basis as described in the Standard Operating Procedures Manual.

The list of equipment's required, based on the components to be prepared is provided under Schedule F Part XII B of Drugs & Cosmetic Act 1940.

Maintenance:

The premises shall be maintained in a clean and proper manner to ensure adequate cleaning and maintenance of proper operations. The facilities shall include

- (1) Privacy and thorough examination of individuals to determine their suitability as donors.
- (2) Collection of blood from donors with minimal risk of contamination or exposure to activities and equipment unrelated to blood collection.
- (3) Storage of blood or blood components pending completion of tests.
- (4) Provision for quarantine, storage of blood and blood components in a designated location, pending repetition of those tests that initially give questionable serological results.
- (5) Provision for quarantine, storage, handling and disposal of products and reagents not suitable for use.
- (6) Storage of finished products prior to distribution or issue.
- (7) Proper collection, processing, compatibility testing, storage and distribution of blood and blood components to prevent contamination.
- (8) Adequate and proper performance of all procedures relating to plasmapheresis, plateletpheresis and leukapheresis.
- (9) Proper conduct of all packaging, labelling and other finishing operations.
- (10) Provision for safe and sanitary disposal of-
 - i) Blood and/or blood components not suitable for use, distribution or sale.
 - ii) Trash and items used during the collection, processing and compatibility testing of blood and/or: blood components.

Supplies and Reagents:

All supplies and reagents used in the collection, processing, compatibility, testing, storage and distribution of blood and blood components shall be stored at proper temperature in a safe and hygienic place, in a proper manner and in particular

- a. All supplies coming in contact with blood and blood components intended for transfusion shall be sterile, pyrogenfree, and shall not interact with the product in such a manner as to have an adverse effect upon the safety, purity, potency or effectiveness of the product.
- b. Supplies and reagents that do not bear an expiry date shall be stored in a manner that the oldest is used first.
- c. Supplies and reagents shall be used in a manner consistent with instructions provided by the manufacturer.
- d. All final containers and closures for blood and blood components intended for transfusion shall be clean and free of surface solids and other contaminants.
- e. Each blood collecting container and its satellite container(s), if any, shall be examined visually for damage or evidence of contamination prior to its use and immediately after filling. Such examination shall include inspection for breakage of seals, when indicated, and abnormal discoloration. Where any defect is observed, the container shall not be used or, if detected after filling, shall be properly discarded.
- f. Representative samples of each lot of the following reagents and/or solution shall be tested regularly on a scheduled basis by methods described in the Standard Operating Procedures Manual to determine their capacity to perform as required. The list of reagents required, is provided under Schedule F Part XIIB of Drugs & Cosmetic Act 1940.

Good Manufacturing Practices (GMPs) & Standard operating Procedures (SOPs):

Written Standard Operating Procedures shall be maintained and shall include all steps to be followed in the collection, processing, compatibility testing, storage and sale or distribution of blood and/or preparation of blood components for homologous transfusion, autologous transfusion and further manufacturing purposes. Such procedures shall be available to the personnel for use in the concerned areas. The Standard Operating Procedures shall interalia include:

- a. Criteria used to determine donor suitability.
- b. Methods of performing donor qualifying tests and measurements including minimum and maximum values for a test or procedure, when a factor in determining acceptability;
- c. Solutions and methods used to prepare the site of phlebotomy so as to give maximum assurance of a sterile container of blood;
- d. Method of accurately relating the product(s) to the donor;
- e. Blood collection procedure, including in-process precautions taken to measure accurately the quantity of blood drawn from the donor;
- f. Methods of component preparation including, any time restrictions for specific steps in processing;
- g. All tests and repeat tests performed on blood and blood components during processing;
- h. Pre-transfusion testing, wherever applicable, including precautions to be taken to identify accurately the recipient blood components during processing;
- i. Procedures of managing adverse reactions in donor and recipient reactions
- j. Storage temperatures and methods of controlling storage temperatures for blood and its components and reagents;
- k. Length of expiry dates, if any, assigned for all final products;
- l. Criteria for determining whether returned blood is suitable for reissue;
- m. Procedures used for relating a unit of blood or blood component from the donor to its final disposal;
- n. Quality control procedures for supplies and reagents employed in blood collection, processing and re-transfusion testing;
- o. Schedules and procedures for equipment maintenance and calibration;
- p. Labeling procedures to safe guard its mix-ups, receipt, issue, rejected and in-hand;

- q. Procedures of plasmapheresis, plateletpheresis and leukapheresis if performed, including precautions to be taken to ensure re-infusion of donor's own cells.
- r. Procedures for preparing recovered (salvaged) plasma if performed, including details of separation, pooling, labeling, storage and distribution.
- s. All records pertinent to the lot or unit maintained pursuant to these regulations shall be reviewed before the release or distribution of a lot or unit of final product. The review or portions of the review may be performed at appropriate periods during or after blood collection, processing, testing and storage. A thorough investigation, including the conclusions and follow-up, of any unexplained discrepancy or the failure of a lot or unit to meet any of its specification shall be made and recorded.

A licensee may utilize current Standard Operating Procedures, such as the manuals of the following organizations, so long as such specific procedures are consistent with, and at least as stringent as, the requirements contained in this Part, namely:

- a. Directorate General of Health Services Manual.
- b. Other Organizations or individual blood center's manuals, subject to the approval of State Licensing Authority and Central Licence Approving Authority.

Registers, Forms and Labels.

A proper system of documentation is necessary for any blood center. Records of donors, blood collected, blood supplied, records of recipients etc. must be properly maintained. For this purpose certain forms, labels and registers are used.

A blood center should maintain the following forms, labels, registers etc :

- (1) **Requisition Forms.**—Whenever any section of a hospital desires supply of blood from the blood center of the hospital, it should make the request in a prescribed form. Case papers of the patient should accompany this request. The form contains certain instructions at the back which are to be noted and complied with (instructions No. 1-9).
- (2) **Reservation and Compatibility Forms.**—This is sent by the blood center along with bottle supplied to any section of the hospital. The card is to be returned to the blood center along with report about any reaction within 48 hours by the section concerned.
- (3) **Cell typing** form for typing donor's cells.
- (4) **Serum typing** form for typing donor's serum.
- (5) **Cards** of different colors for recording particulars of donors like Blood group, Register No., Age, Name, Address, date of test and particulars of blood donated etc. The colours are different for A, B, AB and O groups.
- (6) **Blood Donor Record form** used for entering particulars of collections made by Blood center at a location outside the Blood center by visiting the place.
- (7) **Master records** for blood and its components: It shall indicate bag serial number, date of collection, date of expiry, quantity in ml. ABO/Rh Group, results for testing of HIV I and HIV II antibodies, Malaria, V.D.R.L., Hepatitis B surface antigen and irregular antibodies (if any), name and address of the donor with particulars, utilization issue number, components prepared or discarded and signature of the Medical Officer In charge.
- (8) **Blood Donor's** Form is filled in when a donor first registers his name in the Blood Center. It shall indicate the serial number, date of bleeding, name, age, address and signature of the donor with other particulars of age, weight, haemoglobin, blood grouping, blood pressure, medical examination, bag number and patient's detail for whom donated in case of replacement donation, category of donation (voluntary/replacement) and deferral records and signature of Medical Officer In charge.
- (9) **Donor's Card.** This is issued to every voluntary donor after he gives blood. This contains particulars about the donor, the blood donated by him, and a guarantee that the donor or his immediate family will get as much blood as he has given in case that becomes necessary.

The following labels are used for blood bottles :

- (1) Labels of blood groups A, B, AB, and O.

- (2) Label "Rehesus-Negative (Rh^o-ve).
- (3) Label to be attached to test tubes containing exalted blood 1 ml. and plain blood 5 ml. sent from wards etc. to the Blood center for grouping and matching.

Registers:

Blood centre should maintain the following registers.

- (1) **Issue register:** It shall indicate serial number, date and time of issue, bag serial number, ABO/Rh Group, total quantity in ml, name and address of the recipient, group of recipients, unit/institution, details of the cross-matching report, indication for transfusion. Records of components supplied: quantity supplied; compatibility report, details of recipient and signature of issuing person.
- (2) **Stock Book register** .-Entries are to be made date-wise, twice a day, i.e., morning and evening, about the stock of blood bottles of different blood groups, reserved and unreserved.
- (3) **Cross Matching Register.**— This contains the following columns:

- (4) **Dispatch Register.**-This contains all columns as in the register above and there is an additional column for signature of the person who takes the blood bottle supplied by the Blood center in wards etc
- (5) **Antenatal Register** showing blood group and Rh of Antenatal patients.
- (6) **Laboratory Investigations Register** showing results of special laboratory tests, like coomb's test etc.
- (7) **Credit Debit Register of Blood.**-This gives an account of blood received in the Blood center from outside Blood centers and blood supplied by the Blood center to outside Blood centers. Separate pages are assigned for different hospitals.
- (8) **Records of A.C.D./C.P. D/CPD–A/SAGM bags**, giving details of manufacturer, batch number, date of supply, and testing results.
- (9) **Register for diagnostic kits and reagents used:** the name of the kits/reagents, details of the batch number, date of expiry, and date of use.
- (10) **Donor's Register.** A new register is opened every year from January 1st. This contains the following columns:

(11) Transfusion adverse reaction records

Sr. No.	Date	Donor's name	Reg. No.	Group	Rh factor	Sex

Blood supplied to

- a) The particular hospital where the Blood center is situated.
- b) Other hospitals

NOTE: The above-said records shall be kept by the licensee for five years.

Labels:

The labels on every bag containing blood and/or component shall contain the following particulars, namely:

- (1) The proper name of the product in a prominent place and in bold letters on the bag.
- (2) Name and address of the blood center

- (3) Licence number
- (4) Serial number
- (5) The date on which the blood is drawn and the date of expiry as prescribed under Schedule P to these rules.
- (6) A coloured label shall be put on every bag containing blood. The following colour scheme for the said labels shall be used for different groups of blood:

Blood Group Colour of the label

Blood Group	Colour
O	Blue
A	Yellow
B	Pink
AB	White

- (7) The results of the tests for Hepatitis B surface antigen, and Hepatitis C virus antibody, syphilis, freedom from HIV I and HIV II antibodies and malarial parasite.
- (8) The Rh group.
- (9) Total volume of blood, the preparation of blood, nature and percentage of anti-coagulant.
- (10) Keep continuously temperature at 2°C-6°C for whole human blood and/or components as contained under III of Part XII B.
- (11) Disposable transfusion sets with filter shall be used in administration equipment.
- (12) Appropriate compatible cross matched blood without a typical antibody in recipient shall be used.
- (13) The contents of the bag shall not be used if there is any visible evidence of deterioration like haemolysis, clotting or discoloration.
- (14) The label shall indicate the appropriate donor classification like "Voluntary Donor" or "Replacement Donor" in no less prominence than the proper name.

Notes:

1. In the case of blood components, particulars of the blood from which such components have been prepared shall be given against item numbers (5), (7), (8), (9) and (14).
2. The blood and/or its components shall be distributed on the prescription of a Registered Medical Practitioner.

Blood Collection Procedure:

Registration.

It is the information form/card to be filled by the donor with all demographic details in order to trace the donor in case of any requirement. The following information must be included.

Date of donation, Name of the donor, Father's/ husband's name, Age, Gender, Occupation, Address and telephone number, Blood group (if known), Date of last donation, Previous donor reaction (if any), Consent for inclusion in emergency panel, Previous deferral from donation (and its reasons).

Haemoglobin estimation & weight measurement:

The technician measures the haemoglobin with CuSo₄ or any approved technique (as per D&C Act) and notes the weight of the donor. The Hb should be more than 12.5 gm and weight above 45Kg, then only donor is considered for medical examination.

Medical Examination:

The Medical officer further takes detail health history and conducts physical and systemic examination. The fitness for donation is only provided if he/she meets donor selection criteria. The donor is provided opportunity for self-deferral and self-exclusion during the process. The fitness for blood donation is granted on Pre-donation counselling and written consent for phlebotomy, screening blood for transfusion transmitted diseases and also for revealing results of screening test.

Selection of Donors:

General: No person shall donate blood and no blood centre shall draw blood from a person, more than once in three months. The donor shall be in good health, mentally alert and physically fit and shall not be inmate of jail, persons having multiple sex partners and drug-addicts. The donor shall fulfil the following criteria.

Criteria for donor for blood transfusion is given in Annexure 10.1

Selection of Blood Bag:

There are variations in the volume of blood to be collected and the type of anticoagulant-preservative solution to be used. Different types of blood bags in use are namely, Single, Double, Triple (with or without additive solution), Quadruple (with or without additive solution), Penta bags. The choice for bag depends upon the components to be prepared.

Phlebotomy and blood collection:

- a. Donor is cordially received in blood collection area. After thorough screening, the donor is asked to lie down on donor couch. Identification of donor is re-checked by asking him/her their name and tally it with the card, blood bag and sample tubes and registration number.
- b. Select prominent vein in antecubital fossa, apply BP Cuff and inflate it to 40 to 60 mm Hg. The Phlebotomy area should be disinfected with two disinfectants- Iodine and methylated spirit or 2% Chlorohexidine. Do not use Iodine if donor is allergic to iodine. The position of arm should be naturally extended. The disinfection of area (5 cm) should be done in circular motion from centre to out-word and wait for 30 seconds allowing solution to dry.
- c. Set the blood collection monitor for desired volume and place the bag. Clamp the blood bag using plastic clamp to avoid air entry in tube or bag once the needle cover is removed. Keep the bevel of the needle upward and shaft at angle of 15° with the arm, insert needle in vein 1 to 1.5 cm by a bold single sharp prick. Monitor filling of blood bag and assure proper mixing. Sign the donor record after checking the number on the bag, card and tubes and indicate the arm used for phlebotomy.
- d. Interact with the donor to prevent reaction. Allow collection to continue until desired quantity of blood is collected and never leave donor alone. Discontinue collection if donor feels uncomfortable or collection time more than 10 minutes or if donor develop haematoma at venepuncture site. If collection is not completed the unit should be tested and discarded as under collected.
- e. Seal tubing by tube sealer and cut it 8-10 inches from venipuncture end and take samples in pilot tubes. Before separating collected unit of whole blood from donor couch, re-inspect the bag for any defects and re-check donor details. Remove BP cuff/tourniquet. Apply pressure by folding the arm so that swab at phlebotomy site does not fall. Affix adhesive after ensuring there is no ooze at the venipuncture site and sable clot is formed. Keep donor under observation for 15-20 minutes post donation. The first time donors, obese donor or female donor should be given extra rest and may be escorted to refreshment area.
- f. After rest and refreshment (Tea and biscuits or fruit drink), inspect the venipuncture site, if oozing apply pressure with dry sterile cotton swab, if there is haematoma apply thrombophleb ointment gently over the area. Inform the donor about changes in skin colour. If pain persist ask him/her to apply ice and contact blood center personnel.
- g. Issue donor Voluntary/Replacement card and ensure that donor puts signature on the donor record register. Thank the donor and encourage him/her to become regular voluntary donor and ask donor to write comments/suggestions in register.

Post donation care:

Inform donor to take more fluids for next 4 hrs, do not smoke or drive for next half hour, do not drink alcohol for next 6 hours, If bleeding at phlebotomy site raise hand and apply pressure, remove adhesive band after 5-6 hrs, avoid lifting weight or strenuous exercise, Take iron rich foods like green leafy vegetables, jaggery, dates, mutton (if Non-veg). Bust no extra or special diet is needed.

Donor Reactions:

The untoward feeling by blood donor after blood donation is known as donor reaction. The commonly observed reactions include, vasovagal reaction, tetany/muscle spasm/tetany, convulsion, haematoma, convulsions, eczematous reactions at the skin around venepuncture site, delayed syncope, accidental puncture of artery, problems with blood flow.

Hence the blood centre staff should be adequately trained to recognize and manage such reaction. The emergency tray with mandatory drugs and equipment's (as per D& Act and Training Module for medical officers) should always be kept beside donor table/couch. If required, there should be an efficient mechanism to call for necessary help from the hospital.

Policy on Voluntary Blood Donation:

For providing good quality blood, the transfusion service must necessarily be supported by voluntary blood donors. Consequently, the recruitment of donors becomes one of the most important aspects of Blood Transfusion Services. Thus, healthy, responsive and motivated voluntary blood donors are the back-bone of any service. The professional donor system was banned in the country with effect from January 1, 1998 as per the Honourable Supreme Court Judgment.

The Policy therefore, aims at catalyzing a situation of near total voluntary blood donation programme and phasing out even the replacement donor system.

Voluntary Blood Donation Programme:

The programme is to be implemented by Blood centers, State Blood Transfusion Councils and recognized Voluntary Blood Donor Organizations, IRCS, CBO NGO as per the following broad parameters.

- 1) Need Assessment
- 2) Education
- 3) Awareness campaigns for the people
- 4) Donor Motivation
- 5) Donations
- 6) Recognition
- 7) Media
- 8) Database of Donors
- 9) Interaction and sharing of experiences
- 10) Publications
- 11) Policy regarding legislation and regulations
- 12) Donor Organizers

Who should be involved?

A few highly enthusiastic volunteers should be found, preferably at the local level, should be identified to form a motivational body While medical doctors are experts in their field, they often have little or no experience in marketing, public advocacy, media strategy, fund-raising, or law.

It is in these areas that the expertise of volunteers can be especially helpful. The volunteers should be supported by an adequate budget that will cover logistical expenses and also pay for outreach campaigns.

Recording the transfusion:

The medical officer should record in patients file, the type and volume of product transfused, donation

number, blood group of each unit or product transfused, the time at which transfusion was started and completed, change of any transfusion set and signature of responsible person for transfusion.

Role of Hospital Transfusion Committee (HTC):

A hospital should have a transfusion committee, which will monitor the safety, adequacy and reliability of the blood supply. It also monitors the usage of blood and blood product by developing guidelines for appropriate clinical use of blood and components. It also reviews incidence of adverse reactions, errors and taking corrective/ Preventive action.

Legal Facets:

- i) Drugs & Cosmetic Act 1940 and Drugs & Cosmetic Rules 1945.
Human Blood is covered under the definition of 'Drug' under Sec.3 (b) (i) of Drugs & Cosmetics Act. Hence blood centres are regulated under the Drugs & cosmetics Act and rules there under. License is required to manufacture/Collect, sale/distribution of Whole Human Blood and other blood products.
- ii) Part X B : Conditions for License (Rule 122EA to Rule 122P)
The aforesaid Rules provide conditions about License Application Procedure/maintenance of staff Plant/Premises/Equipment/Testing of Blood//Inspection/ Reporting by Inspection Team/ Grant or Rejection of Licence/ Appeal provision, Procedure of Cancellation and suspension of Licence.
- iii) Part XII B: Requirement for the functioning and operation of a blood centre and/or for preparation of blood components.
 - a) Schedule F Part XII B (Subpart I) - Requirement for Blood Centre: General, Accommodation, Personnel, Maintenance, Equipment's and Calibration, Supplies & Reagents, Good Manufacturing Practices, Criteria for Blood Donation, List of Equipment's, Special Reagents, Testing of whole blood, Records, Labels.
 - b) Schedule F Part XII B (Subpart II)– Blood Donation Camps: Permission, Premises, Personnel for outdoor camps, equipment's.
 - a) Schedule F Part XII B (Subpart III)- Processing of Blood Components: Accommodation, Equipment's Personnel, Testing facility, categories of blood components, Apheresis.

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CHAPTER XI

SPECIAL PAEDIATRIC SERVICES

Introduction

To accelerate the decline in NMR, IMR it is necessary to improve the quality care being rendered in public health facilities in Maharashtra. The necessary infrastructure, trained manpower and other logistics are needed. Further gains are possible by extending early detection management health condition disability support and intensive care facilities. It requires the systematic approach in care support and treatment to meet this challenges.

For this purpose following units are established to reduce morbidity as well as mortality in pediatric age group.

These are :

- 1) SNCU
- 2) NRC
- 3) RBSK
- 4) DEIC

11.1 Special Newborn Care Unit (SNCU)

Introduction And Overview

Special Newborn Care Unit (SNCU) is a neonatal unit that will provide special care to sick newborns along-with SNCU. Adjustable beds to facilitate Kangaroo Mother Care should be made available will SNCU. Its in closed linkage with Labour Room Complex, Nutrition Rehabilitation Center (NRC) and District Early Intervention Centers (DEIC).

Preventable morbidity such as hypothermia, asphyxia, infections and respiratory distress continue to be the main cause of mortality in the neonatal period. There is a need to attain the substantial reduction in Neonatal Mortality in order to achieve SDGs. In this context, facility based newborn care (FBNC) has a signification potential for newborn survival, by increasing the coverage of services at the time of greatest risk (birth and the first days of life).

Newborn Care Corner (NBCC)

NBCC is a space within the delivery room in any health facility where immediate care is provided to all newborns at birth. This area is mandatory for all health facilities where deliveries are conducted.

Newborn Stabilization Unit (NBSU)

NBSU is a facility within or in close proximity of the maternity ward where sick and low birth weight newborn can be cared for short periods. All FRUs/CHCs need to have a neonatal stabilization unit, in addition to the newborn care corner.

Special Newborn Care Unit (SNCU)

SNCU is a neonatal unit in the vicinity of the labor room which will provide special care (all care except assisted ventilation and major surgeries) for sick newborns. Any facility with more than, 3,000 deliveries per year should have an SNCU (most district hospitals and some sub-district hospitals would fulfill this criteria.) .

Table 1: Newborn care facilities at different levels

Health Facility	All Newborn at Birth	Sick Newborn
Primary health centre/MCH Level I	Newborn care corners (NBCC) in labor rooms	Prompt referral
First referral unit/RH/SDH/MCH Level II	Newborn care corners in labor rooms	Newborn stabilization unit*
	Newborn care corners in OT	
	Newborn stabilization unit (NBSU)	
District hospital/GH/SDH/WH/MCH Level III	New born care corners in labor rooms	Special newborn care unit (SNCU)*
	Newborn care corners in OT	
	Special newborn care unit (SNCU)	

Availability of laboratory facilities to estimate bilirubinemia levels is a prerequisite

Expected services to be provided at newborn care facilities

Newborn Care Corner	Newborn Stabilization Unit	Special Newborn Care Unit
Care at birth Prevention of Infection Provision of warmth Resuscitation Early initiation of breastfeeding Weighing the newborn	Care at birth Prevention of Infection Provision of warmth Resuscitation Early initiation of breastfeeding Weighing the newborn	Care at birth Prevention of Infection Provision of warmth Resuscitation Early initiation of breastfeeding Weighing the newborn
Care of normal newborn Breastfeeding/ feeding support	Care of normal newborn Breastfeeding/feeding support	Care of normal newborn Breastfeeding/feeding support
Care of sick newborn Identification and prompt referral of risk and sick newborn	Care of sick newborn Management of low birth weight infants ≥ 1800 gms with no other complication Phototherapy for newborn with hyper-bilirubinemia* Management of newborn sepsis Stabilization and referral of sick newborn and those with very low birth weight (rooming in) Referral services	Care of sick newborn Management of low birth weight infants ≤ 1800 gms Phototherapy for newborn with hyper-bilirubinemia* Managing all sick newborns (except those requiring mechanical ventilation and major surgical interventions) Follow-up of all babies discharged from the unit and high risk newborn Referral services
Immunization services	Immunization services	Immunization services

Establishment and Functioning of NBCC, NBSU, SNCU, NICU, PICU, MNCU, etc should be followed as per prevailing guidelines.

Recruitment and training of staff:

The quality of services offered at a facility depends on the availability of clinical expertise round-the-clock,

backed by storing devices and equipment. Identify staffing requirements see the section on human resources) and take steps to get the staff into position. Assess training ends and training load, and develop a training plan for the state and district Tags, which should be timed as close as possible to the operationalisation of the newborn care unit.

Sr. No	Services	SDH 100beds	DH 200beds	DH 300beds	DH 400beds	DH 500+ beds
1	No of SNCU Beds	12	16	20	24	24
2	No of beds with assisted ventilation (NICU)	-	4	6	6	8
3	No of beds in Mothers ward (MNCU)	12	30	39	45	48
4	Staff Nurse (with ratio of 1:3 with beds)	12	16	20	33	36
5	MO (SNCU + NICU + MNCU)	6	9	9	12	12
6	Staff Nurses (1:3) SNCU	12	21	27	33	36
7	Staff Nurses (1:6) MNCU	6	15	21	24	24
8	Support Staff per shift (SNCU)	-	3	3	3	3

* Ideally, this staff pattern should be followed as per IPHS norms.

Record keeping :

Each unit will record information on each admitted new born, in the standard case recording sheet. Based on the case records, the units will generate the report, using the standard reporting format and submit to the districts and subsequently, the reports should be sent to the State Health Authority.

Safety measures:

CCTV cameras should cover all the entry and exit routes. Protocols to be followed for security of neonates against thefts security Guards must be present for all the 24 hours outside SNCU. (As per Honorable High Court Guidelines 2009 as attached in annexure 11.1)

Fire safety audit, Electricity Audit and mock-drills should be conducted periodically.

Supervision and monitoring :

Periodic review by the state and district officials and by the faculty of the collaborative centres would be conducted for implementation and mid-course correction

Each SNCU must be assigned a mentoring team of two experts from the state, at least for the initial one to two years till the functioning of the units is well established. These can be the experts designated by NNF, IAP or the Indian Associations of Neonatal Nursing (ANN) who will be required to undertake regular mentoring visits and provide mentoring support to the local teams, They should also assist the teams in analyzing the data (case records, death audits, facility assessment, etc) and to plan and implement accordingly, for quality improvement.

SNCU should have clearly demarcated three zones: Red, yellow and green to restrict entry and prevent infections. Moreover, SNCU should have music system so as to provide music therapy to the sick neonates. Ideally, SNCU should have system to convey baby's condition to relatives in order to reduce their anxiety and prevent overcrowding. In addition to this, the mechanism for dissemination of IEC videos to parents

and guardians. These IEC videos can be prepared by institutional SNCU staff for better counseling and practices. Lactation counselors should visit SNCU regularly on daily basis. KMC visit should be there in each SNCU. Regular monitoring visits should be conducted in SNCU for ensuring Kangaroo Mother Care (KMC).

There should be provision for room air changes as per norms. There should be an annual calendar for refresher trainings as well as CMEs. Moreover, it is encouraged to make quality publications regarding SNCU in order to improve service delivery and awareness. There should be provision for special grants and special leave for this purpose. Mentoring visits of SNCU should be done by reputed neonatologists from state of art neonatology unit.

11.2 Nutrition Rehabilitation Center

Nutrition Rehabilitation Center is a unit in a health facility where sick children with Sever Acute Malnutrition (SAM) are admitted and managed, clinically. As per IPHS standards the beds allocation for NRC is as follows.

Type of Hospital	DH 50 beds	SDH/DH 100 beds	DH 200beds	DH 300beds	DH 400beds	DH 500beds
Number of NRC beds	6	10	15	20	30	30

In NRC children are admitted, as per the defined admission criteria and provided with medical and nutritional therapeutic care. 15% of SAM children are having medical complications. In addition to curative care, special focus is given on timely, adequate and appropriate feeding for children; and on improving the skills of mothers and caregivers on complete age appropriate caring and feeding practices. In addition, efforts are made to build the capacity of mothers/caregivers through counselling and support to identify the nutrition and health problems in their child.

Once discharged from the NRC, the child continues to be in the Nutrition Rehabilitation program till she/he attains the defined discharge criteria from the program (described in technical guidelines).

Objective of Facility Based Management

1. To provide clinical management and reduce mortality among children with severe acute malnutrition, particularly among those with medical complications
2. To promote physical and psycho social growth of children with severe acute malnutrition (SAM)
3. To build the capacity of mothers and other caregivers in appropriate feeding and caring practices for infants and young children
4. To identify the social factors that contributed to the child slipping into severe acute malnutrition

Services provided at the facility

These services and care provided for the in-patient management of SAM children include:

- 24 hour care and monitoring of the child.
- Treatment of medical complications.
- Therapeutic feeding.
- Providing sensory stimulation and emotional care.
- Social assessment of the family to identify and address contributing factors.
- Counseling on appropriate feeding, care and hygiene.
- Demonstration and practice- by -doing on the preparation of energy dense child foods using locally available, culturally acceptable and affordable food items.
- Follow up of children discharged from the facility.

Nutrition Rehabilitation Center (NRC) Areas

NRC is a special unit, located in a health facility and dedicated to the initial management and nutrition rehabilitation of children with severe acute malnutrition. At a district hospital/medical college hospital, the NRC would have 10-20 beds and at a FRU/CHC the NRC would have 6-10 beds. The unit should be a distinct area within the health facility and should be in proximity to the pediatric ward/in-patient facility.

The NRC should have the following:

- **Patient area** to house the beds; in NRC adult beds are kept so that the mother can be with the child.
- **Play and counselling area with toys**; audiovisual equipment like TV, DVD player and IEC material.
- **Nursing station**
- **Kitchen and food storage area attached** to ward, or partitioned in the ward, with enough space for cooking, feeding and demonstration.
- **Attached toilet and bathroom** facility for mothers and children along with two separate hand washing areas.

The approximate covered area of the NRC should be about 150 square feet per bed, plus 30% for ancillary area. A 10 bedded NRC should have a covered area of about 1950 square feet; this will include the patient area, play and counselling area, nursing station, kitchen, storage space, two bathrooms and two toilets.

NRC should have a cheerful, stimulating environment; it should be child friendly. Walls can be brightly painted and decorated. Ward should have sufficient space for all mothers/caregivers staying with the children to sit together and be given cooking and feeding demonstration.

Space details

- Approximate area of NRC should be 150 Sq.feet per bed + 30% extra.
- Total area of NRC should consist of patient area play and counseling area, nursing area, kitchen, storage area, and two washrooms.
- Floor surfaces: Floor surfaces should be easily cleanable and should minimize the growth of microorganisms.
- Walls: As with floors, the ease of cleaning and durability of wall surfaces must be considered.
- Water supply: Unit should have 24 hour uninterrupted running water supply.
- Power supply: Unit should have a 24 hour uninterrupted stabilized power supply.
- Lighting: Should be well lit.
- Ventilation: Should be adequately ventilated, especially for the kitchen area.
- Mosquito and fly screen: Windows should be covered with mosquito and fly covers.

Human resources & Responsibilities

The suggested staff requirement for the smooth functioning of a 10/20 bedded NRC is as follows:

Staff Position	Numbers for 10 bedded unit	Responsibility
Medical officer (MBBS)	1	<ul style="list-style-type: none">• In charge of NRC, responsible for investigation & treatment of child.• Management & Evaluation
Nursing staff (preferably GNM)	4	<ul style="list-style-type: none">• Anthropometry• Medicine & Injection management.• Examine signs & entry in multi charts.• Daily report writing

Staff Position	Numbers for 10 bedded unit	Responsibility
Dietician (BSc/MSc, Food Nutrition/ Home Science)	1	<ul style="list-style-type: none"> • Supervision, training and counseling • To fix & prepare the diet of children. • Distribution of diet. • Entries in register, reports, diet & treatment sheet
Cook cum Caretaker (Female, 8 th pass)	1	<ul style="list-style-type: none"> • Actual preparation of diet • Purchase of the local foods. • Assist mother in care taking.
Attendant/cleaners (Female)	2	<ul style="list-style-type: none"> • Cleaning of the center • Ensure the availability of cloth, soap and chlorine.
Medical social worker	1	(Assigned work by MO alongwith the hospital duty)

Operational Steps in setting up of NRCs at District Level

Facility management of severe acute malnutrition is an important child health intervention to be implemented as part of NRHM/RCH-II. Training for staff working in these facilities should be part of the overall training calendar RCH-Phase II/NRHM.

Institutional Arrangements at District Level

1. Designating Responsible Officer for the program.

Additional Civil Surgeon (Clinical) will have overall responsibility for implementation and monitoring of the program. S/he will be supported by the District Program Associate whose job profile will be expanded to include coordination of facility based management of children with SAM. District RCH Officers and District Program Associate should be oriented on the implementation-plan, operational guidelines, training material and IECon SAM.

The District Program Associate will be having the following responsibility:

- (i) Plan the establishment of NRCs
- (ii) coordinate and plan trainings
- (iii) Ensure adequate funding and supplies to all NRCs
- (iv) monitor district implementation on a regular basis,
- (v) review progress of training on a quarterly basis,
- (vi) Ensure an uninterrupted timely supply of drugs and equipment and maintenance of equipment.

2. Develop detailed plan for the district.

Each district will need to formulate detailed time-lined and budgeted training as well as implementation and monitoring plan. The training plan will reflect in detail the overall training workload and gradual coverage of all the medical officers and nurses in the pediatric wards of District Hospitals and Medical Colleges and all NRCs at Medical Colleges, District and Sub District Hospitals. In addition, selection of training sites, number of trainers and training materials, training calendar, referral, and monitoring and review arrangements should be addressed well in advance. The plan should be reflected in the child health component of the PIP. As with the state plan, the district plan for this intervention should be planned and presented to get here with the District NRHM/RCH II plan, not in isolation.

3. Follow up of children discharged from NRC

It is important for NRC to put in place an effective tracking and reporting systems so that children do not get lost and defaulters and deaths do not go unreported.

The person designated the responsibility for NRC supervision and monitoring in the district/state should ensure that children are followed up after discharge and smooth referral is possible from community to hospital and back.

Children discharged from NRC should be followed up at the community level to ensure appropriate feeding, follow up at the NRC for scheduled visits and to identify children who are not responding to treatment for referral to the facility level. NRC should have a complete list of PHCs, Subcentres and Anganwadis in its catchment area, so they can refer the child to the appropriate health facility closest to their community.

Close collaboration and information sharing between NRC and community based care (at ADHO, THO, CDPO, PHC, Sub-center and AWC) are essential. The list of SAM children discharged from NRC should be shared with area specific LHV, ANM and ICDS supervisors. These children should be enrolled in the AWC and given supplementary food as per the guidelines. The AWWs should prioritize these children for home visits, every week in the first 4 weeks and then once in 2 weeks till the child is discharged from the program. During the home visits, AWW should observe feeding and provide appropriate counseling and support to the mothers. These children should be weighed every week at AWC. The ASHA and AWW should ensure that these children return for the scheduled follow ups at the NRC. The ANM will also follow up the children discharged from NRC during the VHSNDs till they exit from the nutrition rehabilitation program.

Future Linkage with Community based Management:

For the management of children with severe malnutrition it is desirable to have a community-based and a facility-based component, so that severely malnourished children with no complications can be treated in the community, while those with complications can be referred to an inpatient treatment facility with trained staff. Community based management of SAM is also required for continuing the management to SAM children discharged from the health facility.

Monitoring and Supervision

Supportive Supervision

The NRC staff will initially require mentoring and regular supportive supervision thereafter. The district should identify and designate responsibility for supportive supervision and clearly define the frequency and process of supervision. The trained Pediatrician or medical Officer should supervise the NRC staff and provide hands-on training and feedback based on the analysis of monthly data from the NRC.

Medical colleges, the district quality assurance team, and SAM management trainers should also be involved in supporting the supervision and monitoring of NRCs in the district or state. One of the Apex institutions in the state should be identified as the nodal centre for NRCs, providing not only training but also periodic guidance based on data collated from all NRCs in the state.

MONITORING INDICATORS

It is suggested that the following gender and aged is aggregated indicators be used for monitoring the quality of service being provided by the NRC.

Indicator	Indicators to be monitored at NRC/district level	Indicators to be monitored at NRC/district level
Number of NRCs		
Admissions <ul style="list-style-type: none"> • Gender dis-aggregated • Referred by AWW/ASHA/Self/ 		
Pediatric ward or emergency		
Average length of stay in the NRC		

Indicator	Indicators to be monitored at NRC/district level	Indicators to be monitored at NRC/district level
Number of NRCs		
Bed Occupancy rate		
Average weight gain during the stay in the NRC		
Rate of referral to higher facility		
Recovery rate		
Case fatality rate		
Defaulter rate		
Relapse rate		
Non-respondents		
Death rate following discharge from NRC while still in program		
Average length of stay in the program		

Acceptable Level Of Care

Performance of NRCs may be assessed based on the criteria described below. All excess mortality should always be investigated. Lessons learned could save a number of lives; analysis of reports could point out to the need for training of the staff and help change the entrenched practices. The over all functioning of the NRCs can be monitored against the phere standards.

Indicators	Acceptable	Not acceptable
Recovery rate	>75%	<50%
Death rate	<5%	>15%
Defaulter rate	<15%	>25%
Weight gain(g/kg/d)	>=8g	<8g
Length of stay(weeks)	1-4	<1 and >6

The list of the equipment required in NBCCs, NBSUs, SNCUs and NRCs are as per the annexure 11.2

11.3 Rashtriya Bal Swasth Karyakram (RBSK)

Rashtriya Bal Swasthya Karyakram (RBSK) is a new initiative in this direction which seeks to put together a systematic approach to child health screening and early intervention. There is an unacceptably high incidence of birth defects, de-deficiencies, diseases speci-fic to childhood and developmental disorders including disabilities in India and it is high time we started to pay attention to their early detection and intervention

Rashtriya Bal Swasthya Karyakram aims to roll out the programme for children from 0-18 years of age. Under this programme, the children are screened and early identification of 4Ds are done in order to undergo early identification and treatment, follow up. The 'Child Health Screening and Early Intervention Services' Programme under National Rural Health Mission aims at early detection and management of the 4Ds prevalent in children.

These are

Defects at birth,
Diseases in children,
Defi-ciency conditions and
Developmental Delays including Disabilities.

The intervention enable the poor and marginalized population to get free of cost treatment under the supervision of Specialist.

11.4 District Early Intervention Center (DEIC)

“It’s not a drug, it’s not a vaccine, and it’s not a device. It is a group of therapists working together, solving problems and enhancing capabilities”

Introduction and Rationale :

The initial step of screening of children from birth to 18 years of age group for selected health conditions including (4 D’s)

- 1) Defects at Birth,
- 2) Deficiencies,
- 3) Diseases
- 4) Developmental delays including disabilities

These are covered Bal Swasthya Karkyakram (RBSK) through trained and dedicated Mobile Health Teams, the next vital step is confirmation of preliminary findings, referral support, management and follow up. Under RBSK, these activities viz. confirmation, management, referral, tracking & follow-up, needs to be planned according to the age group of the child. The purpose of DEIC is to provide referral support to children detected with health conditions during health screening, primarily for children up to 6 years of age group, specifically up to two years of age or as early as possible.

Services to be Provided by a DEIC:

Core Services :

Medical services

Medical treatment of children suffering from diseases and deficiencies, birth defects, developmental delays and disabilities (4 D's: as per RBSK guidelines ,May 2014)

Dental services

In children from birth to 6 years esp. Treatment and preventive measures of “Early Childhood Caries” .

Occupational therapy & Physiotherapy

Services that relate to self-help skills, activities of daily living, adaptive behavior and play, sensory, motor, and postural development.

Psychological services

- Administering and interpreting psychological tests and evaluation of a child’s behavior related to development, learning and mental health as well as planning services including counseling, consultation, parent training, behavior modification and knowledge of appropriate education programs.
- Identifying cognitive delays and providing intervention to enhance cognitive development, adaptive and learning behaviors.

Audiology

- Identifying and providing services for children with hearing loss among children from birth to 6 years for both congenital deafness and also acquired deafness.
- Services for children with delay in communication skills or with motor skills such as weakness of muscles around the mouth or swallowing.

Vision services

Identification of children with visual disorders or delays and providing services and training to those children. Retinopathy of Prematurity (ROP) – Screening for ROP of LBW, IUGR and premature or preterm

babies in SNCU .

Health services

Health-related services necessary to enable a child to benefit from other early intervention services.

Lab services

Routine blood investigations, confirmation and follow up of congenital hypothyroidism, Thalassemia and Sickle cell anemia or other inborn error of metabolism depending on the prevalence of such diseases.

Nutrition services

Services that help address the nutritional needs of children that include identifying feeding skills, feeding problems, food habits, and food preferences.

Social support services

Assessment of the social and emotional strengths and needs of a child and family, and providing individual or group services such as counseling. Socio economic evaluation of the family and linkages with the need based social services.

Psycho–social services

Includes designing learning environments and activities that promote the child's development, providing families with information, skills, and support to enhance the child's development.

Referral services ,Transportation and related costs

- Support in child and family to receive any tertiary level services.
- Service coordination
- Referral services following referral guidelines : Follow-up referral support and treatment including surgical interventions at tertiary level.

Documentation and maintenance of case records, data storage for service delivery, follow up and research.

Training and enhancing capability of multi-skilled community personnel in the district and helping in of early intervention services at blocks and in the community and provide supportive supervision and domain specific referral services in the community.

Supplementary services :

Disability certificates : with other members of the disability board

Liaison with other departments under various ministries:

Disability division of Ministry of Social Justice and Empowerment (MoSJE):

- a. Assistive technology devices and services – equipment and services that are used to improve or maintain the abilities of a child to participate in such activities as Hearing, Seeing (Vision), Moving, Communication and learning to compensate with a specific biological limitation.
- b. Special Education services for School age groups from six to sixteen, Pre-Vocational training for age 16-18 years and Vocational training for the age of 18
- c. Aids and appliances: Assistance to Disabled Persons for Purchase / Fitting of Aids and Appliances under the "Assistance to Disabled Persons for Purchase/Fitting of Aids/Appliances (ADIP)" Scheme, with the objective of assisting needy persons with disabilities in procuring durable, sophisticated and scientifically manufactured standard aids and appliances that can promote their physical, social and psychological rehabilitation.
- d. Rehabilitation of the differently able child above 6 years of age at the Rehabilitation centers in that state e.g. District Disability Rehabilitation Centers (DDRCs) for the districts where they are functional or

- Composite Regional Centers (CRCs) or National Institutes/Regional Centers etc.
- e. Family support services esp. for children having Autism, Cerebral palsy, Mental retardation, multiple disabilities. These Services would be to support those children who would require long term support and would focus on supporting the child in their natural environments and in their everyday experiences and activities. All services would be provided using a family-centered approach, recognizing the importance of working in partnership with the family. However whenever a detailed domain specific management would be required they would be referred to the DEIC.
- f. Guardianship
- g. Parent Associations
- h. Promoting advocacy for right-based society

Goals and Services of a DEIC

Social security's such as disability scholarship and disability pension. Linkages with Ministry of Human Resource Development (MoHRD), Department of School Education & Literacy under "Education of Children with Special Needs in "Sarva Shiksha Abhiyan"

- a) Provide inclusive education and support to children from age of 6-14 years
- b) Provide Aids and appliances to school going children with special needs and support of trained special educators to these children.
- c) To provide home based educational services to children with special needs on need basis.

Activities of District Early Intervention Center

- i. Screening all infants discharged from Sick Newborn Care Units (SNCU) who are at-risk of developmental delays and Neuromotor impairment
- ii. Monitor development of all infants discharged from the SNCUs to track whether their development trajectories are within normal limits up to the age of 2 years
- iii. To confirm diagnosis of the children referred for (4D's) Defects at Birth, Deficiencies, Diseases & Developmental delays including disabilities, by the Mobile Health Teams, delivery points, ASHAs private medical practitioners and self-referral
- iv. To Coordinate tertiary level treatment
- v. To act as a resource center for Block Early Intervention Centers (BEIC)
- vi. Assessment, intervention and parent counseling for the children who have confirmed diagnosis of Neuro-motor impairment. Therapies will be provided here till 6 years. Any child within 6 years of age having Neuro-motor problem will be able to avail therapy services at DEICs (both referred and self-referral)
- vii. To maintain records of every child who will attend DEICs for therapies and education
- viii. Children beyond six years of age with Neuro-motor impairments will be referred for further continuation of therapy and education to the Rehabilitative and Educational institutions
- ix. To develop BCC materials and strategies for the purpose of creation of awareness of this new concept among the general public.
- x. Laboratory for the clinical and programmatic improvement through exercising evidence based approach

DEIC areas & division

Area of the DEIC: Ideal size would be approx. 4900-5000 sq. feet

Rooms:

- 1) Waiting space
- 2) Play/ therapy area
- 3) Reception space for Registration including anthropometry
- 4) Pediatrician and Medical officer room
- 5) Dental examination room (Dental Doctor/ Dental technician)
- 6) Vision testing room and provision for visual stimulation for CVI (corticovisual impairment) children
- 7) Hearing testing room: sound proof room with room having two partitions. One smaller

- 8) one and separated by an one way looking glass with carpeted and double doors
- 9) Speech room with looking mirror extending from almost the floor to one and half feet above the level of the table
- 10) Early intervention room cum occupational therapy room
- 11) Psychological testing room
- 12) Laboratory (Lab tech)*
- 13) Nursing /nutrition room cum Feeding room
- 14) Sensory integration room
- 15) ECG cum Echo room
- 16) Computer room (Manager/ DEO) including Store
- 17) Pantry and space for drinking water and washing
- 18) Toilets (male, female, staff - all equipped with facilities for handicapped)
- 19) Open space/ corridor /Outer sensory garden (desirable)

Lab technician would be seated in the Special Newborn care Unit (SNCU) and support existing Lab tech provided under FBNC operational guidelines. All three would work to provide round the clock services to provide newborn screening services.

Composition of Team at District Early Intervention Center:

Professionals	Number
1) Pediatrician	One
2) Medical Officer	One
3) Dentist	One
4) Physiotherapist	One
5) Occupational therapist	One
6) Clinical Psychologist/Rehabilitation Psychologist	One
7) Pediatric Optometrist	One
8) Pediatric Audiologist & Speech pathologist	One
9) Special Educator	One
10) Lab Technician	One
11) Dental Technician	One
12) Program Manager	One
13) Data entry operator	One
14) Medical Social Worker	One
15) Nurses	One
16) Group D staff for cleaning	All days

All the staff members should be dedicated to DEIC and should not be rotated or posted elsewhere (preferably for a minimum of 3 year period).

All the DEIC staff will have to work like a team focusing on children from birth to 6 years in a holistic manner. In case of any doubt about role clarity, the pediatrician or the Medical officer will delegate the tasks to appropriate professionals.

Visiting Medical specialists: Services should be availed from the specialists available at district hospital

a) ENT specialist	Once a week
b) Ophthalmologist	Once a week
c) Orthopedic specialist	Once a week
d) Pediatric Neurologist	Once a week
e) Psychiatrist	Once a week
f) Pediatric cardiologist	Once a week

Audiometry

The audiometry department typically conducts hearing tests and evaluations to assess patients' hearing

abilities and diagnose potential hearing disorders or impairments. These tests may include pure-tone audiometry, tympanometry, auditory brainstem response (ABR) testing, and OAE, among others. The department may also provide counseling and recommendations for hearing aids or other interventions based on the test results. This department also provides UDID certification for people with hearing impairments.

Infrastructure of the room.

Audiometry rooms are designed to provide a controlled environment for conducting hearing tests. They are soundproof or sound-treated to minimize external noise interference, ensuring accurate test results. These rooms are equipped with audiometers, headphones, and other specialized equipment necessary for administering various hearing tests.

Audiometry rooms often have comfortable seating for patients and a workstation for audiologists or technicians to conduct the tests and analyse the results.

There are two Audiometry Units available in DH,

1. One under NPPCD (national programme for prevention and control of deafness.)
2. The second one is in DEIC (District Early Intervention Centre)

Manpower In DH

1. Audiologist
2. Audiometry Assistant
3. Instructor for speech

Audiologists are healthcare professionals specializing in the diagnosis, treatment, and management of hearing disorders. Their duties typically include.

Hearing Assessments: Conducting comprehensive hearing evaluations using various tests such as pure-tone audiometry, tympanometry, OAE and auditory brainstem response (ABR) testing to assess patients' hearing abilities.

Diagnosis and Evaluation: Identifying and diagnosing hearing disorders, balance issues, and related conditions based on the results of hearing tests and patient assessments.

Treatment Planning: Developing personalized treatment plans tailored to each patient's needs, which may include hearing aids, cochlear implants, auditory rehabilitation, or medical management.

Counseling and Education: Offering counseling and education to patients and their families about hearing loss, communication strategies, hearing protection, and available treatment options.

Collaboration with Other Healthcare Professionals : Collaborating with physicians, otolaryngologists (ENT doctors), speech-language pathologists, and other healthcare professionals to provide comprehensive care to patients with hearing disorders

Community Outreach : Participating in community outreach programs, advocacy efforts, and public education campaigns to raise awareness about hearing health and prevention of hearing loss.

Overall, audiologists play a critical role in helping individuals of all ages maintain optimal hearing health and quality of life.

Role of speech language Pathologist

Speech-language pathologists (SLPs) play a crucial role in assessing, diagnosing, and treating communication and swallowing disorders. They work with individuals of all ages who have difficulties with speech, language, voice, fluency, and swallowing. SLPs develop personalized treatment plans to help clients improve their communication skills, enhance their quality of life, and participate more fully in social,

academic, and professional settings. They may work in schools, hospitals, rehabilitation centers, private practices, and other healthcare settings. Additionally, SLPs collaborate with other professionals, such as educators, physicians, and occupational therapists, to provide comprehensive care for their clients.

Speech disorders

Speech-language disorders encompass a wide range of conditions that affect an individual's ability to communicate effectively. These disorders can involve difficulties with speech production, language comprehension and expression, voice quality, fluency, and swallowing. Some common types of speech-language disorders include:

1. Articulation disorders: Difficulty producing sounds or pronouncing words correctly, such as substituting one sound for another or omitting sounds.
2. Language disorders: Difficulty understanding language (receptive language) or expressing thoughts and ideas (expressive language) through spoken or written words.
3. Fluency disorders: Interruptions in the flow of speech, such as stuttering, where the rhythm and timing of speech are disrupted.
4. Voice disorders: Problems with the pitch, volume, quality, or resonance of the voice, which can result in hoarseness, breathlessness, or other abnormalities.
5. Cognitive-communication disorders: Challenges with communication related to cognitive impairments, such as difficulty organizing thoughts, following directions, or maintaining a conversation.
6. Swallowing disorders (dysphagia): Difficulty chewing or swallowing food and liquids safely and efficiently, which can lead to choking, aspiration, or malnutrition.

Speech-language pathologists assess and diagnose these disorders and develop individualized treatment plans to help clients improve their communication skills and quality of life. Treatment may involve a combination of techniques such as speech exercises, language therapy, swallowing exercises, and assistive devices to support communication.

Reference:

- 1) FBNC operational Guidelines for planning and Implementation, Ministry of Health and Family Welfare Government of India
- 2) Letter for HR , support staff , fund allocation as per letter dated 13.08.2013. (from state bureau)
मा.सहसंचालक, आरोग्य सेवा (रोगणालये), मुंबई यांचे परिपत्रक क्र. सं.आसे/एस.एन.सी.यु./ मनुष्यबळ भारती मार्गदर्शक सुचना/कक्ष-३/२०१३ दि.२४/०९/२०१३
- 3) Operational Guidelines on facility Based Management of Children with SEVERE ACUTE MALNUTRITION
- 4) Guidelines for Management of Severe Acute Malnutrition (SAM) Children at Nutrition Rehabilitation Center, Ministry of Health and Family Welfare Government of India
- 5) Indian Public Health Standards - Sub District Hospital and District Hospital 2022 Government of India
- 6) Facility Based care of Severe Acute Malnutrition, Training Manual, Ministry of Health and Family Welfare Government of India
- 7) Additional Director, SFWB letter/ Guidelines/ 47947-48004/2015 Dt. 03/09/2015.
- 8) Setting up District Early Intervention Centres, Operational guidelines- Rashtriya Bal Swasthya Karyakram, Child Health Screening and Early Intervention Services under NHM, Ministry of Health & Family Welfare, Government of India May 2014
- 9) DEIC Protocols, Public Health Department, Govt. of Maharashtra
- 10) Consensus statement of the Indian Academy of pediatrics on Newborn hearing screening
Developmental Pediatrics
- 11) CDC Kerala Experience ,second edition(2022);Dr MKC Nair
- 12) Journey of the first 1000 Days-National Health Mission
- 13) The first 1000 days of life: the brain's window of opportunity
- 14) Consensus statement of Indian Academy of Pediatrics on Early childhood Development ,May 22,2020
- 15) IAP Handbook of Developmental and Behavioral Pediatrics ,first edition 2022

CHAPTER XII

DIALYSIS UNITS IN HOSPITALS

12.1 Introduction:

Dialysis is a treatment that partially replaces kidney functions mainly excretory and some regulatory when one's own kidneys can no longer take care of body's needs. A dialysis centre is a clinical establishment that provides the treatment of patients with kidney failure. The dialysis can add useful years to life and prolong survival. There are two main forms of dialysis. Haemodialysis and Peritoneal dialysis, both of which are life support treatments. Dialysis may be used for patients who have acute kidney failure (AKF) or for patients who have permanently lost kidney function, chronic kidney failure (CKF) or End Stage Kidney Disease (ESKD)

The scope of services of dialysis may include

- Haemodialysis
- Peritoneal dialysis
- Hemofiltration and other similar modalities to adult and paediatric patients.

12.2 Infrastructure Requirements

Dialysis station shall be designed to provide adequate space area and safe treatment as well as to ensure privacy of patient. An area of 120 sq feet per machine should be provided. Safety hazard and caution signs, appropriate fire exit signs should be displayed. It should be well equipped with hospital furniture and fixture. The centre should have effective and suitable ventilation. All surfaces and fixtures are to be designed to enable easy and thorough cleaning on a regular and repeated basis to ensure a high level of infection control in all aspects of practice. High levels of cleaning are to be conducted in the unit daily. All surfaces should be free from seams and creases which may harbour bacteria. Vinyl that requires a warm water wash and does not require daily polishing should be included in all treatment areas.

The minimum space required for various rooms in Dialysis unit should be as per the annexure 12.1
(क्र सं आ से /राज्यस्तर/ डायलेसीस युनिट/कक्ष/ २०१३, दि. ०१/०५/२०१३)

Dialysis center Layout plan should be as per Annexure 12.2

Service Area	Sub district Hospital	District Hospital (beds)					
		50	100	200	300	400	500
Dialysis	4 + 1	4 + 1	4 + 1	4 + 1	8 + 2	8 + 2	8 + 2

Table I: Bed Capacity for Dialysis in various DH/SDH hospitals:

If there are 4 machines in the hospital, out of that, there should be 1 machine for positive patients and remaining 3 machines should be kept for negative patients. In case of 5-6 dialysis machines available in the facility, it was recommended to keep 2 machines for positive patients (1 for HBV and HIV, 1 for HCV patients).

12.3 Human Resources

Nephrologist, having DM or DNB in nephrology or its equivalent degree shall be the head of the centre. In areas where there is no Nephrologist, a certified trained dialysis physician shall be the head of the centre. A Nephrologist is always desirable with 200 bedded or above hospital as per IPHS norms.

The centre shall have qualified and/or trained medical staff as per the scope of service provided and the medical periodic skill enhancement or refresher training should be provided for all categories of the staff as relevant to their job profile.

A Dialysis technician should have the qualification of BSc with certificate in dialysis technology in statutory university with MSCIT along with experience of 1 year. Dialysis technician is expected to perform dialysis procedures. Man power requirement or staffing pattern for a dialysis centre should be as per Annexure 12.3

12.4 Equipments:

The centre shall have adequate medical equipment and instruments, commensurate to the scope of service and number of beds. All equipments shall be kept in good working condition through a process of periodic inspection, cleaning and maintenance. Safety checks for dialysis machine as well as blood tubing should be ensured. Preventive maintenance of dialysis machines, Reverse osmosis water testing and water viral marker testing should be done. Breakdown time needs to be recorded and reported timely. An equipment log book shall be maintained for all the major equipment. Indicative list of medical equipment and instruments is given at Annexure 12.4

In addition to this the dialysis unit must have emergency equipment to handle any emergency.

Drugs and consumables: List of drugs, consumables and disposables is given at Annexure 12.5.

Monitoring should be done as per given guidelines in Annexure 12.6

Reference:

- 1) Circular (क्र सं आ से /राज्यस्तर/ डायलेसीस युनिट/कक्ष३/ २०१३, दि. ०१/०५/२०१३) , Public health Department, Government of Maharashtra.
- 2) Guidelines for Dialysis centre by health department Government Haryana 16/08/2015
- 3) Indian Public Health Standards for district/sub district hospitals, Ministry of health and Family welfare, Government of India, 2022
- 4) SaQushal Safety and Quality: Self-assessment Tool for health facilities, Ministry of health & Family welfare, Government of India.
- 5) Guidelines for Dialysis centre by health department Government Haryana 16/08/2015 and Indian journal of Nephrology Volume 30, issue 7, year 2020

CHAPTER XIII

PHYSIOTHERAPY

13.1 Introduction:

Physiotherapy is a branch of medical science involving role of physiotherapists conducting patient's examination, evaluation, diagnosis and physical intervention skills which works on healing of impairments and disabilities. It helps in promoting the ambulation, functional abilities, quality of life and movement. It is concerned with maximizing quality of life by increase in movement potential for Promotion, Prevention, and Treatment/Intervention rehabilitation of People. This department provides the necessary training to meet the complete spectrum of patient care responsibilities involved in preventing disabilities and promoting restoration of function to the physically impaired.

Physiotherapists are health care professionals with a significant role in health promotion and treatment of injury and diseases. They combine their in-depth knowledge of the body and how it works with specialized hands-on clinical skills to assess, diagnose and treat symptoms of illness, injury or disability.

All physiotherapists must be registered (under Maharashtra OTPT Council) to practice are qualified to provide safe and effective physiotherapy. They have met national entry-level education and practice standards, and have successfully passed a standardized physiotherapy competence. Settings in which Physiotherapy is practiced is as per annexure 13.1.

“Physiotherapy” means a branch of modern medical science which includes examination, assessment, interpretation, physical diagnosis, planning and execution of treatment and advice to any person for the purpose of preventing, correcting, alleviating and limiting dysfunction, acute and chronic bodily malfunction including life saving measures via chest physiotherapy in the intensive care units, curing physical disorders or disability promoting physical fitness, facilitating healing and pain relief and treatment of physical and psychosomatic disorders through modulating physiological and physical response using physical agents, activities and devices including exercises, mobilization, manipulations, therapeutic ultrasound, electrical and thermal agents and electrotherapy for diagnosis, treatment and prevention.

Scope of practice

Physiotherapists plan and administer physiotherapy/ rehabilitation treatments independently and also being a part of the multidisciplinary team.

13.2 Physiotherapy Infrastructure

According to IPHS Guidelines Physiotherapy department should have minimum of 1000 sq. ft. area at ground floor.

This department offers wide range of services which include;

- i. Musculoskeletal(Orthopedic)
- ii. Neuro-Rehabilitation Dept. (Pediatrics and Adult)
- iii. Obesity and Fitness
- iv. Specialty clinics (knee, spine, gait lab, geriatric, etc.)

The OPD should be of minimal furniture, handicap friendly with ramp, railing support etc
The area shall be well ventilated, cleaned and with water supply.
Adequate space for storage of equipment and record of documentation.

13.3 List of Physiotherapy equipments

Physiotherapy equipments include:

A. Electrotherapy:

- i. Continuous Passive movement device
- ii. Electronic Cervical and Lumbar Traction Unit
- iii. Moist Heat unit
- iv. Paraffin Wax Bath
- v. Short Wave Diathermy,
- vi. Inferential Current unit
- vii. Infrared Radiation
- viii. Trans cutaneous Electrical Nerve Stimulation (2 pole)
- ix. Electrical Muscle Stimulation
- x. 10 Ultrasound
- xi. Laser Probe
- xii. Static Cycle

B. Exercise therapy:

- i. Shoulder exercise unit
- ii. Wrist and Hand exercise units
- iii. Abduction Ladder
- iv. Weight cuffs/Resistance bands
- v. Dumbbell exercise set, mat exercise (Floor) mat
- vi. Parallel Bars and Wall bars
- vii. Examination couches (number according to the patient load)
- viii. Quadriceps table Mobilization or Stabilizing belts, patient evaluation kit
- ix. (Including Goniometry, Percussion Hammer, Measuring tape etc)
- x. Walking aids (sticks, crutches, frames and wheel chairs etc)

13.4 Human Resources

Physiotherapist shall be registered with State Physiotherapy and Occupational therapy Council wherever applicable. According to ESIC Memorandum dated 12/05/2017 the Post of Physiotherapist is under Group B Level 6 in pay matrix.

Each District, sub district hospital and rural hospital should have at least one physiotherapy post. (1 essential post for 100 beds, 2 posts for 200 beds etc)

Permanent physiotherapist posts should be filled to ensure uninterrupted ,dedicated services in hospitals.

Job Chart Of Physiotherapist

1. To see the planning of physical therapy and the administration of that department.
2. Assess and diagnose patients.
3. Preparing patient progress reports and patient information for further education.
4. Massage, exercise and electrical therapy to move the patient's joints.
5. After surgery Try to increase the strength of the patient's muscles and joints to
6. Avoid complications.
7. Increase the patient's ability to exercise.
8. To try to control the breathing habit of the patient.
9. Trying to increase the patient's tolerance. 9. Advise the patient for physical activity to improve self-esteem.
10. Treating patients with special exercises and massages for physical strengthening.

Support Staff – In a physiotherapy center minimum one support staff should be available to meet the care treatment and service needs of the patient. According to guidelines of IPHS guidelines of 2022, the number of staff depends on the workload/bed capacity of the hospital.

Nomenclature of Physiotherapist based on the career progression according to MOHFW and ESIC is given in annexure 13.2

Reference:

- 1) राज्यातील जिल्हा रुग्णालये व त्याअंतर्गत असलेल्या विविध विशेषोपचार कक्षांकारिता सुधारित आकृती बंधानुसार अतिरिक्त पदे निर्मिती करण्याबाबत शासन निर्णय क्र. जि.रु.प. २१०५ / प्र.क्र.१३०/ आरोग्य ३ दि.०१ मार्च २००६
- 2) Indian Public Health Standards, Ministry of Health & Family Welfare, Govt. Of India 2022
- 3) Maharashtra Act No. li Of 2004 . (The Maharashtra State Council For Occupational Therapy And Physiotherapy Act, 2002.)
(This Act received the assent of the Governor on the 7th January 2004 ; assent first published in t h e Maharashtra Government Gazette, Part IV, on the 12th January 2004.) Amended by Mah. 42 of 2005 ** (4-10-2008).

CHAPTER XIV

TUBERCULOSIS IN HOSPITALS

14.1 Introduction:

As per the Global TB Report 2023, India accounts for more than one fourth of the global TB burden i.e. 27 Lakh TB cases out of 1 crore new cases annually, contributing to 27% of incidence TB cases. In 2022, India accounted for 3.4 lakh (29%) of global TB deaths.

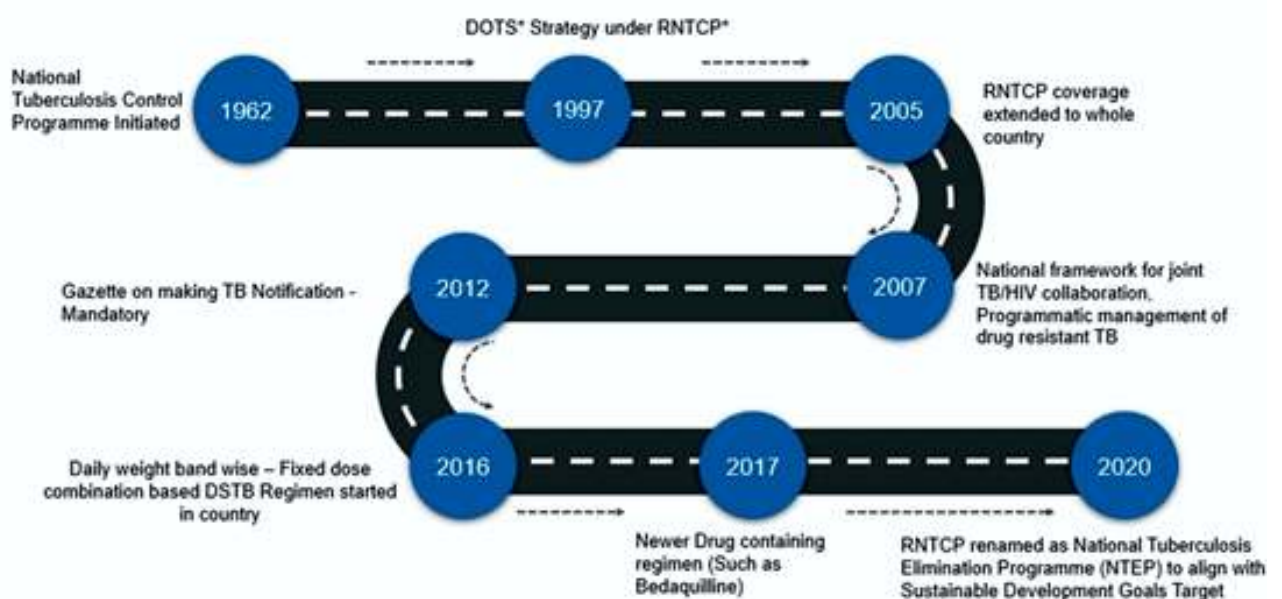
At national level, as per the report of India National TB Prevalence Survey conducted from 2019-2021 revealed that, the prevalence of all forms of TB for all ages in India was 312 per lakh population for the year 2021 Whereas; the prevalence of TB reported for Maharashtra was 199 per lakh. Prevalence of TB infection among general community is 31.4%.

TB disease usually affects the lungs but can involve any part of the body. Pulmonary TB is more common than extra pulmonary TB. All those who get infected do not necessarily develop TB disease. The lifetime risk of breaking down to disease among those infected with TB is 10–15%, which gets increased to 10% per year amongst those co-infected with HIV. Other determinants such as diabetes mellitus, smoking tobacco products, alcohol use and malnutrition also increase the risk of progression from infection to TB disease.

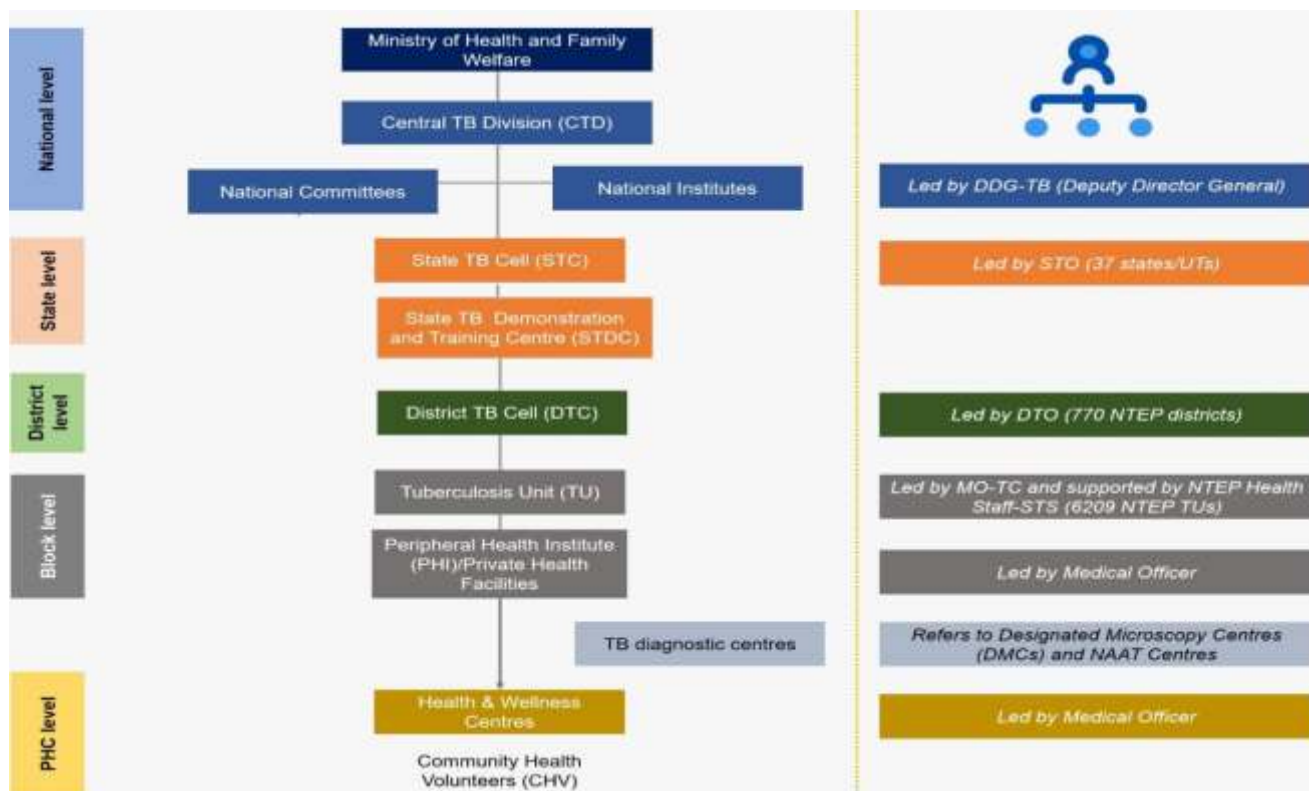
14.2 National TB Elimination Programme (NTEP)

National TB control programme was started in 1962, subsequently it got revised and it was name as Revised National TB Control Programme from 1997. Considering the goal of End TB, programme was renamed as National TB Elimination Programme (NTEP) in 2020.

Evolution of TB Elimination Programme in India



NTEP ORGANOGRAM



NATIONAL STRATEGIC PLAN (NSP 2017– 25) FOR TUBERCULOSIS:

Vision: TB-Free India with zero deaths, disease, and poverty due to TB

Goal: To achieve a rapid decline in burden of TB, morbidity, and mortality to achieve the End TB goals of 80% reduction in incidence and 90% reduction in mortality by 2025 - five years earlier than the Sustainable Development Goals (SDG) .

TARGETS TO BE ACHIEVED BY 2025

1. Incidence rate (per 100000 Pop) – 44 cases
2. Mortality rate (per 100000 Pop) – 3 cases
3. Zero Catastrophic cost for TB affected family.

GOAL AND OBJECTIVES

The goal is to achieve universal access to quality TB diagnosis and treatment for all TB patients in the community. The objectives of the National Strategic Plan for NTEP are,

1. To achieve 90% notification for all cases
2. To achieve 90% success rate for all new and 85% for re-treatment cases
3. To significantly improve the successful outcomes of treatment of DR-TB Cases
4. To achieve decreased morbidity and mortality of HIV-associated TB
5. To improve outcomes of TB care in the private sector

14.3 TB DIAGNOSIS

DEFINITIONS OF PRESUMPTIVE CASE

Presumptive Pulmonary TB refers to a person with any of the symptoms and signs suggestive of TB, including cough for 2 weeks or more, fever for 2 weeks or more, significant weight loss, haemoptysis, any abnormality in chest radio graph.

Note: In addition, contacts of micro biologically confirmed TB Patients, PLHIV, diabetics, malnourished, cancer patients, patients on immune-suppressants or steroid should be regularly screened for sign and symptoms of TB

The following are also to be investigated as presumptive PTB.

- a. Contacts of Micro biologically confirmed TB patients having cough of any duration.
- b. Presumptive /confirmed extra-pulmonary TB having cough of any duration.
- c. HIV positive patient having cough of any duration.

Presumptive Extra Pulmonary TB refers to the presence of organ-specific symptoms and signs like swelling of lymph node, pain and swelling in joints, neck stiffness, disorientation, etc., and/or constitutional symptoms like significant weight loss, persistent fever for 2 weeks or more, night sweats.

Presumptive Paediatric TB refers to children with persistent fever and/ or cough for 2 weeks or more, loss of weight* / no weight gain and/ or history of contact with infectious TB cases** .

History of unexplained weight loss or no weight gain in past 3 months; loss of weight is defined as loss of more than 5% body weight as compared to highest weight recorded in last 3 months.

In a symptomatic child, contact with a person with any form of active TB within last 2 years may be significant

Presumptive DR TB refers to the patient who is eligible for Rifampicin resistant screening at the time of diagnosis or/and during treatment for DS TB or H mono/poly. This includes following patients:

- All Notified TB patients (Public and private)
- Follow-up positive on microscopy including treatment failures on standard first line treatment and all oral H mono/poly regimen.
- Any clinical non-responder including paediatric (if specimen available)

Presumptive referral: It is expected that from secondary and tertiary care hospitals, 5% presumptive to be identified and referred against the new adult OPD for TB diagnosis. Increase in presumptive referral is important for early diagnosis of TB. The expected presumptive examination rate is 3400/1 lakh population/year.

TOOLS FOR DIAGNOSIS OF TB & DRUG RESISTANCE

1. Sputum smear microscopy : Under the programme, two methods of microscopy are currently being used

- Zeihl-Neelsen Staining method.
- LED based Fluorescence staining

The sensitivity of smear microscopy is low (in the range of 40-60%)

2. Nucleic Acid Amplification Test (NAAT)

- NAAT are molecular based technology, and they are highly sensitive. They are almost 40% more sensitive than smear microscopy.
- NAAT provides rapid diagnosis of TB by detecting Mycobacterium tuberculosis and Rifampicin (Rif) resistance conferring mutations, in sputum specimen as well as specimen from extra-pulmonary sites.
- Turnaround time for testing is around 2hrs.
- Under the programme, its use is recommended for diagnosis TB and Rif resistance status.
- Currently there are two NAAT technologies available under programme with almost comparable sensitivity and specificity.
 - Cartridge Based Nucleic Acid Amplification Test (CBNAAT)

- TrueNAAT.
- All samples can be processed by NAAT except Blood, Urine and Stool.
- Programme is planning to replace smear microscopy by NAAT in a phase wise manner.
- Currently NAAT machines in Maharashtra are available at all secondary and tertiary hospitals (RH, SDH, DH, Medical college etc)

3. Line Probe Assay (LPA):

- This is a molecular based technology to detect drug resistance.

There are two types of LPA probes-

- First line LPA (FL-LPA)- DST of Isoniazid and Rifampicin.
- Second Line LPA (SL_LPA) – Group DST of Fluroquinolone (Levofloxacin, Moxifloxacin) and Second Line Injectable (Amikacin, Kanamycin and Capreomycin)
- LPA testing facility is available in Intermediate Reference Laboratory (IRL) and Culture and DST labs in few medical colleges or Private labs.
- Turnaround time for testing is around 2 to 3 days.

4. Culture and Drug Susceptibility Testing (DST) for diagnosis of Drug Resistant TB

- There are two types of culture used to grow mycobacteria namely.
- Solid media (Lowenstein Jensen) and
- Liquid Culture Media including Automated Liquid culture systems e.g. e.g., Bactec MGIT , BactAlert, etc.
- Solid culture is now not used routinely as its Turn around time is almost 84 days.
- Liquid culture (Bactec MGIT) is commonly used for doing Culture and subsequently DST of Anti TB drugs. The Turn around time for liquid culture is 42 days.
- Solid and Liquid C & DST testing facility is available in Intermediate Reference Laboratory (IRL) and Culture and DST labs in few medical colleges or Private labs.

14.4 TB SCREENING TOOLS

1. **Radiography Chest X-Ray** is to be used as a screening tool to increase sensitivity of the diagnostic algorithm. Any abnormality in chest radiograph should further be evaluated for TB including microbiological confirmation. For the diagnosis in the absence of microbiological confirmation, X-ray can be used as a tool for supportive evidence for TB diagnosis.
2. **TUBERCULIN SKIN TEST (TST) & INTERFERON GAMMA RELEASE ASSAY (IGRA)**
Standardized TST may be used as a complementary test in children in combination with microbiological investigations, history of contact, radiology, and symptoms.
Interferon-Gamma Release Assays (IGRAs) are being used in place of skin test in low prevalence countries to detect TB infection. The exact advantage of IGRA in high burden countries like India is still not clear, hence these are not recommended for use for adults in diagnostic algorithm for tuberculosis in India. However, IGRA can be used for diagnosis of Latent TB Infection.

SPUTUM COLLECTION AND TRANSPORTATION

Two specimens are collected for smear examination or NAAT testing:

1. One Spot and one early morning sample OR
2. Two supervised spot specimens may be collected one hour apart if patient is too sick, coming from a long distance or likelihood of not giving a second sample is significant.

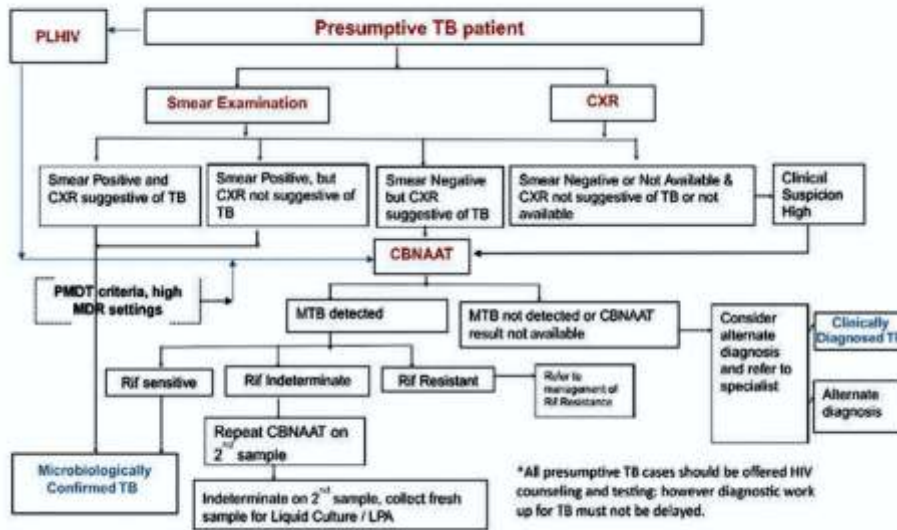
Sample should of quality - 2 to 5ml, Mucopurulent.

Samples for NAAT /C & DST testing should be collected in sterilised Falcon tubes and transported in cool chain by taking all precautions of biosafety.

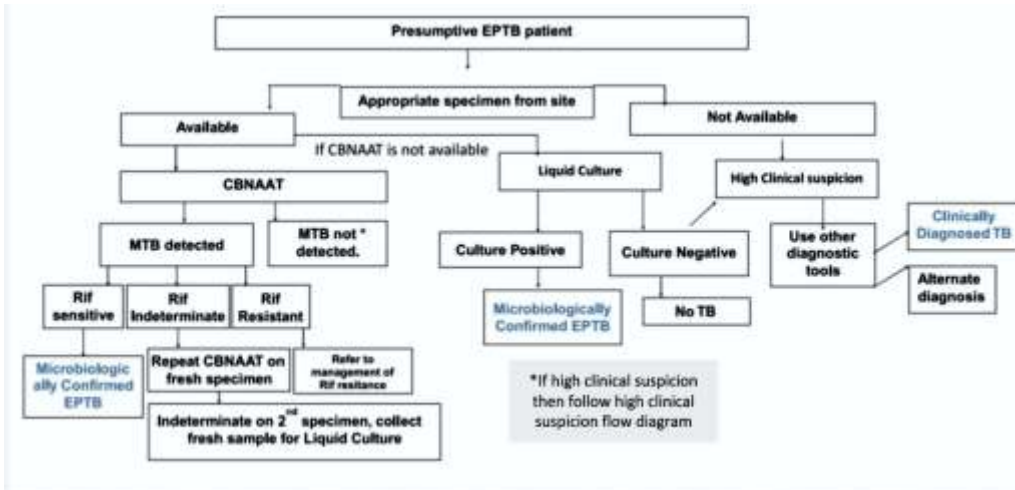
14.5 DIAGNOSTIC ALGORITHMS

1. Diagnostic algorithm for Pulmonary TB cases: Below algorithm to be used for the diagnosis of Pulmonary TB cases. Wherever CBNAAT is mentioned, it can be considered as CBNAAT or Truenat.

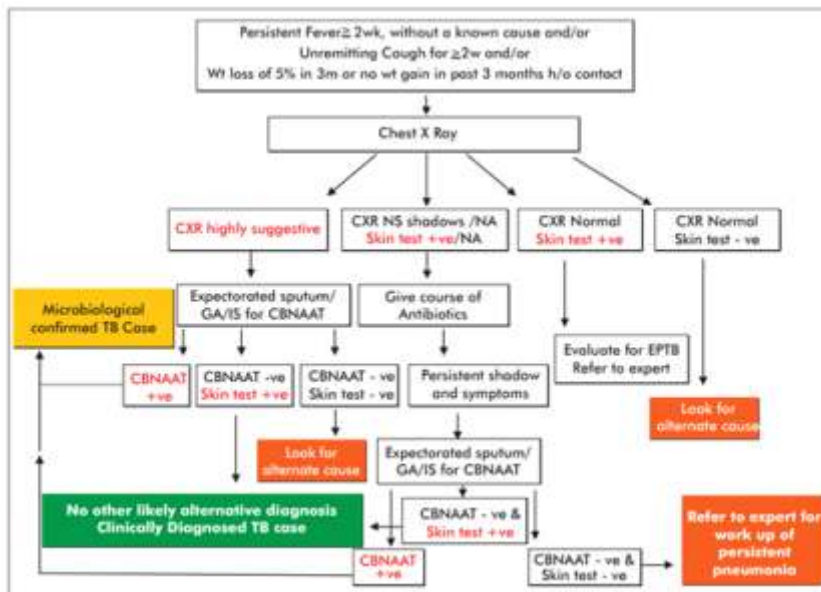
Diagnostic Algorithm for Drug Sensitive TB



DIAGNOSTIC ALGORITHM FOR EXTRA PULMONARY TB

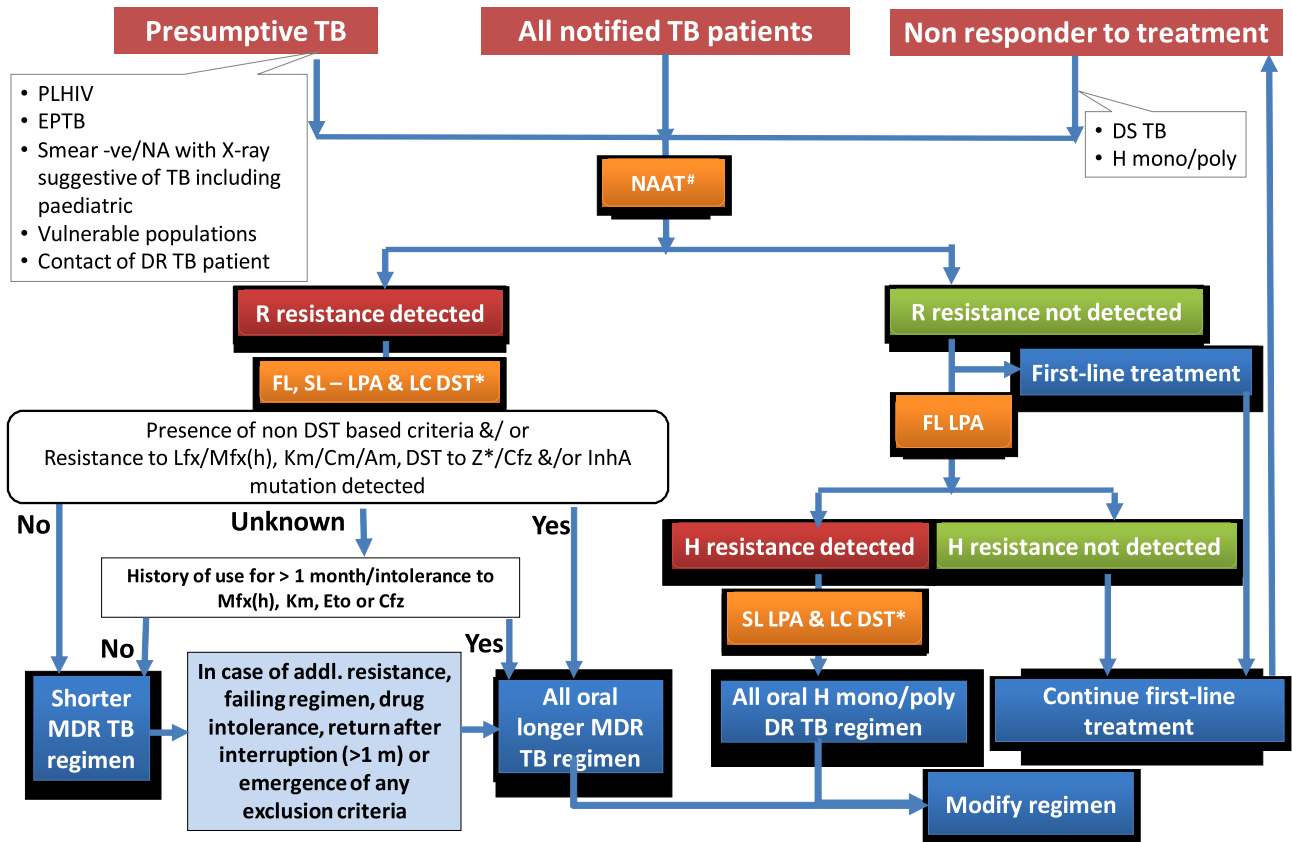


DIAGNOSTIC ALGORITHM FOR PAEDIATRIC PULMONARY TUBERCULOSIS



ALGORITHM FOR DRUG RESISTANT TB CASE DIAGNOSIS AND TREATMENT INITIATION

This algorithm guides about what steps to be taken after NAAT testing of presumptive/TB patients



NAAT include CBNAAT & TruNAAT

*LC DST will be done as per the diagnostic algorithm

** Refer table of exclusion criteria for shorter MDR-TB regimen

14.6 TREATMENT OF DRUG SENSITIVE AND DRUG RESISTANT TB:

TREATMENT REGIMEN FOR DRUG SENSITIVE TB:

1. Type of TB Case	Treatment regimen in Intensive Phase (IP)	Treatment regimen in Continuation Phase (CP)
New/ Previously treated	(2) HRZE	(4) HRE

Prefix to the drugs stands for number of months. H-Isoniazid, R-Rifampicin, Z-Pyrazinamide, E-Ethambutol Fixed Dose Combination (FDC) tablets are used. Loose Drugs would be needed as substitutions in case of adverse drug reaction or with co-morbid conditions.

No need for extension of IP. CP may be extended by 12-24 weeks in certain forms of TB like CNS TB, Skeletal TB, Disseminated TB etc. based on clinical decision of the treating physician.

Extension beyond 12 weeks should only be on recommendation of experts of the concerned field.

Drug Dosage for Adult TB cases (>18Yrs) based on FDC formulation (Drug Sensitive TB)

Weight bands	Number of tablets (FDCs)	
	Intensive phase	Continuation phase
	HRZE	HRE
	75/150/400/275	75/150/275
25-34 kg	2	2
35-49 kg	3	3
50-64 kg	4	4
65-75 kg	5	5
>75 kg	6	6

*Patient >75kg may receive 5 tablets/day if they do not tolerate

Dose to be adjusted by treating physician in individual cases if required.

For adult TB patients whose weight increases or decreases by 5 kg or more compared to baseline weight & crosses the current weight band during the treatment, the weight band must be changed at the time of next strip issue to the treatment supporter of the patient.

Drug dosages for first line anti- TB drugs

Drugs	Adult	Children	Maximum in children
Isoniazid	5 mg/kg daily (4 to 6 mg/kg)	10 mg/kg daily (7-15 mg/kg)	300 mg
Rifampicin	10 mg/kg daily (8-12 mg/kg)	15 mg/kg daily (10-20 mg/kg)	600 mg
Pyrazinamide	25 mg/kg daily (20- 30 mg)	35 mg/kg daily (30-40 mg/kg)	2000 mg
Ethambutol**	15 mg/kg daily (12-18 mg/kg)	20 mg/kg daily (15-25 mg/kg)	1500 mg
Streptomycin*	15 mg/kg daily (15-20 mg/kg)	20 mg/kg daily (15-20 mg/kg)	1000 mg

*Streptomycin is administered only in certain situations, like TB meningitis or if any first line drug need to be replaced due to ADR as per weight of the patient

** Ethambutol is given separately for children to monitor ophthalmic ADR.

Weight bands	Number of tablets (dispersible FDCs)			
	Intensive phase		Continuation phase	
	HRZ	E	HR	E
	50/75/150	100	50/75/100	100
4-7 kg	1	1	1	1
8-11 kg	2	2	2	2
12-15 kg	3	3	3	3
16-24 kg	4	4	4	4
25-29 kg	3 + 1A*	3	3 + 1A*	3
30-39 kg	2 + 2A*	2	2 + 2A*	2

A=Adult FDC (HRZE = 75/150/400/275; HRE = 75/150/275)

Children TB patients whose weight increases or decreases by 5 kg or more compared to baseline weight during the treatment, the weight band must be changed at the time of next strip issue to the treatment supporter of the patient.

ASSESSMENT OF PATIENTS WITH ACTIVE PULMONARY TB

All patients with active pulmonary TB will undergo assessment of clinical and nutritional status. All adult TB patients, on diagnosis or at least at the time of initiation of treatment, should be evaluated for the following parameters at all levels of the health system.

- A. Clinical examination:** to be done at baseline and monthly thereafter for the duration of the treatment.
 - a. Weight (in kg) and Height (in centimetres) to ascertain nutrition status. Body Mass Index (BMI). If the patient cannot stand, measure the mid-upper arm circumference (MUAC).
 - b. Vitals - Temperature, Pulse Rate, Blood Pressure
 - c. Respiratory Rate
 - d. Oxygen Saturation: Using Pulse Oximeter, SPO2 levels.
 - e. Icterus to be examined.
 - f. Oedema. If present, note if over feet/pretibial/hands/generalized.
 - g. General condition: bedridden/ambulatory, conscious/drowsy
- B. Investigations:**
 - a. Hemoglobin levels: Hb to be measured and recorded.
 - b. Complete blood count (Total Count, Differential Count, Platelet Count)
 - c. HIV
 - d. Random Blood sugar
- C. Imaging:** Chest X-Ray
All TB patients should be evaluated for drug resistance testing as prescribed by the.

Based on clinical examination and lab investigation patients risk stratification to be done and accordingly patient management to be done.

14.7 INDICATIONS FOR HOSPITALIZATION FOR TB PATIENTS

The usual mode of TB treatment is domiciliary, but patients require hospitalization in the following conditions:

1. Pneumothorax
2. Large accumulations of pleural fluid leading to breathlessness
3. Massive haemoptysis etc. the patients might need hospitalization.
4. Severe adverse reactions
5. Severe malnutrition
6. Patients requiring surgery.

TB DIAGNOSIS AND TREATMENT FACILITY REQUIREMENT AT SECONDARY AND TERTIARY HEALTH FACILITIES

SECONDARY LEVEL HEALTH FACILITIES: RH/SDH/SIMILAR HOSPITALS

I) TB diagnostic /screening services:

- a. Chest X-ray with trained MO to read X-ray or artificial intelligence or teleradiology to read X-ray.
- b. Sputum Smear Microscopy – ZN or Fluorescence
- c. Nucleic acid amplification (NAAT) test- CBNAAT/Truenat
- d. Tuberculin test (TST)- Mantoux test
- e. All facilities should linkages for sending samples for doing DST of Anti TB drugs to rule out drug resistance by Line Probe assay/Liquid Culture and DST.
- f. Linkages for sending sample for IGRA testing.
- g. All RH/SDH/Similar facilities must have appropriately trained manpower (i.e., Lab technician/ X ray technician) to undertake TB diagnostic tests.

II) TB treatment services:

- a. Trained medical officers/Specialist in NTEP guidelines to diagnose and treat drug sensitive TB cases, TB preventive treatment initiation.
- b. Follow up of DSTB, TPT and DRTB cases.
- c. Management of adverse drug reactions
- d. Laboratory testing facility for Co-morbidity testing (HIV & DM), tests for pretreatment assessment/follow up (LFT/KFT/CBC etc).
- e. Anti TB drugs supply of drug sensitive and drug resistant TB patients.
- f. All RH/SDH/Similar facilities may have at least 2 beds for indoor management of drug sensitive TB (one bed for male & one bed for female) with appropriate airborne infection practices in place.

TERTIARY LEVEL HEALTH FACILITIES: DISTRICT HOSPITAL/MEDICAL COLLEGES/SIMILAR LEVEL HOSPITALS

I) TB diagnostic /screening services:

1. Digital Chest X-ray facility with Radiologist to read X-ray or artificial intelligence / teleradiology to read X-ray.
2. Other radiology services like- HRCT, USG
3. Sputum Smear Microscopy – ZN or Fluorescence for TB diagnosis/Follow-up
4. Nucleic acid amplification (NAAT) test- CBNAAT/TrueNAAT
5. Culture facility by Solid/Liquid method
6. Sample collection facility for Extra pulmonary Pulmonary presumptive TB cases like- Lymph node biopsy, FNAC, Plural fluid tapping, CSF collection, gastric lavage/aspirate etc
7. Tuberculin test (TST)- Mantoux test
8. Facility for IGRA testing (Interferon Gamma Release Assay)
9. All facilities should linkages for sending samples for doing DST of Anti TB drugs to rule out drug

resistance by Line Probe assay/Liquid Culture and DST.

10. All RH/SDH/Similar facilities must have appropriately trained manpower (i.e., Lab technician/ X ray technician) to undertake TB diagnostic tests.

II) TB treatment services:

1. Trained medical officers /Specialist (Chest physician/Pediatrician/Gynecologist/Psychiatrist) in NTEP guidelines to diagnose and treat drug sensitive TB cases, Drug resistant TB cases, TB preventive treatment initiation.
2. Management of Extra pulmonary TB cases by respective experts.
3. Follow up of DSTB, TPT and DRTB cases.
4. Management of adverse drug reactions
5. Laboratory testing facility for Co-morbidity testing (HIV & DM), tests for pretreatment evaluation of DRTB cases/follow up (LFT/KFT/CBC/TSH/Electrolytes/ECG etc).
6. Anti TB drugs supply of drug sensitive and drug resistant TB patients.
7. All District hospitals/Medical college hospitals/Similar facilities may have at least two separate facilities for indoor management of drug sensitive TB & Drug resistant TB (Two beds each for drug sensitive & drug resistant TB; one bed ear marked for female patient for DS & DR TB each) with appropriate airborne infection control practices in place. DRTB centre to be established as per the PMDT guidelines 2021 of NTEP.
8. Provision for ICU facility- at least one bed for infectious TB patients as per AIC measure.

General Recommendations:

1. All Health facilities must have integrated professional counselling services for all TB patients & people with TB infection.
2. All Health facilities must have appropriate communication material in local language educating the patients & communities on all aspects of TB disease and infection including various social protection measures available under National programme. (Example Posters/banners/digital platform on symptoms/treatment/care/social benefits etc. Integrated TB management algorithm may be displayed in OPD enabling appropriate care by health care provider etc.
3. All Health facilities must have facility for vaccination against TB as per national guidelines.
4. All recording formats and digital reporting systems (Nikshay) in the form of registers/computers/internet connection etc. must be available all times.
5. All Hospital must follow bio-medical waste management protocol including facility for effective disposal of sputum (Spittoons with sanitary measures must be made available to all indoor patients)
6. Implementation of Airborne Infection Control guidelines to reduce the spread of infection in hospital setting
 - a. Screening patients for acute febrile respiratory illness, or cough >2 weeks
 - b. Cough etiquette, providing surgical masks/tissues or educating persons respiratory symptoms, IEC and providing dustbins.
 - c. Respirators (for those high-risk settings where recommended)
 - d. Procedures for using and maintaining environmental control measures eg. Opening windows to have adequate air exchanges, Appropriate seating arrangement to facilitate airflow direction, Fans/other type of mechanical ventilation as per requirement.

Procedures for de-compression of crowded areas

- Segregation: Placing respiratory suspects (including TB suspects) and cases in a separate waiting area, if possible.
- Fast tracking respiratory symptomatic to expedite their receipt of services in the facility to minimize their stay in Health facility.
- Provision of surgical masks to coughing patients

TB surveillance among staff of hospital

- Surveillance for TB in Health Care Workers, including procedures for recording and reporting these instances in Facility IC report.
- Educating staff on the facility infection control plan and standard procedures.
- TB Board has been constituted at district level under the chairmanship of Civil Surgeon with ACS as member and DTO as Member Secretary. Special TB leave is admissible to the employees if certified by TB board.

Reference:

- 1) National Strategic Plan for Tuberculosis Elimination 2017-25, Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi
- 2) Guidelines on Airborne Infection Control in Healthcare and other settings, Ministry of Health & Family Welfare, Government of India, 2011
- 3) Guidelines for Programmatic Management of Drug-Resistant Tuberculosis in India, Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi

CHAPTER XV

MENTAL HEALTH SERVICES

15.1 Introduction:

Mental health is an important aspect of total health. Definition of health is incomplete without mental health. If a person suffers from mental disorders all other areas of his functioning get disrupted viz. occupational, social & family interaction. Therefore his quality of life & total functioning is compromised. WHO had already declared that a major pandemic of Depression would hit the world in current decade. Occurrence of Covid pandemic has led to a tsunami in mental disorders especially Anxiety and Depression. Today it is evident that 1 to 2 persons out of 5, suffer from either Anxiety or Depression features. Thus 25 to 30 per of the population today is experiencing psychological distress. Therefore addressing mental health issues, spreading Mental Health awareness, providing primary and specialist care at all appropriate levels has become the need of the hour.

Preventive, Primary and specialist services in mental health should be provided from sub center to district hospital levels in order to improve total health of the community.

15.2 Registration

As per Mental Health Care Act 2017, all hospitals including Government institutes which provides psychiatric treatments and mental health services need to be registered with State Mental Health Authority.

15.3 Psychiatric Services At District Hospital Level

Ministry of Health & Family Welfare, in 2015 issued the guidelines about the district level activities under NMHP. In the guidelines following components are covered

- 1) District Mental Health Program (DMHP)
- 2) Activity at community Health center
- 3) PPP model
- 4) Day care center activity
- 5) Residential continue care
- 6) Mental health service & help line

Mental Health Services expected to be provided at District Hospital

- **OPD** : Treatment and counseling
Disability certificates
- **IPD** : Separate 10 Bedded ward of District Hospital should be designated for admissions of mentally ill patients. Patients who need acute care for short term can be admitted on such beds e.g. patients with depression and suicidal ideas or attempts, patients in alcohol withdrawal, highly anxious patients, etc.
If patient needs prolonged treatment under observation, then patient should be referred to nearest public mental health establishments.
- **Liason** : Patients admitted under other departments may have psychological distress or mental illness symptoms. These patients should be referred to psychiatric department and given appropriate treatment.
- **Health Camps** : Psychiatric assessment, treatment and counseling services should be rendered. Mental Health Awareness, information and counseling about disability certificates be given. The psychiatrist should visit all peripheral CHCs for mental health assessment for needy patients as

prescribed calendar.

- **Trainings** : Mental Health trainings should be given to all batches of various health services providers viz. Medical Officers, CHOs, Nurses, Health assistants, LHV, Health Workers, ASHA Workers, etc.
- **Stress Management Programmes** : For various Government and non-Government organisations should be conducted.

District Hospital Human Resources

- Psychiatrist
- Psychiatric Nurse
- Clinical Psychologist
- Psychiatric Social Worker
- Psychiatric counselors
- Trained Attendants

Work Pattern

All services about mental health should be provided by following the rules and norms laid down by Mental Health Care Act 2017. All rules pertaining to admission and discharge must be adhered to. OPD should be conducted daily as per hospital rules. Treatment and counseling services, assessment for disability, guidance about social rehabilitation, guidance for certificates etc. must be provided daily.

Days for disability certificates should be fixed and certificates be issued through Swavalamban software on same day.

- Referrals from other wards must be attended on same day.
- Round of admitted patients should be taken twice a day
- Scheduled meetings should be attended by appropriate officer/worker.
- Monthly reports - MIS should be prepared on time and forwarded to higher authorities after being checked by officer incharge.
- Documentation of all services should be maintained correctly and Registers should be updated every day/week.
- Online/Offline Trainings should be arranged and conducted once a month.
- PMIs with co-morbidity referred to DH should be managed with available resources without taking help from referring institute. (Government order is needed)

15.4 Psychiatric Services At Sub District And Rural Hospital & Primary Health Centre Level

All Medical Officers working in various government hospitals should be trained in mental health. They should be able to identify symptoms of mentally ill patients and diagnose them primarily. They should do counseling of family members and guide them for proper care and treatment & refer unmanageable patients to higher levels.

Psychiatric conditions which may be treated at above hospitals

- Anxiety Disorders.
- Mild Depression.
- Adjustment Disorders.
- Phobia/Panic

15.5 Manshakti Clinic

should be started at every primary health center and patients with mental illness, dementia, depression, alcohol abuse, anxiety should be counseled and treated at least once a week.

All community health officers at sub center levels should be trained in mental health so that they can recognize and refer mentally ill patients to higher center at the earliest and also do awareness about mental health.

Mental Health Public awareness programmes should be taken regularly and people should be educated to recognize mental illness early and come for treatment immediately. Mental illness must be regarded as any other illness and there should be no hesitancy or sense of shame in coming forward. All should work against the stigma associated with mental illness and work towards formation of completely healthy society.

Government of Maharashtra has formulated the state mental health authority in 2018 and revised again in 2022.

- 1) State authority register all mental health establishment
- 2) Supervision of all mental health establishment
- 3) Training of relevant manpower
- 4) Registration of mental health professionals

Government issued Gazette as per Mental Health Care act 2017, in which health circle-wise review board (MHRB) has been established. One of the board's main function is to register, review, alter, modify, cancel, advanced directive of an individual or to make a choice of his/her representatives.

Reference :

- 1) Guidelines for implementing activities at district level No. V-15011/03/2015-PH-1(II) Ministry of Health & Family Welfare, Government of India, dated 24 June 2015.
- 2) National Mental Health Survey, NIMHANS, Ministry of Health & Family Welfare, Government of India, 2015
- 3) National Mental Health Care Act 2017, Ministry of Health & Family Welfare, Government of India, No. V-15011/09/2017-PH-I dated 20th Sept 2017
- 4) मानसिक आरोग्य अधिनियम - २०१७ अंतर्गत राज्य मानसिक आरोग्य प्राधिकरणावरील शासकीय व अशासकीय सदस्यांचे नियुक्तीबाबत महाराष्ट्र शासन अधिसूचना दि.२०/१०/२०१८
- 5) मानसिक आरोग्य अधिनियम - २०१७ अंतर्गत राज्य मानसिक आरोग्य प्राधिकरणावरील शासकीय व अशासकीय सदस्यांचे नियुक्तीबाबत शा.नि. क्र. संकिर्ण-२०२२/प्र.क्र. २२०/ आरोग्य ३ अ दि. ०६/०९/२०२२
- 6) महाराष्ट्र मानसिक आरोग्य आढावा मंडळाचे गठन, शासन अधिसूचना दि. १५/११/२०२१

CHAPTER XVI

HOSPITAL INFECTION CONTROL PRACTICES

16.1 Introduction:

Hospital is a potent source of all kind of infections, it is necessary to have a systematic approach to deal with them and should have guidelines to follow day to day working of hospitals. For the smooth functioning of hospitals a hospital infection control committee is necessary. So that spread of infection from hospital to patients and staff and from community to hospital can be controlled and taken care of in emergencies and epidemic situations like covid-19.

16.2. Registration

It is mandatory to all hospital get the registration from Maharashtra Pollution Control Board (MPCB) and submit the annual report and renewal of registration as per the guidelines of the MPCB.

Infection Control Committee: This committee formulates the policies for control of infection

Chairman: Civil Surgeon/Medical Superintendent/Head of institute

Member Secretary: Additional Civil Surgeon/Senior Medical Officer

Members:

- Additional Civil Surgeon
- Chief Administrative Officer
- Metron/Asst.Metron/In Charge Sister
- Heads of Clinical Departments
- MS or representative of administrative staff
- Infection Control nurse
- Support services- OT/CSSD, Housekeeping incharge, store incharge, Engineering support staff
- Pathologist/Microbiologist

Functions:

1. Monitoring of healthcare associated infection.
 - Microbiological surveillance
 - Investigation and control of outbreaks if any, and
 - Monitoring of anti-microbial resistance
2. Providing facilities to the hospital staff to maintain good infection control practices.
3. Conducting ongoing educational/training programme for all cadres of hospital staff.
4. Making provisions for staff health activities.
5. Having a written document (manual) outlining the various infection control
6. Hospital round and updation of policies and procedures followed

16.3. Precautionary Guidelines

These precautions have been issued as guidelines by the Government of India.

- Washing/ cleaning of hands before and after all patients and specimen contact.

- Handling of blood and body fluids of all patient as potentially infectious.
- Wearing gloves for any contact with blood and body Fluids.
- Placing used syringes immediately in nearby impervious container; recapping or manipulating of used needles should not be done.
- Wearing protective eye wear and mask, if splashing of blood or body fluid is expected.
- Handling all linen soiled with blood and/ or body fluids as infectious.
- Processing all laboratory specimens as potentially infectious.

16.4. Infection Control Practices

Standard Precautions And Routine Practice

The important Standard Precautions include:

- Hand hygiene (as per pictorial presentation in Annexure 16.1)
- Use of personal protective equipment (e.g., gloves, gowns, mask Respirators), Eyewear and Goggles, Face Shields, and Protective Foot Wear) as shown in Annexure 16.2
- Safe injection practices,
- Respiratory hygiene/cough etiquette (as shown in Annexure 16.3)

Hand Hygiene

- a) Hand washing or hygienic hand scrub
- b) Surgical hand, asepsis

Antiseptic Agents To Be Used For Hand Washing/ Hand Hygiene

- Plain water and soap: Washing for 30 seconds reduces bacterial load by 1.8 to 2.8 log 10.
- Antiseptic detergents: 4% chlorhexidine gluconate-detergent (CHG)
- Povidone iodine and iodophors (7.5% to 10%) scrub agent
- 3% Chloroxylenol (does not act rapidly act as CHG and has less persistent activity)
- Hexachlorophene (3%)
- Quaternary ammonium compounds like benzethonium chloride, cetrimide

Safe Injection Practices

- Use aseptic technique when preparing and administering medications
- Never administer medications from the same syringe to multiple patients
- Recapping should be avoided
- Dispose off used syringes and needles at the point of use in a sharps container that is closable, puncture-resistant, and leak-proof.

Spill Management

- **Small spills:** For decontamination of small spills i.e. <10 ml, 1:100 dilution of sodium hypochlorite solution should be used.
- **Large spills:** For decontamination of large spills i.e. ≥ 10 ml, or culture spills in laboratory, a 1:10 dilution of sodium hypochlorite solution should be used first application (before cleaning) to reduce the risk of infection before cleaning. After first application, any visible organic matter should be removed with absorbent material (paper towels etc.) and then, a terminal disinfection with 1:100 dilution sodium hypochlorite solution should be done.
- **Spillage Kit:** Kit should be made available in all patient care areas of the hospital. PPE kit contains Mask, Cap, Shoe cover, Heavy duty gloves, gown, plastic apron, goggles, gum boots, yellow polythene bag, absorbable materials (paper/waste cloth/duster), sodium hypochlorite solution, cleaning up scoop and scraper, spillage slides.

Infection Control in Laundry and Linen Services

1. Collection and sorting of used linen

- Sorting should be away from any patient care area.
- The space should be well lighted and ventilated.
- Soiled linen should be handled as cautiously.
- Appropriate personal protective measures should be adopted.
- Provision should be made to store the heavily soiled linen separately from those that are not heavily soiled.

2. Internal transportation of used linen

- The hospital worker involved in transportation of the used linen. An adequate sized laundry trolley should be available for the same. There should be no over loading of carts/ trolleys with used dry or soiled linen.
- While transportation of the trolleys/ carts, they may be adequately covered using clean/used linen or with proper trolley covers.

3. Processing of the linen at laundry : according to disinfection & sterilization of linen

4. Packaging and distribution of clean linen

Keep clean linen in clean, closed storage areas. Wash hands before handling clean linen
Keep shelves clean.

5. Transporting and Distribution of Clean Linen

Clean and soiled linen should be transported in separate clean carts/trolleys. They should be labeled to avoid confusion.

16.5 Biomedical Waste Management:

"Bio-medical waste" means any waste, which is generated during the diagnosis, treatment or immunization of human beings or animals or research activities pertaining thereto or in the production or testing of biological or in health camps.

Waste generated from the healthcare facility is classified as:

- Bio Medical Waste
- General Waste
- Other Wastes

Various types of bio medical waste are further assigned to each one of the categories, as detailed below:

1. Yellow Category
2. Red Category
3. White Category
4. Blue Category

These categories are further divided as per the type of waste under each category as follows:

SEGREGATION OF BIOMEDICAL WASTE

Cat.	Type of Bag/ Container used	TYPE OF WASTE	Treatment /Disposal options
 Yellow	non-chlorinated plastic bags Separate collection system leading to effluent treatment system	a) Human Anatomical Waste b) Animal Anatomical Waste c) Soiled Waste d) Expired or Discarded Medicines e) Chemical Waste f) Micro, Bio-t and other clinical lab waste g) Chemical Liquid Waste	Incineration or Plasma Pyrolysis or deep burial*
 Red	non-chlorinated plastic bags or containers	Contaminated Waste (Recyclable) tubing, bottles, intravenous tubes and sets, catheters, urine bags, syringes (without needles) and gloves.	Auto/ Micro/Hydro and then sent for recycling. not be sent to landfill
 White	(Translucent) Puncture, Leak, tamper proof containers	Waste sharps including Metals	Auto or Dry Heat Sterilization followed by shredding or mutilation or encapsulation
 Blue	Cardboard boxes with blue colored marking	Glassware	Disinfection or auto/ Micro/hydro and then sent for recycling.

(Segregation, Collection, pre-treatment, Intramural Transportation and Storage) (NCDC Directorate General of Health Services MOHFW, Government of India January 2020)

Bio Medical Waste Segregation: Waste must be segregated at the point of generation of source. Posters / placards for bio-medical waste segregation should be provided in all the wards as well as in waste storage area. Adequate number of colour coded bins / containers and bags should be available at the point of generation of bio-medical waste. Provide Personnel Protective Equipment to the bio-medical waste handling staff.

Color Coding and Type of Container/ Bags to be used for Waste Segregation & Collection as per rule.

Bio Medical Waste Collection:

Time of Collection Bio-medical waste should be collected on daily basis from each ward of the hospital at a fixed interval of time. There can be multiple collections from wards during the day. Collection times should be fixed and appropriate to the quantity of waste produced in each area of the health-care facility.

General waste should not be collected at the same time or in the same trolley in which bio-medical waste is collected. Collection should be daily for most wastes, with collection timed to match the pattern of waste generation during the day. For example, in an IPD ward where the morning routine begins with the changing of dressings, infectious waste could be collected midmorning to prevent soiled bandages remaining in the area for longer than necessary. General waste collection, must be done immediately after the visiting hours of the HCFs, as visitors coming to facility generate a lot of general waste and in order to avoid accumulation of such general waste in the HCF. The collection timings must enable the HCF to minimize or nullify the use of interim storage of waste in the departments. Bio-medical waste collected by the staff, should be provided with PPEs.

Packaging & Labeling:

- Bio-medical waste bags and sharps containers should be filled to no more than three quarters full. Once this level is reached, they should be sealed ready for collection.
- Plastic bags should never be stapled but may be tied or sealed with a plastic tag or tie.
- Replacement bags or containers should be available at each waste-collection location so that full ones can immediately be replaced.
- Colour coded waste bags and containers should be printed with the bio-hazard symbol, labelled with details such as date, type of waste, waste quantity, senders name and receivers details as well as bar coded label to allow them to be tracked till final disposal.
- Ensure that Bar coded stickers are pasted on each bag.

Bio-medical waste bags / containers are required to be provided with the Symbol of Bio Hazard or Cytotoxic Hazard as the case may be as per the type of waste in accordance with the (BMWM Rules, 2016.) AND bar code labels in accordance with MPCB guidelines for "Guidelines for bar code System for Effective Management of Biomedical Waste".



Bio-Hazard Label



Cyto-Toxic Label



OR



Interim Storage:

- Interim storage of bio medical waste is discouraged in the wards / different departments of HCF.
- If waste is needed to be stored on interim basis in the departments it must be stored in the dirty utility/sections.
- No waste should be stored in patient care area and procedures areas such as Operation Theatre. All infectious waste should be immediately removed from such areas.
- In absence of dirty utilities/ sections such BMW must be stored in designated place away from patient and visitor traffic or low traffic area.

In House Transportation of Bio Medical Waste:

In house transportation of Bio Medical Waste must be done in closed trolleys / containers preferably fitted with wheels for easy transportation. Such trolleys or carts are designated for the purpose of Bio Medical Waste Collection only. Patient trolleys must not be used for BMW transportation. Size of such waste transport trolleys should be as per the volume of waste generated from the HCFs.

Route of intramural transportation of bio–medical waste

Bio-Medical Waste Generated from different wards or laboratories in the Health care facilities must be transported in the covered trolleys/carts. Route of transportation preferably be planned:

- Through separate routes.
- Through areas having low traffic flow of patients and visitors.
- Central Waste collection area can be easy accessed through this route
- Transportation does not occur through high risk areas

Central Waste Collection Room for Bio–medical Waste

Each Healthcare facility should have designated central waste collection room situated within its premises for storage of bio-medical waste, till the waste is picked and transported for treatment and disposal. The location of central waste collection room must be away from the public/ visitors access.

- The space allocation for this room must be as per the quantity of waste generated from the hospital.
- The planned space must be sufficient so as to store at least two days generation of waste.
- The room must be roofed and manned and should be under lock and key under the responsibility of designated person.
- The entrance of this centre must be accessible through a concrete ramp for easy transportation of waste collection trolleys.
- Flooring should be easy the cleaning of the area.
- Exhaust fans should be provided in the waste collection room for ventilation.
- The central storage room must be inspected for safety and potential fire hazard and based on such inspection preventive measure has to be taken by the health care facility like installation of fire extinguisher, smoke detector etc.
- There should also be provision for cleaning and washing of this station and the containers. The drainage from the storage and washing area should be routed to the Effluent Treatment Plant.
- Sign boards indicating relevant details such as contact person and the telephone number should be provided.
- The entrance of this station must be labelled with "Entry for Authorized Personal Only" and Logo of Bio Medical Waste Hazard.
- It is to be ensured that no general waste is stored in the central waste collection area.
- Healthcare facilities need to maintain the record of waste generated and handed over to the authorized system.
- Ensure protection from the animals,
- Ensure protection against the pests it is to be ensured by the HCFs that it has engagement of the pest control agency for taking the pest control measures in the central storage area on regular basis.

Central Storage for HCFs Having Captive Treatment and Disposal System:

For the health care facilities which are having captive treatment facility for treatment and disposal of biomedical waste through incinerators, autoclaves/microwaves, shredders etc. within its premises must ensure that waste generated from the HCF is stored in this central waste collection area till it is transported to reception area of captive waste treatment facility within the premises.

Post Exposure Prophylaxis is explained in Annexure 16.4.

Precautions/protection to be taken by healthcare workers and disinfection is described in Annexure 16.5

Healthcare associated infections and their surveillance is explained in Annexure 16.6

The format for Biomedical Waste management Register/Record is as given in Annexure 16.7.

The flow chart of Effluent Treatment plant is given in the Annexure 16.8

Antimicrobial Stepwardship Programme(ASP) is described in Annexure 16.9.

Record Keeping:

1. Every healthcare facility need to maintain the records w.r.to category wise bio-medical waste generation and its treatment disposal on daily basis.
2. Category wise quantity of waste generated from the facility must be recorded in Bio Medical Waste Register/logbook being maintained at central waste collection area under the supervision of one designated person.
3. A weighing machine needs to be kept in central waste collection centre of the HCF having 30 or more than 30 nos. of beds for weighing the quantity of Bio Medical Waste.
4. HCFs having less than 30 beds shall maintain records of receipts printed by the Waste collection agency.
2. Records on Annual Report on bio-medical waste management submitted to MPCB.
3. Records w.r.t. Accident Report submitted to MPCB including "NILL" report.
4. Records shall be maintained on training on BMW Management including both Induction and in service training records.

5. Records shall be maintained w.r.t. minutes of meeting of Bio Medical Waste Management committee.
6. Records shall be maintained indicating details of accident occurred including preventive and corrective actions taken by the HCFs in relation to such accidents.
7. Records for the operation of the biomedical treatment equipment installed, if any for the treatment of biomedical waste.
8. Records of testing of Effluent generated from health care facility.
9. Record of recyclable waste (plastic/glass) handed over to the authorized recycler in kg/annum.
10. The records related to the handling of BMW by healthcare facilities needs to be retained for a period of five years.

Effluent Treatment Plant:

Effluent Treatment Plant should be provided in every HCF to treat the wastewater generated from the hospital in order to comply with the effluent standards prescribed under the BMWM Rules, 2016. Sources of wastewater generation from the hospital are wards, laboratories, used disinfectants, floor washing, washing of patients area, hand washing, laundry, discharge of accidental spillage, firefighting, bathroom/toilet etc. Liquid waste generated due to use of chemicals or discarded disinfectants, infected secretions, aspirated body fluids, liquid from laboratories and floor washings, cleaning, house-keeping and disinfecting activities should be collected separately and pre-treated prior to mixing with rest of the wastewater from HCF.

The combined wastewater should be treated in the ETP having three levels of treatment; primary, secondary and tertiary;

- **Primary Treatment:** equalization, neutralization, precipitation and clarification
- **Secondary Treatment:** High rate aerobic biological treatment, secondary settling tank
- **Tertiary Treatment:** Pressure Filtration, Disinfection and disposal to drain/sewer

Reference:

- 1) World Health Organization. Manual on the management, maintenance and use of blood cold chain equipment, 2005
- 2) World Health Organization. WHO Guidelines on Hand Hygiene in Health Care. In: World Alliance for Patient Safety, editor. First Global Patient Safety Challenge Clean Care is Safer Care. 1 ed. Geneva: World Health Organization Press; 2009.
- 3) World Health Organization. Hand Hygiene. Why, How and When? [Online] 2009 Aug; www.who.int/gpsc/5may/Hand_Hygiene_Why_How_and_When_Brochure.pdf
- 4) Biomedical Waste Management Rules 2016.
- 5) CDC. Core Elements of Hospital Antibiotic Stewardship Programs. Atlanta, GA: US Department of Health and Human Services, CDC; 2014. Available at: <http://goo.gl/HfMvyE>.
- 6) NATIONAL POLICY FOR CONTAINMENT OF ANTIMICROBIAL RESISTANCE INDIA 2011
- 7) BMW Management rules, 2016 by DGHS & FW Govt. Of India 2016 (Annexure 7 to 10 of Guidelines for Management of Healthcare Waste)

17.1 Introduction:

The post-mortem examination & other medico-legal work form a very important part of the duties of Medical Officer serving in various Government Hospitals and other health institutions. It is superfluous to stress the necessity of correct medico-legal work as it is a vital part of maintenance of law and order. Since this work is a vital link in the dispensation of justice, it goes without saying that careful attention and promptness is quite essential in dealing with it.

Medical Officers are required to confirm identity of the deceased, determine the approximate time of death. He has to identify whether a death is accidental, suicidal, or homicidal. He should be able to identify age, sex, height, built, scar, deformity, tattoo marks in the victim as in the suspect. He should collect requisite viscera and other than viscera, proper biological samples like blood stain, semen stain, nail scrapping & clipping, body fluid, head & pubic hair, fibers, and any foreign material recovered from outside or inside of the body, tracing of patterned injury, etc. in sexual assault, rape, homicidal and any other cases if he thinks so. Evaluate injury in term of time, nature, type and the cause. Help investigating officers collect human remains for other pathological and Forensic examination. In cases of mass disasters such as plane crashes or charred remains the expertise of Medical Officer is required to assist in identification. They are also required to collect and preserve samples in case of bite-mark on a victim or on a food article. In a burial site, he has to assist in the evaluation of skeletal remains. Medical Officers have to play a very important role in exhumation of the body for re-examination in sensitive cases.

In the professional career the medical practitioner will have frequently to give evidence as a medical jurist in a court of law to prove the innocence or guilt of his fellow- subjects, or to authenticate or disprove a criminal charge of assault, rape or homicide brought against an individual.

Medical Officers, like other persons, are bound to attend Court on receipt of summons and to give evidence if required by the court; they cannot refuse to give evidence.

As a medical jurist, his responsibility is very great, He has, therefore, to acquire the habit of making a careful note of all the facts observed by him, and to learn to draw conclusion correctly and logically after considering in detail the pros and cons of the case, instead of forming hasty opinion. It is equally essential that a medical jurist must have a fair knowledge of all the branches of medical and ancillary sciences.

17.2 Present Scenario

- At present certain Medical Officers are given training in medico-legal work when recruited. Such persons require considerable experience before they could handle medico-legal work independently. Medico-legal work of a low quality has its repercussions in law proceedings. It results in strictures being passed by courts of law from time to time.
- All Medical Officers in Government service should realize that medico-legal work is an inescapable and important part of their duty. They should be prepared to do this work fearlessly. The Civil Surgeon/Medical Superintendent in charge of hospital has to be very careful in supervising and controlling medico-legal work. He should be careful in not assigning the work to inexperienced raw hands even though they may have received some training. Medical Officers have to receive in service training by practical experience in addition to the formal training which they receive.

17.3 Distribution of work

The Civil Surgeon/Medical Superintendent should classify the medico-legal work and distribute it accordingly to Medical Officers. The medico-legal work and the post-mortem examinations should be done by duty Medical Officer. In certain complicated cases, in both the urban and rural areas, opinion of Forensic Medicine expert must be sought in order to avoid unnecessary referral of the dead body and to add indignity to the corpse.

The Civil Surgeon/Police surgeon shall be the overall in-charge of medico-legal work in the district in his/her jurisdiction. The medico-legal work is comparatively of a specialized nature. It should therefore be entrusted to Medical Officer who have knowledge about it or who have been trained to do so.

Since the quality of medico-legal work has its repercussions on law proceedings and since occasions where strictures are passed by courts of law on Medical Officers are not uncommon, the distribution of medico-legal work in a hospital assumes significant importance. On the other hand Government Medical officers must accept that such work is an inescapable part of their duty. They should therefore strive to achieve efficiency in this work.

17.4 What is Medico–legal Work

The Medical Officers should be clear in their mind as to what constitutes the whole quota of medico-legal work. It is not that dealing with the cases sent by the police constitutes the whole quota of medico-legal work. All accidental injuries or injuries during scuffle etc. where the patient comes directly to the hospital without any Police diary also included in medico-legal work. All cases of burns and tetanus, poisoning and suspicious cases should be treated as medico-legal. It may often happen that cases at the time of admission may be purely surgical or medical but later on they may assume medico-legal importance on account of suspected poisoning etc. due to changed circumstances.

Deaths on the operation table or deaths in which the cause is not known, are medico-legal cases. Many times, cases are brought to the hospital in gasping condition and they die before the Medical Officer can completely examine them. On another occasions, certain persons brought to the hospitals are already dead. A separate register should be kept for such cases, showing the name, age, sex, the time and date of receipt of the patient and details as to who brought the dead body/address etc. Intimation may not be given to the police authority in case the cause of death is definitely known from examination during life and there is no suspicion or any medico-legal complication, but such occasion are very rare indeed if at all and Police must be informed practically in all cases.

Register to be kept in Casualty for Brought Dead and Gasping

Sr. No.	Name, Age, Sex and Address of the patient/person/deceased	Date and Time reported	Identification mark if unknown	Name, Age, Sex and Address of the person who has brought	Remarks (Gasping/Brought Dead/Informed to Police/Body handed over to relatives/Body sent to Mortuary)

17.5 Information to Police

It will be seen that in one set, the cases are referred by the Police and accompanied by the Police letter while in the other, the cases primarily come to the hospital and in these cases it is the Medical Officer's duty to inform the police. The intimation should be given to the police in writing and receipt of intimation should be obtained. Whenever this information is given to the Police, either in writing or by telephone, it should be entered in a special register, giving the name of the patient, the police authority to whom the message has been addressed, the time and date and office copy of the letter addressed to the police authority should be kept in the register. This is necessary in order to avoid any future complaints that the information was not given to the police in time. In case the messages are given by telephone the buckle number of the Police who is taking the message should be taken and entered in this register.

Police Inform Book

Name of the Hospital:

To,
In charge- Police Station Officer
Police Station.....

This is to inform that.....,

Male/Female,.....yrs. of age, R/O.....is reported to this hospit

on dated.....at.....am/pm as a case of.....

He/She is admitted/discharge/absconded/expired. His/Her condition is fair/serious. Kindly arrange

For dying declaration/Statement.

Reg. No.....

Place.....

Signature & Designation

Name.....

Date.....

Time.....

Stamp of MO:

17.6 Medico–legal Correspondence

All medico-legal case papers and correspondence relating to them is always treated as confidential. The out –patient department medico-legal case-paper should be in the charge of Additional Civil Surgeon/Medical Superintendent under lock and key while the indoor medico-legal case-papers should be incharge of the sister in charge of the ward, also under lock and key, until the patients are discharged and thereafter with the Additional Civil Surgeon /Medical Superintendent. The out-patients case papers are to be taken out, whenever necessary for writing notes, prescriptions, etc. When a medico-legal cases attends for out-door treatment, the concerned case papers and medico legal records is to be maintained by designated clerk in the office of Additional Civil Surgeon /Medical Superintendent after the work is over by

treating MO. These case papers should never be handed over to the patient or the relatives as is done in respect of case papers of other patients. It follows that the contents of the medico-legal case-papers as well as the correspondence should not be divulged to the public.

All correspondence arising in respect of medico-legal cases should be in the office of Additional Civil Surgeon /Medical Superintendent under lock and key. The medico-legal case papers of out-door an indoor patient, as well as the correspondence arising therefore should have a stamp "M.L.C." on them. There should also be a separate outdoor and indoor register for medico-legal cases i. e. they should have their own numbers in addition to the usual case papers numbers. Therefore, it would be seen that a medico-legal case paper will bear a separate M.L.C. number in addition to the usual register number. This M.L.C number should be jotted down on the case paper in addition to the usual case paper number. All correspondence and references about the medico-legal cases should be with reference to this number. This procedure will make correspondence easy.

Systematic filling and ready availability of medico-legal case papers and correspondence is very essential since the papers are always required for attendance in courts of law. It is common to find hospitals not being able to find out the relevant medico-legal case paper at the time of attendance by a medical officer in the court of law and this creates a very undesirable situation. The case paper and correspondence should be maintained month and year by year. The medico-legal record should be preserved for 30 years or till the court dispose off the case. Detailed instructions have been given in the Civil Medical Code as regards preservation of medico-legal case-paper and correspondence in Chapter No.20 which may please be referred to.

17.7 Infrastructure

Post Mortem rooms

A post mortem room is often used for two objects, viz., for keeping the dead bodies of patients who have died in the wards till their charge is taken by relatives and secondly, to keep bodies brought by the Police for post mortem examinations. In respect of the first category, it is the responsibility of the Medical Officer to see that proper cause of death is given. If the Medical Officer is in doubt about the cause of death he should inform the Police to hold a Panchnama and the natural result is that a post mortem examination is required to be done. There should be no ambiguity in this matter, as otherwise dead bodies may be disposed off, without a post mortem examination, where necessary.

Excepting the Cottage Hospitals, every hospital should have a morgue attached to the post mortem room. The difficulties of keeping more than one dead body are real and such occasions are quite frequent. In the post mortem room itself, there should be one section for doing the actual examination and the other for writing the notes. In addition to the post mortem table, there should be a provision for sinks with adequate water-supply and one or two cupboards to preserve instruments and viscera, etc. There should also be a couple of chairs and table for Medical Officers to write the notes. The doors and windows should be strongly protected by bars and they should be flyproof. The necessary wire netting should be provided. Electric fittings in the post mortem rooms are usually out of order. Though the examinations are not done at night, still Examinations can be done at night and as it is necessary to guard the dead bodies, and so there should be adequate light arrangements. When a dead body is kept on the post mortem table for an appreciable time before the actual examination, it should be covered by a semi-circular wire dome of full length. All these precautions are necessary to avoid mauling by stray animals like cats, dogs and bandicoots, etc.

It is quite essential to keep the PM room, as well as its surroundings absolutely clean; broken bottles, dirty rags etc. should not be allowed to lie scattered around the PM room. The PM room should be located at a convenient distance from the hospital, out of sight of other sections, and should be surrounded by a wall.

Lighting arrangements:

The light fittings should be designed to avoid glare, and should be easy to clean and maintain. Either tungsten or fluorescent lighting can be used. Switches in the wet areas should be hose proof. Special lighting should be provided to ensure adequate illumination of postmortem tables. There should be fluorescent lights/good concentrated lighting with at least one having tilting mechanism.

Shadow-free lighting should be provided for the autopsy table. Some specifications of Bulbs/Tubes

250 volts 100 watts B C Daylight Mazda Lamp.

2 Feet-20 watts Bipin Cool Daylight OSRAM/MAZDA Fluorescent light.

40 B C Gasfilled coiled lamp Daylight.

60 B C Gasfilled coiled lamp Daylight.

100 B C Gasfilled coiled lamp Daylight.

20 watts cool daylight 68000 K. Fluorescent lamps 2 (600 mm) size switch start.

40/60 watts B C inside white KLEERTONE LAMPS LIGHT.

100 watts B C inside white KLEERTONE LAMPS DAYLIGHT.

Fluorescent Tubes Switch Start Daylight

2' X 20 watts

4' X 40 watts

5' X 80 watts

17.8 Post Mortem Examinations

General

The performance of postmortem examination requires attention to a number of details which if not observed may invite adverse criticism by prosecutors and courts. Some important points need emphasis:-

- 1) A dead body brought at any time of the day or night should be accepted and kept in the morgue. The police officers should not be asked to bring the body in the morning, on occasions when it is received during evening or night. There should be a proper police guard on the morgue until such time as the actual postmortem examination is done and the body disposed off.
- 2) Post mortem examinations are always to be done in broad day light. It is often very difficult for the Medical Officer to convince the relatives of the deceased that such a procedure is necessary. The reason why post mortem examinations should not be done at night is that it is not possible to appreciate the superficial as well as the deep injuries and pathological changes in the various organs properly in artificial light. Many points of medico-legal significance are likely to escape notice. At present Government of Maharashtra have allowed Post mortem examinations to be made during night time if lighting arrangement are satisfactory. However, cases under categories such as homicides, suicides, rape, decomposed bodies; suspected foul play should not be subjected for post mortem during night time unless there is a law and order situation.
Ref: F. No. H-1 1021/07/2021-H-I, GOI, MOHFW dated 15/11/2021.
- 3) A post mortem examination should be considered as a very urgent piece of work and there should be no delay unless the body is received during evening hours. This work should not be adjusted with duties in the OPD, Operation Theatre etc. The only work which can take precedence over a post mortem examination is attending on a very serious patient. If a body has been received at night, the examination should be done, the first thing in the morning, after sunrise. If a Medical Officer, to whom this duty is allotted on that particular day, is busy with some other work, from which he cannot disentangled himself, then the Civil Surgeon or Additional Civil Surgeon/ Medical Superintendent should allot the work to somebody else or should arrange to relieve that Medical Officer by asking another Medical Officer to do the work.
- 4) Medical Officers should always appreciate the psychological background of relatives who are waiting for the body to be handed over. Secondly, in our country, decomposition process advances rapidly due to weather conditions. This affects the findings on postmortem examination. No delay is therefore permissible.

- 5) Post mortem examinations should not be refused on the ground that the body is from an area outside the Medical Officer's jurisdiction. The Medical Officer should first perform the postmortem examination and then represent the matter, if they so desire. Medical Officers ordered by the Civil Surgeon/Additional Civil Surgeon/ Medical Superintendent should not avoid the work nor argue.
- 6) While doing a post mortem examination, no outsiders (not even the policemen unless they are for training) except medical students undergoing training should be allowed. All the parts of the body (all body cavities should be opened) except spine and spinal cord should be examined systematically in all cases, even if the cause of death is obvious or can be attributed to injury or lesion of one particular part, as required by the standard postmortem examination form. The spine and spinal cord are to be examined when there are injuries to them or in other special circumstances indicating the examination. The spinal cord need not be examined unless there are any indications of disease, strychnine poisoning or injuries.
- 7) Before starting a postmortem examination, the Medical Officer should read Panchnama(Inquest) and all the Police reports carefully. If either of them is quite illegible, the fact should be brought to the notice of the Police. If the Medical officer finds any major discrepancy between the injuries as described in the Panchnama(Inquest) and as found by him, then he should cause a fresh Panchnama(Inquest) to be made by a Magistrate.

Request for the second inquest by magistrate on the dead body

From: The Medical Officer,
District Hospital,

To,
The Investigating Officer,
P. S.....

Dated / /20

Subject: Second inquest by magistrate on the dead body.

Reference: Police/Magistrate Panchanama dated

I am requesting you to request magistrate of your jurisdiction to come to the morgue/place of postmortem examination for making a second inquest on the dead body of aged aboutas many of/some of the injuries/findings are not mentioned in the above panchanama.

This request is made vide the Surgeon General with the Govt. of Maharashtra, Bombay's circular No. D-3009, dated 28th Oct. 1914 and No. D-245, dated 23/02/1915 of the Civil Medical Code, Bombay. An early action in this matter may please be taken to enable me to perform the postmortem examination. The undersigned should not be held responsible in any way for the delay in performing the postmortem examination and handing over the body to the relatives through the police constable. The relatives concerned may please be informed as to the cause of delay of postmortem examination.

Station:

Medical Officer in charge

Date and Time:

Encl.: Panchanama in original along with relevant papers.

Copy submitted for information to:

1. The Civil Surgeon, District Hospital,
2. The Superintendent/Commissioner of Police.....

- 8) The postmortem report is written on a printed form and the various columns automatically invite the required answers. There should, therefore, be no omissions. The important points to be kept in mind are as follows:-
- a) Column No. 5 – The Medical Officers should not write the words “as per the Inquest Report”. They should write a summary of the important facts and mention the injuries as mentioned in the Panchnama and confirmed by him.
 - b) Column No. 9 – The remark against this column should not be “nil” and a thorough search must be made. It is improbable not to find any identification marks.
 - c) Column No. 9 – The state of teeth should not be described by a “dash”. It should be stated how many teeth are present in the upper as well as the lower row, whether they are temporary or permanent and their condition i.e. shaky etc.
 - d) Column No. 10 – Rigor mortis should always be described in detail i.e. whether present in the whole body or in parts.
 - e) Column No. 12 – Details of sign of decomposition should be mentioned.
 - f) Column No. 17 – A detailed description of injuries should be given as regards their exact site as from fixed bony points, length, breadth, depth and character; it is advisable to attach a diagram of the injuries. All injuries should be carefully measured and noted individually though numerous in number. The conclusion about the cause and age of injuries should always be mentioned. Medical Officers cannot answer this point in a court of law without any record.
 - g) Column No. 18 – It should always be mentioned whether the injuries are ante or postmortem.
 - h) Weights of all organs as required according to the postmortem form should be taken and noted.
 - i) If blood is present in any part of the body cavities in approximate quantity should always be mentioned.
 - j) There are oftentears and injuries on internal organs. Medical officers should always mention the dimensions, namely, the length, breadth and depth. In case of hollow viscera, it should always be mentioned whether the injury is through and through or not.
 - k) Column No. 21. - Remarks should be always passed about the state of digestion of the stomach contents, if any. This helps in time since death in relation to last meal.
 - l) Condition of the hairs, clothes, nails, mouth, tongue, and genital organs and general appearance of the body is at times not mentioned. Attention should be paid to this.
- 9) After the PM examination is completed, the body should be stitched and reconstructed as possible as its original look. It should be wrapped in plastic or cloth and handed over to the Police on duty.
- 10) Post Mortem examination is conducted as per provisions under Section 174 and 176 of Criminal Procedure Code, 1973.

G.R., G.D., No. 733/33, dated 16-6-41 and C.M. 67 e G.R., H. and L.G.D., No. 733/33, dated 11-12-47, vide Surgeon General with the Govt. of Maharashtra, Bombay's Letter No. FRM/1462/19357/I, dated 4-7-62].

Memorandum of a post-mortem examination held at Dispensary/ Hospital on the dead body of Village/City Taluka District by

I. General Particulars

1.
 - (a) By whom was the corpse sent?
 - (b) Name of place from which sent.
 - (c) Distance of place from which sent.
2. By whom was the corpse brought?
3. By whom identified?

4. The date, hour and minute of its receipt.
 - (a) The date, hour and minute of beginning post-mortem examination.
 - (b) The date, hour and minute of ending post-mortem examination.
5. Substance of accompanying Report from Police Officer or Magistrate, together with the Date of death, if known. Supposed cause of death, or Reason for examination.
6. If not examined at Dispensary or Hospital...
 - (a) Name of place where examined.
 - (b) Distance from Dispensary or Hospital.
 - (c) Reason why the body was not sent to the Dispensary or Hospital.

II. External Examination

7. Sex, apparent age, race and caste Description of clothes and of ornaments on the body.
8. Condition of the clothes ... Whether wet with water, stained with blood or soiled with vomit or faecal matter.
9. Special marks on the skin, such as scars, tattooing, etc., any malformations, peculiarities or other marks of identification. State of the teeth. In newly born infants, the length and (if possible), the weight of the body to be recorded together with the state of the hair, nails and umbilical cord, its length, whether placenta is attached or not, if present, its size and condition.
10. Condition of body – Whether well-nourished, thin or emaciated, warm or cold.
11. Rigor Mortis—Well-marked, slight or absent; whether present in the whole body or part only
12. Extent, and signs of decomposition, presence post-mortem lividity of buttocks, loins, back and thighs or any other part. Whether bullae present and the nature of their contained fluid. Condition of the cuticle.
13. Features—Whether natural or swollen, state of eyes, position of tongue, nature of fluid (if any) oozing from mouth, nostrils or ears.
14. Condition of skin—Marks of blood, etc. In suspected drowning the presence or absence of cutaneous serina to be noted.
15. Injuries to external genitals. Indication of purging.
16. Position of limbs—Especially of arms and of fingers in suspected drowning the presence or absence of sand or earth within the nails or on the skin of hands and feet.
17. Surface wounds and injuries ... Their nature, position, dimensions (measured) and directions to be accurately stated—their probable age and cause to be noted. If bruise be present what is the condition of the subcutaneous tissues? (N. B.—When injuries are numerous and cannot be mentioned within the space available they should be mentioned on a separate paper which should be signed).
18. Other injuries discovered by external examination or palpitation as fractures etc.
 - (a) Can you say definitely that the injuries shown against serial Nos. 17 and 18 are ante-mortem injuries?

III. Internal Examination

19. Head-
 - (i) Injuries under the scalp, their nature.

- (ii) Skull—Vault and base—describe fractures, their sites, dimensions, directions etc.
- (iii) Brain—The appearance of its coverings, size, weight and general condition of the organ itself and any abnormality found in its examination to be carefully noted (Weight M. 3 gram F. 2.75 grams).

20 Thorax

- (a) Walls, ribs, cartilages ...
- (b) Pleura ...
- (c) Larynx, Trachea and Bronchi ...
- (d) Right Lung ...
- (e) Left Lung ...
- (f) Pericardium ...
- (g) Heart with weight ...
- (h) Large vessels ...
- (i) Additional remarks ...

21. Abdomen

- Walls ...
- Peritoneum ...
- Cavity ...
- Buccal Cavity, teeth, tongue and pharynx.
- Oesophagus ...
- Stomach and its contents ...
- Small intestine and its contents ...
- Large intestine and its contents ...
- Liver (with weight) and gall bladder.
- Pancreas and Suprarenal's ...
- Spleen with weight ...
- Kidneys with weight ...
- Bladder ...
- Organs of generation ...

Additional remarks with where possible, Medical Officer's deduction from the state of the contents of the stomach as to time of death and last meal.

State which viscera (if any) have been retained for chemical examination and also quote the numbers on the bottles containing the same.

22. Spine and Spinal cord ...

- (a) Whether the ante-mortem injuries found on the dead body were sufficient in the ordinary course of nature to cause death.
- (b) If yes, which of the injuries are individually sufficient in the ordinary course of nature to cause death.
- (c) which of the injuries are collectively sufficient in the ordinary course of nature to cause death. Opinion as to the cause/probable cause of death.

Dated

(Signature)

The Spinal Cord need not be examined unless there are any indications of disease, Strychnine poisoning or injury.

Note—The report must be written and signed immediately after the examination. Medical officers will at once despatch a duplicate copy to the Civil Surgeon of their district for record in his office.

Great care should be taken not to cut the viscera before they have been inspected in situ.

Dispensary

1. Place _____

Civil Hospital

Forwarded to the Police Sub-Inspector for information with reference to his No.

2. Viscera has been preserved. It may please be stated immediately whether examination by the Chemical Analyzer is necessary or it is to be destroyed.

Civil Surgeon or M. M. S. Officer.

Copy forwarded with complements to for information.

M. M. S. Officer.

Seen and examined by the Civil Surgeon,
Remarks of the Civil Surgeon, (if any).

Civil Surgeon

Register of Post Mortem (To be maintained in mortuary)

MLPM No., Date & Time	Name of Medical Officer	Body No.	Name, Age, Sex & Address of the Deceased	Name of P. C., B. No. & P. S.
1	2	3	4	5

ADR/CR No. With CrPC & IPC	Supposed Cause of Death/Manner of Death as per Police Inquest	Cause of Death after PM	Viscera/HP preserved/no	Name of Mortuary Attendant	Sign of P. C. for Receipt of Body & Clothes
6	7	8	9	10	11

Register of Post Mortem (To be maintained with the clerk issuing the PM reports)

	M L P M No., Date & Time	Name of Medical Officer	Date PM report received	Outward No. & Date PM Report issued	Outward No. Date Viscera/H form issued	Sign of P. C. No., PS for Receipt of P Report/Visce HP form	Date Viscera/H report received	Date informed to M O	Remark
1	2	3	5	7	8	9	10	11	12

ल्लावविच्छेदन/ शवचिकित्सा रजिस्टर (मृतदेह स्वीकारणे) (अपघात विभागात ठेवण्यासाठी)

अ. क्र.	मृतदेह आल्याचा दिनांक व वेळ	मृतकाचे नांव, वय, लिंग व पत्ता	पो. का. चे नांव, नंबर व पो. स्टे. /वार्डबॉयचे नांव, वार्ड क्र.	मृतदेह क्र.	पो. का. /वार्डबॉयची सही	पंचनामा (inquest) मिळाल्याचा दिनांक व वेळ	वै. अ. ना कळविल्याचा दिनांक व वेळ	शेरा
१	२	३	४	५	६	७	८	९

17.9 Preservation and Dispatch of Viscera and other Samples

Preservation of viscera is no panacea to solve all difficulties in post mortem examinations. Preservation is necessary in cases of suspected poisoning or in drowning cases and where the cause of death cannot be given in spite of all possible attempts. The provision of preservation of viscera should not influence the post mortem examination in such a way as to detract from the importance of carrying out each step of the post mortem examination carefully.

Whenever viscera or other samples are preserved, the required form for that particular viscera/samples should be filled in, duly signed and both the viscera/samples should be handed over to the Police accompanying the body in the mortuary only. This prevents allegation of exchanging viscera.

Whenever viscera are preserved, all the instructions given by Directorate of Forensic Science Laboratory, Home Department, State of Maharashtra should be scrupulously followed for their preservation as well as dispatch to the Chemical Analyzer. The Police should be frequently reminded as regards their decision whether to send the viscera to the Chemical Analyzer or not. Sometimes the decisions are not received early and the containers containing viscera lie in the hospital for months or even years together. The Police should, therefore, be repeatedly reminded and if it is not necessary to send them to the Chemical Analyzer, they should be destroyed. All the viscera removed during post mortem examination should be preserved in glass container containing appropriate preservatives in steel cupboards which should be kept in the post mortem room. These cupboards may also profitably stock any other samples for Chemical Analysis, from the wards, like bottles containing vomits and stomach wash, etc. and the cupboards should be properly locked and sealed.

Responsibility of medicolegal seal is given to Additional Civil Surgeon/Medical Superintendent. Additional Civil Surgeon /Medical Superintendent can delegate his responsibility to others.

The following material is required for preserving viscera to carry out necessary tests:

Material Quantity

i. Stomach	...	Whole
ii. Stomach contents	...	300 cc. If less, the whole quantity.
iii. Small Intestine	...	3 ft. in adult, 6 ft. in children and whole in infants.
iv. Small Intestine contents	...	100 cc. If less, the whole quantity.
v. Liver	...	400 to 600 grams in adult. Whole in infants.
vi. Spleen	...	½ in adult. Whole in children and infants.
vii. Kidney	...	½ of each in adult. Both whole in children and infants.
viii. Brain	...	300 grams.
ix. Bones	...	A piece of long bone about 6 inches.
x. Hair	...	20 grams. If less, the whole quantity.
xi. Blood (Post Mortem)	...	10 cc or more.
xii. Vomit	...	300 cc. If less, whole quantity.
xii. Stomach Wash	...	500 cc. If less, whole quantity.

Brain should be sent in cases with positive history of poisoning with either Barbiturate or Opium..

Following material should be collected and sent through the Medical Officer:

1. Post mortem blood sample with preservative in a sealed vial for blood grouping. In case of inability to collect blood, a piece of muscle, teeth or big bone should be sent.
2. Fresh preserved blood sample of all concerned persons (injured/accused) whose blood is likely to be present on the articles sent for analysis, should be sent in sealed sterile blood vials for blood grouping.
3. In rape/sodomy cases, preserved blood of both victim and accused should be sent in sterile vial. In such cases semen from accused for grouping should not be sent unless it is demanded from laboratory. In case of married woman (victim), fresh blood of husband should be sent if found necessary.
Blood sample should be sent as follows: (2 ml blood + 2 ml preservative)
(Add 5 gm of Sodium Citrate + 5 drops of formalin in 100 ml. distilled water)
Tooth sample should be washed, dried and sent in sterile sealed vial.
4. 5 cm diameter blood stain should be prepared on sterile cloth, dried, put in an envelope and sent along with blood sample.
5. While sending blood sample for blood grouping 5 to 10 pulled hair strands stuck on glass slide should be sent for enzyme blood grouping in an envelope.
6. In snake bite cases, 5 to 10 gms of muscle or tissue portion at the site of bite should be sent in bottle in saturated saline along with the 5 ml venous blood in 5% Sodium Citrate in separate sealed bottle and control skin piece.

Biological samples should be collected in following priority order from body of deceased:

- i. **Skeletal muscle (deep muscle)/Tissue:** The least decomposed portion of the tissue should be collected and be forwarded as soon as possible to avoid further decomposition.
- ii. **Tough tissue:** If the decomposition has already started collect the tougher tissue for which decomposition rate is comparatively slow viz. Muscle Tendon, Foot i. e. heel Skin, Scalp Skin, Palm Skin, Stomach Wall.
- iii. **Tooth:** Forward all the teeth present with dead body.
- iv. **Scalp Hairs with roots:** Pluck the scalp hairs, don't cut them with scissors.
- v. PM Blood
- vi. **Bones:** If the skeletonization of the deceased is complete and no tissue or other options are available, then the longer bones of the body such as Femur should be forwarded. If some dried tissues

or tendons are stuck up with the bones, then do not remove it, as there are some chances to get the DNA from it.

Modes of parcel and proper preservatives for respective samples:

Sr. No.	Sample	Mode of Parcel	Preservative
1	Tissue, Muscle piece, Scalp skin etc.	Clean, sterile plastic or glass container. Send the sample in the ice.	DMSO or Normal physiological saline or 4% EDTA or keep the tissue as it is in -20°C (refrigerated).
2	Blood	Clean, sterile glass vial. Send the samples in ice.	4% EDTA
3	Teeth	Air dry. Dry, clean and sterile plastic or glass container.	No preservative
4	Scalp Hairs	Air dry. Dry, clean and sterile plastic or glass container.	No preservative
5	Bone	Air dry. Wrap in clean brown paper.	No preservative
6	Blood and seminal stained clothes and scrapings etc.	Air dry. Wrap in clean brown paper.	No preservative

General Guidelines for the preservation of viscera/blood/urine/skin etc.:

Viscera I: Stomach, Intestine with contents (bottle 1)

Viscera II: Pieces of Liver, Spleen and both Kidneys (Bottle 2)

Viscera III: Blood 10 ml or more (Bottle 3)

Case History	Material to be sent	Preservative to be used	Should not be used as preservative
Routine case, drug, insecticides oral poisoning	Viscera I, II Blood Urine	Saturated common salt solution Potassium Oxalate/Sodium Fluoride	Rectifies Spirit/Formalin
Acid poisoning	Viscera I, II	Rectified Spirit	Common salt or its saturated solution
Alcohol poisoning	Viscera I, II Blood Urine	Saturated common salt solution Potassium Oxalate/Sodium Fluoride	Rectifies Spirit/Formalin

Case History	Material to be sent	Preservative to be used	Should not be used as preservative
Cyanide poisoning	Viscera I, II Blood Urine	Saturated common salt solution Potassium Oxalate/Sodium Fluoride	Formalin
Carbon Monoxide and other gas poisoning	Lungs Blood	Saturated common salt solution Potassium Oxalate/Sodium Fluoride with layer of paraffin	
Arsenic poisoning	Viscera I, II	Saturated common salt solution	
Snake Bite/injection	Skin with tissue Blood	Saturated common salt solution Potassium Oxalate/Sodium Fluoride	
Bleaching powder/Chlorine gas	Viscera I, II	Rectified Spirit	Common Salt
Blood for grouping	Blood	Potassium Oxalate/Sodium Fluoride	
Chloroform poisoning	Liver/Lung/Brain/Perirenal fats	Saturated common salt solution	
Firing	Skin piece around the entrance wound	Saturated common salt solution	

When the case is having combined history of alcohol and acid consumption, then two viscera samples, one in rectified spirit and other in common salt should be preserved separately.

Instructions for MOs for collecting and sending blood sample in alcohol consumption cases:

[Refer "Bombay Prohibition Act, 1949(Medical Examination and Blood Test) Rules, 1959]

1. Use a sterilized syringe. The area should be cleaned with sterile water. No alcohol shall be touched at any stage while withdrawing the blood.
2. Withdraw 5 cc of venous blood in the syringe and transfer into a phial containing anticoagulant and preservative (5 mg of Sodium Fluoride, 15 mg of Potassium Oxalate in solid state only) and the phial shall be shaken vigorously to dissolve the anticoagulant and preservative in the blood.
3. The phial shall be labeled and its cap sealed.
4. The sample should be accompanied by a forwarding letter (FORM 'B') and Medical examination certificate (FORM 'A').

Form for dispatch of viscera for histopathological examination

No.

From: The Medical Officer,

To,
The Professor and Head,
Department of Pathology,
Government Medical College, ____.

Dated :...../...../.....

Name of the deceased:.....Age.....Sex.....

Autopsy Surgeon Name.....

MLPM No.....

Nature of specimen:

Clinical details:

Autopsy findings in brief:

Probable cause/cause of death:

Special instructions, if any:

Medical Officer in charge

Place:

Date and Time:

शवपरीक्षेचे प्रतिवृत्त देण्यासाठी रासायनिक विश्लेषकाकडे व्हिसेरा अग्रेषित करताना वापरावयाचा नमुना
Form in which to report Post-Mortem Examination to be used when forwarding Viscera to the
Chemical Analyser

प्रेषक _____

From _____

प्रति,
रासायनिक विश्लेषक, महाराष्ट्र शासन, मुंबई.

To, The CHEMICAL ANALYSER TO GOVERNMENT OF MAHARASHTRA, BOMBAY.

दिनांक (Date) _____

तपासणी करीता अग्रेषित केलेल्या व्हिसे-याचे वर्णन
Description of Viscera forwarded for Examination

आवेष्टनाचा प्रकार: बाटलीला चिकटवलेल्या चिठ्ठीची प्रत
Mode of Packing: Copy of label attached to bottle

पेटी क्र. Box No.

बाटली क्र.

मुद्रेचा ठसा

Bottle No.

Impression of seal

पार्सलाचे वजन

Weight of parcel

कोणत्या प्रकारे पाठविले

पाठविल्याचा दिनांक

रासायनिक वियलेशकाच्या कार्यालयात

Mode of dispatch:

Date of dispatch

मिळाल्याचा दिनांक

Date of receipt in Chemical

Analyser's Office

पोलिसांनी पुरविलेली माहिती किंवा प्रकरणाचा गोषवारा.

Information furnished by police or precise of case.

नांव	स्त्री/पुरुष
वय	जात
Name	Sex
Age	Caste
ठाणे किंवा गाव	
Thana or Village	
प्रकरणाची हकिकत--पुढे चालू	
Story of case--Continued.	

मृतदेह पाठविल्याचा दिनांक व वेळ	मरणोत्तर परीक्षेचा दिनांक व वेळ
प्रत्यक्ष परीक्षाकरणा-या अधिका-याचे नांव	
Date and hour of dispatch of body	Date and hour of autopsy
Name of officer by whom examination was actually made	
मिळाल्याचा दिनांक	
Date of receipt	

मृतदेहाचे स्वरूप
Appearance of body
पिळदार
Muscularity
दणकट
Stout
कृष
Emaciated

विशेष खुणा
Special marks
वण
Scars
गोंदण
Tattooing
केसांचे प्रमाण इ.
Amount of hair, etc.
कुजण्याची चिन्हे
Signs of decomposition

जखमा व खरचटणे

Wounds & Bruises

(अ) जागा

(a) Position

(ब) स्वरूप

(b) Character

(क) आकार

(c) Size

नैसर्गिक द् वारांची अवस्था

State of natural orifices

नाकपुडया

Nostrils

तोंड

Mouth

योनिमार्ग

Vagina

गुदद्वार

Anus

मुत्रनलिका

Urethra

अवयव इत्यादींची अवस्था

States of limbs, etc

मरण संकोच

Rigor mortis

स्थिती

Position

मुठी वळलेल्या असल्यास आतील पदार्थ

Contents of hands if clenched

}

शिथिल

Relaxed

अवयव

Feature

आकुंचित

Contracted

पापण्या
Eyelids
बाहुल्या
Pupils
तोंडातील पदार्थ
Contents of mouth
जिभेची स्थिती
Position of tongue
दातांची अवस्था
State of teeth

ऊर
Thorax
बरगडया
Ribs
मृदु अस्थि
Cartilages
फुपफुसावरण
Pleura
हृद् यावरण
Pericardium

{

आकार व स्वरुप
Shape and appearance
पोकळया

हृद् य
Cavities
Heart
Clots ante or post-mortem

मरणपुर्व किंवा मरणोत्तर झालेल्या रक्तगुठळया

स्नायुमय रचना
Muscular structure

{

वाहिन्या
Vassels

रक्तगुठळया
Clots
धर्मनिशोध
Aneurism
नाडीव्रण इ.
Atheroma etc.

फुफुस Lungs	}	रक्तगुठळया Clots धर्मनिशोध Aneurism नाडीव्रण इ. Atheroma etc.
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विजातीय पदार्थकिंवारेग याकरीता कंठ, श्वासनलिका व लघु श्वासनलिका शाखा
Larynx, trachea and bronchi for foreign bodies or disease.

उदर Abdomen उदावरण Peritoneum परीतनुकुहरातील पदार्थ Peritoneal Cavity, contents यकृत व पित्ताशय अवस्था व आकार, रोगकिंवाइजा Liver and gall bladder--form and size, disease or injury स्वादुपिंड, रोग किंवा इजा Pancrease disease or injury प्लीहा, वरीलप्रमाणे Spleen, Do. Do. मूत्रपिंड, वरीलप्रमाणे Kidneys, Do. Do.
--

जठर	}	आकार व सर्वसाधारणस्वरुप Size and general appearance आवरणाचे स्वरुप Appearance of coats आतीलपदार्थ, स्वरुप, वास व परीणाम Contents, appearance, odour and quantity
-----	---	---

आतडी Intestine	}	सर्वसाधारण स्वरुप व आकार सर्वसाधारण स्वरुप व आकार Size and general appearance आवरणाचे स्वरुप Appearance of coats
-------------------	---	--

सर्व साधारण इंद्रिये

General organs

मूत्राशय व आतीलपदार्थ

Bladder and contents

गर्भाशय, स्वरूप, आकार व आतीलपदार्थ

Uterus, appearance, size and contents

योनीमार्ग, आतीलपदार्थ

Vagina, contents

मस्तक

Head

कर्परावरण

Scalp

हाड, रोगकिंवाइजा

Bones, disease or injury

आवरण

Membranes

मेंदुमधिलद्रव व मज्जाविवर

Brain substance and ventricles

कपवटीचा अधोभाग फुटण्याची स्थिती, रक्तोत्सर्ग इ. इ.

Base of skull fractures, carries, extravasation, etc. etc.

रोगाचे किंवा इजेचे लक्षण नसल्यास सुषम्जा प्रणालीची तपासणी करण्याची आवश्यकता नाही.

The Spinal Canal need not be examined, unless any indication of disease or injury exists.

अस्थिभंग व निखळलेली हाडे

Fractures and dislocations

इजेचे किंवा रोगाचे अधिक तपशिलवार वर्णन

More detailed description of injury or disease

मृत्युच्या कारणाबाबत मत

Opinion as to cause of death

ठिकाण

Station

जिल्हाशल्यचिकित्सक किंवा प्रभारी वैद्यकिय अधिकारी

Civil Surgeon or Medical Officer-in-charge of

दिनांक

Dated

(मकामुना (ओ-७७)-७-२००३-१,००,०००-पीए४ ना.वै.२४ म.इ. शा.नि.सा.वि., क्र. ६५२९, दि.१९.१३ C.M. 24 m. e.)

क्र.दोन No. II

रासायनिक विश्लेषकाकडे व्हिसेच्या व्यतिरिक्त इतर पदार्थ अग्रेषित करताना वापरावयाचा प्रतिवृत्ताचा नमुना

From of Report to be used when forwarding substances other than Viscera
to the Chemical Analyser

क्र. No.

प्रेषक,

From –

प्रति-रासायनिक विश्लेषक, महाराष्ट्र शासन,

To – THE CHEMICAL ANALYSER TO GOVERNMENT,

दिनांक:

Date :

..... याप्रकरणाच्या संबंधात

..... ही परिक्षा करण्यासाठी, खाली नमूद केलेल्या वस्तू अग्रेषित करण्यात येत
आहेत,

Forwarding the articles mentioned below for examination for in connection with the case of

Description of Articles

<p>वेष्टणाचा प्रकार प पार्सलाचे वजन— Mode of packing and weight of parcel ---</p> <p>प्रमाणभूतपेट्या आणि बाटल्या वापरल्या असल्यास— If standard boxes and bottles are used --</p> <p>(अ) पेटी क्र . (a) Box No.</p> <p>(ब) बाटली क्र . (b) Bottle No.</p>	<p>चिठ्ठीची प्रत व मुद्रेचा ठसा— Copy of label and impression of seal ----</p>
<p>कोणत्याप्रकारे पाठविले— Mode of Dispatch --</p> <p>दिनांक: Date:</p>	<p>रासायनिक विश्लेषकाच्या कार्यालयात मिळाल्याचा दिनांक— Date of receipt in Chemical Analyser's Office -----</p>

प्रकरणाच्या संबंधातील न्यायवैद्यकीय महत्वाची वस्तुस्थिती :

Facts of medico-legal importance in connection with case

Name of the institution:
MLPM No.....
Name:
Contents:
PC.....B. No.....
PS.....
Sign

17.10 Responsibilities of Medical Officers

Cause of Death

The Medical Officer must do his utmost to arrive at the cause of death or the probable cause of death. In arriving at the cause of death, the Medical Officer must take all signs into consideration and must not be guided by only one single appearance. He must see that the majority of findings fit in with the cause of death. The certificate regarding this advance report as to the cause of death should be given to the Police Constable in charge of the body immediately after the post mortem examination is over.

The signature of the Police Constable should be immediately taken on a duplicate copy of this certificate report. This is to be preserved along with the case paper. There should not be any delay in issuing this certificate as soon as the post mortem examination is over.

Post Mortem Reports

It should not be presumed once the cause of death certificate (advance report as to the cause of death) is given; a detailed post mortem report can be sent at leisure. The Medical Officer must send the detailed post mortem report to the Police authority within 24 hours of performance of the post mortem examination. The report should be in triplicate. The original post mortem report should be in the handwriting of the Medical Officer/in typed form. The original should be kept by the Medical Officer with himself and the typed copies can be sent to the Police as well as the Civil Surgeon/Medical Superintendent/Medical Officer I/C of the hospital duly certified. The original is to be produced in the court of law, if required and it would therefore, be advisable to keep one extra typed copy so that in case the original is given in the court, extra typed copy can be retained by the Medical Officer. Any erasures, additions and alterations should be avoided as far as possible, but if there are any, they should be initialed. The hand-written report should be in the same ink throughout.

One should not take sketchy notes while performing post mortem examination as it is very difficult to reconstruct the whole report therefrom even when the findings are fresh in the minds of the Medical Officers. The difficulties are accentuated in case the post mortem reports are written after some days. The Medical Officer should always employ a regular printed post mortem examination form for recording each and every fact in the post mortem room itself.

Decomposed bodies and examination on site

Medical officers should not avoid postmortem examination because the bodies are decomposed. The examination should be done with the same care and precision as in a fresh body. Decomposed body should be shifted to the nearest mortuary by investigating authority and examined there only.

Article 21 of the Constitution. The right to life with dignity extended to dead body. It is not the dignified way to perform autopsy on the spot in open space. It would also amount to offering indignity to the corpse within the meaning of Section 297 of IPC. Post Mortem Examination is done to enable to make a fair assessment, interpretation, framing opinions, documentation and help in administration of justice. Precise scientific approach by Doctor is necessary. On the spot examination does not provide a scientific meaning. However, in unavoidable circumstances if Investigating Officer can arrange a temporary mortuary the same can be done on the spot.

The dead body after post mortem examination shall be preserved in a dignified manner and shall be wrapped in a white cloth till it is handed over to the police.

Conclusions in the report

The Medical Officer must remember that their record in the post mortem report should only consist of their findings and conclusions based on the post mortem examination itself and not on other evidence like correspondence etc. Conclusions should not be based on extraneous facts.

Finger tips, prints and Bones

Whenever the bodies are not identified, it is duty of the Medical Officer to preserve the finger tips prints, lip prints, foot prints and the external peculiarities like scar or tattoo marks for identification of the unknown body if asked by the police officer. Medical Officers can advice Police on duty to do this job as they are also trained in this work. Similarly, the Medical Officer should be aware that whenever any bones are found, an inventory should be made of them all and they should be sent to the Professor of Anatomy. Photographs, if any, of body or bones are to taken by the police, but X-ray examination where necessary, must be arranged by the Medical Officer.

Additional information to be taken by Medical Officer:

Our standard postmortem examination form does not contain the following columns, but Medical Officer should add the following information in a separate note:

- a) Height of the body wherever possible;
- b) Color of hair;
- c) Weight of the body wherever possible;

The Medical Officers should also keep the following in mind:

- a) Where indicated, appropriate specimens may be taken for chemical analysis, histological and bacteriological examination;
- b) In case of death suspected to be due to "Uremic or Diabetic coma", take a specimen of CSF for chemical analysis;
- c) In case where analysis of blood is necessary for alcoholic contents, cadaveric blood should be collected from the femoral artery or the heart.
- d) Diaphragm— Note the level of diaphragm, right and left, in infants where ascertaining of breathing is important. Note the position of diaphragm in case of drowning.
- (e) Mediastinum and Thymus—In case of obscure sudden death, where the Thymus appears enlarged,

- weigh it and submit a section for histopathological examination;
- f) Adrenals—In case of sudden death from obscure causes, examination of supra-renal glands should not be overlooked.

Weapon Examination:

Any weapon sent by the police, which is alleged to have been used in producing injuries should be examined for marks of blood stains, hair, pieces of cloth etc., adherent to it and should be returned to the police after it is sealed. A foreign body found in the wound, e.g., a piece of glass, a splinter of wood, the broken off point of knife or the bullet, shot, or wadding of firearm, may indicate the manner in which the wound was inflicted, and may even help to identify the weapon with which the injury was caused.

Chain of custody:

Establish and maintain a chain of custody for physical evidence. It is the method to verify the actual possession of an object from the time it was first identified until it is offered as evidence in the court.

Regarding exhumation of body:

Procedure for exhumation of the body should be done by Investing Officer. After exhumation that body should be shifted to the nearest mortuary for postmortem examination. The inquest and requisition required to do this postmortem examination should be from government officer who execute the power of First class Judicial Magistrate or executive magistrate.

Negative and Positive findings

The Medical Officer should remember that, it is important and essential to record on the post mortem report, negative findings as well as positive findings with reference to the various columns.

No discussion

The findings should not be discussed by the Medical Officer with unauthorized person, but he may do so with the investigation officers and higher Medical Officers for the sake of guidance.

Supply of reports to private parties

Requests are often made by private parties for supply of PM examination report. The Reports are confidential documents, and cannot be supplied. The interested parties may be asked to approach the police authorities or the concerned Magistrate.

17.11 Scrutiny by Civil Surgeon/ Additional Civil Surgeon/Medical Superintendent

The Civil Surgeon/ Additional Civil Surgeon/Medical Superintendent who receive post mortem reports should immediately go through them carefully and see to it that it has been filled properly, and make any comments necessary on the back of the report, for which a space is provided. The notes should be passed on to the concerned Medical Officer at once before forwarding it to the concerned police officer.

Supervision

The Civil Surgeon, Additional Civil Surgeon and Medical Superintendent must guide the other Medical Officers by visiting the post mortem room, especially in homicidal cases and check to see that the examination and recording is being done properly.

17.12 Dead Bodies Management

Transport of Dead bodies

Whenever dead bodies are to be transported from any section of the hospital to the PM room, push ambulance is generally used. These are just like stretchers on wheel with a semicircular cover above. It is more decent to use these ambulances rather than carry the dead bodies covered by a piece of cloth on

open stretchers.

Guarding of dead bodies

A good watch is to be kept on the dead bodies in the PM room. If it is a medico-legal case, the police would be taking adequate precautions. In other cases, a member of the hospital staff should be entrusted with the duty of keeping a watch by frequent visits. The day & night watchman should also play their part.

The PM room should always be locked and the key should be with the Additional Civil Surgeon /Medical Superintendent or a responsible Medical Officer.

Public relations

The Medical Officers are frequently pressed by relations and influential members of the general public, social workers, etc; persuading them not to perform PM examination on dead bodies. This is easy to understand because PM examinations are very offending to the relatives. The Medical Officer has to use a great amount of tact in not allowing undue pressures to influence his decisions. Sometimes, he has to face a large, excited and angry crowds. The Medical Officer should be prepared for all this and should deal with the situation without any anger or rancor. They should explain to the public, why the examination is necessary. The Medical Officer must also be prepared to explain why the PM examination cannot be done at night.

Handing over dead bodies

Dead bodies from wards are often sent to the PM rooms pending arrival of relatives. These are occasions when handing over of such dead bodies to the relatives may cause confusion. It once happened in a hospital that two dead bodies completely covered, were lying in a morgue. When the relatives came to claim one of the bodies, the sweeper asked them as to whose body they wanted. They said they wanted the body of 'Bhai'. The sweeper took this as 'Bai' and handed over the wrong body. This mistake was discovered only in the cemetery with much embarrassment all round. The handing over should, therefore, be done by responsible member of the nursing personnel after ascertaining all facts. A label showing the name of diseased, husband's or relative's name, age and sex should be fixed on the sheet covering the body. It should be written legibly in large letters and in regional language.

While sending the dead body from ward to mortuary, information may be given in this format:

INFORMATION TO BE SENT BY THE DOCTOR ALONG WITH THE DEAD BODY WHILE SENDING THE DEAD BODY TO MORTUARY

(Prepare in a single copy and send it with the dead body)

Name of The deceased..... Age..... Sex.....
Address.....
Registration No..... MLC No..... Date and Time of Admission.....
Date and Time of Death..... Ward No..... D e p a r t m e n t
Unit.....
Cause of death (If any given by treating doctor).....
.....
Any relevant information.....
.....

Reasons for sending the dead body to mortuary

- It is a medico legal case
- No relatives are available and it is a non-MLC, not for PM examination

- Unknown person and no claimant are available (MLC/Non-MLC)
- Diagnosis and cause of death is not known and body is for clinical autopsy.

Whether Form No. 4 (Death Certificate) is issued to relatives: Yes/No

Whether the police have been informed: Yes/No

Date and Time:.....

Signature of informing Doctor

Name:

Designation:

17.13 Other Medico Legal Work

History taking and notes

The guiding lines as to which cases are medico-legal have already been given at the beginning of this chapter. The Medical Officer should make it a point to take a detailed history regarding how a particular injury or injuries were received. The details of how the injuries were received, with what implement, and how exactly the patient fell down, on what side etc. are important from both the medical and legal point of view. In case if the patient is conscious, it should be invariably mentioned: "Patient states he was hit with a stick" or "patient states, he was injured in a motor or Road traffic accident" etc. Where patient is unconscious, the MO should mention as follows,

"Brought by police or relatives (whose names should be noted) for treatment of injuries, said to have been caused by a knife or a stick etc. or in a railway accident."

If the MO writes what is stated by the patient or the relatives, it is a useful addition from a medical as well as a legal point of view. Certainly, a MO will be better able to diagnose injuries especially internal, from such details. The MO should give a detailed and accurate description of all injuries, together with their classification like incised, contused, etc. The dimension should be mentioned. It is also necessary to mention the probable cause and the age of the injuries. This should be recorded on the case paper itself on the spot, irrespective of whether this information is going to be called for by the police or not.

Identification Marks

It is also advisable to write one or two identification marks of the party examined. Medical Officers must be aware that whenever they are called in the court of law to give evidence, they are always asked the question whether they remember to have examined a particular party. The MO says "yes" but they may be vague in their mind. Identification marks thus have a legal significance, as actual verification can be done in the court. Signature of the patient or left-hand thumb impression or fingerprints would also be very useful for subsequent identification.

Duplicate Copies

All medico-legal record should be made available to Medical Officer attending the courts of law. A duplicate copy of the indoor or outdoor case-paper should be made in respect of those cases where originals have to be handed over in the court of law. It is sometimes necessary to hand over the original case papers in the courts

Accessory Examination

It is often necessary to refer the Medico legal cases for X-ray examination or laboratory examination. Those facilities are often lacking in the institute where the cases are examined first and they have then to go

to some adjacent hospital. Upon receipt, hospitals should carry out these examinations very promptly. In respect of Medico legal cases, it is customary to prefer radiograms to screening reports, as X-ray plates are positive and objective proof and are accepted as evidence in the court of law. The X-ray plates should be carefully marked with the name of the patient. The detailed X-ray report as well as the laboratory report, if any should be properly recorded on the case paper immediately on its receipt, and the time and date of the receipt should also be entered on the case paper.

Medico–legal Certificates

All certificates in medico-legal cases should be issued promptly and before issuing these certificates, the queries raised by the police officers should be carefully read. It should be carefully verified that answers to all the queries raised by the Police Officer are given. The certificate should be always complete in all respects so as to prevent unnecessary cross-correspondence which results in delay in investigation, which in turn means delay in justice. Details of injuries, their cause and age and substance of X-ray, and laboratory reports and other reports if necessary should all be mentioned. The Civil Surgeon/ACS/Medical Superintendent as well as the R.M.O. should make it a point to frequently check and find out if certificates have been dispatched in time or not. The contents of the certificates should be approved by the Civil Surgeon/Additional Civil Surgeon/Medical Superintendent before dispatch. A definite responsibility devolves upon these MOs in this respect. The office copies of the certificates should be kept by Additional Civil Surgeon/ Medical Superintendent with himself under lock and key attached to the case papers. If the case-papers are in the wards this certificate should be attached to the case papers there and should be under lock and key of in-charge of the sister. (Appendix 51)

In certain cases, the nature of certificates which can be issued is provisional. In such cases it should be certified in the covering letter that the certificate is of this nature. Later on, after further investigation, operation, or observation the complete certificate may be sent.

Whenever Medical Officers have occasion to issue medicolegal certificates, they should consult higher Medical Officers, if necessary, in case they have any difficulty. They should also study the relevant portions from a medico-legal books and must keep a latest edition of standard text books

The medico-legal cases require particular care by way of investigations, diagnosis and treatment.

Medical Officers must always remember that it is on the basis of legible medical record, that he will be able to give evidence in the court of law and to stand the rigors of cross-examination.

Fire Arm injuries

Generally the experience of MOs regarding Fire arm injuries is scanty, and yet it is necessary before giving evidence in a court of law to be able to answer different types of questions related to fire arm injuries. An MO must have a thorough knowledge about the characteristics of wounds of entry and exit, distance of the fire arm from which it might have been fired, and the types of internal injuries possible due to various fire arms. They should also have workable knowledge of different types of fire-arms. For this purpose, they should take the help of the police authority, if necessary, in understanding various problems.

Clothing of the subject should be removed with care, keeping in mind the possibility of finding bullet or pellets in them. Should it be necessary to cut and remove the clothing, care should be taken to leave the shot holes intact.

Before looking for the bullet or pellet inside the body, it is desirable to have the body x-rayed. So, the body should be shifted to the centre where X-ray facilities are available.

The pellets and fragments of a bullet as many as possible and any other projectile like wad etc. be removed during the autopsy, if present, on removal of these should be dried in air and put in a bottle properly

labeled and sealed.

One instrument/weapon can be used in more than one way

It is worth remembering that injuries may be caused by a particular instrument in different way, for example, a spear may not necessarily be used with its apex for stabbing purposes. It is perfectly possible for a spear to be used with its edge as an effective weapon and in that case the injury will be different from the usual spear injury. Medical Officers should, therefore, remember that one instrument/weapon is capable of being used in different ways.

Examination of Female Cases

The Medical Officer has to take particular care in examining female cases which is often required for sexual assault survivor, recent delivery and abortion, etc. There is often a great difficulty on account of absence of a lady doctor. The examination should always be done after taking the party's consent in front of a witness and in the presence of a female. For this, the Government Circular dated 07 August 2015 and DHS circular dated 03/01/2019 regarding (Forensic Medical Examination of sexual Assault and POCSO cases: An Instruction Manual & Proforma) should be followed.

It must be understood by MOs that Forensic Medical examination of victim is a "medico legal emergency". Hence, such cases must be examined without delay. No such case should be refused for examination for the reasons of non availability of lady medical officer, because any registered medical practitioner working in an authorized hospital can examine victim in presence of other woman.

Duties of health care providers in this regard are as follows:

1. Immediate intervention or referral to higher centers in cases of medical and/or surgical emergencies arising from sexual assault. Under such circumstances life saving procedures can be done even without consent. Collection of evidence and other necessities can be done simultaneously while dealing with emergency.
2. Providing necessary medical support for physical and psychological problem after obtaining informed consent.
3. Detail Forensic medical examination and documentation.
4. Collection, preservation and handing over different samples.
5. Forming valid, justifiable and reasonable opinion depending strictly on the facts observed.
6. Information to police.
7. Providing copies of documentation and the medical examination to the survivor.
8. Emergency contraception.
9. Treatment.

Various formats/ instructions/ provisions devised/ included are:

1. Format for Forensic Medical Examination of Sexual Assault Victim and Accused
2. Form of Report to be used when forwarding samples of Forensic Medical Examination of alleged victim and accused of sexual assault to FSL.
3. Format for giving final opinion of Forensic medical examination of alleged victim and accused of sexual assault.
4. Forensic medical examination report of age estimation (male/female).
5. Medical Management/Treatment Form (Checklist)- (Sexual Assault Victim)
6. Body diagrams that may be used for recording the injuries.
7. Instructions to be given to Medical Officers regarding cooperation & information to be given to police.
8. General DOs& DONTs for Medical Officers.
9. WHO definition of Sexual Assault.
10. Relevant Legal Provisions including the Criminal Law Amendment Act 2013 & the Protection of Children from Sexual Offences Act 2012 amended in 2020.

The Forensic Medical Examination of the victim and accused in cases of sexual assault must be conducted at any of the following hospitals (a circular to this effect be issued by DHS). It must be remembered here that no victim will be denied medical treatment though examination will be carried out at other designated centre.

- 1) Government and Municipal Corporation Medical college Hospitals.
- 2) District Hospitals.
- 3) Women Hospitals.
- 4) Sub District Hospitals.
- 5) Rural Hospitals.
- 6) Primary Health Centers.
- 7) Police Hospitals having adequate infrastructure.
- 8) Municipal Hospitals having adequate infrastructure.
- 9) ESIS and ESIC Hospitals having adequate infrastructure.
- 10) Private Medical College Hospitals authorized by government.
- 11) Central Govt., Trust, Private Multi specialty; hospitals having adequate infrastructure and authorized by Government.

Cases brought dead

If a person is brought dead to the hospital casualty do not examine the wounds, inform the police and do not handover the body to the relatives. Fill the death certificate form if available, or note it on the outpatient ticket, without giving the cause of death.

Collecting stomach contents (FSL) guidelines are to be referred and followed. This topic is covered in section Dispatch and Preservation of Viscera)

Filing and Records

All medico-legal record and post mortem reports should be filed serially and month wise. The serial number should be the medico-legal case serial number and not the case paper number.

Section 512 of the Code of Criminal Procedure, 1898 contains two sub sections. Sub section (1) refers to cases where the accused are absconding and sub section (2) refers to cases where offenders are unknown and may be traced later on. All medico legal case papers where the evidence has been recorded under sub section (1) and/or (2) of section 512 should be preserved for 30 years. The Superintendent of Police of the Districts and the Commissioner of Police in cities transmits the necessary information to the Hospital authority concerned to facilitate the Hospital authorities to separate out such cases.

In the case of other medico legal cases the records may be destroyed after a lapse of five (5) years from the disposal of the case. In the medico legal cases where no court proceedings are taken, the records may be destroyed after 5 years from the initial date of the case in consultation with the police authorities who may point out whether any particular case is required to be preserved for a longer period.

Alcohol cases

In prohibition cases, it is necessary for the Medical Officers to collect blood. Instructions have already been issued for such collection which should be scrupulously observed. Alcohol should not be used as an antiseptic on the skin before a prick is taken. Vials containing Potassium Oxalate and etc. should always be ready. Results of blood tests are often vitiated on account of coagulation. The syringe and needle used for collecting blood should be rinsed with normal saline before use or else they should be completely dry. After the blood is taken, the needle should be removed and the blood should be ejected from the syringe in such a way that it gently trickles along the side of the container. There should be no splashing nor any forceful jet. This will prevent coagulation of blood. The bottle should be sealed and signed by Medical officer and the police constable.

Lunacy Cases

Cases are referred to district hospitals for observation with a view to ascertain whether there is lunacy or not. Some of the hospitals have got observation cells for the lunatics while others have not got them. Even the cells wherever provided are inadequate. The question arises as to where to keep these alleged lunatics for observation. In many cases, they are kept in the adjoining sub-jails or jails. The point is that these difficulties of accommodation should not be allowed to come in the way of daily observation and recording of notes. Many of these alleged lunatics are cases arrested on criminal charges and the Medical Officer's opinion is quite important.

Genuine lunatics admitted in observation cells are helpless and unable to take care of themselves. Unscrupulous persons may take undue advantage of their helplessness and a careful watch should, therefore be kept to see that there is no harassment or molestation.

Dying Declaration

Ordinarily, any evidence to be acceptable must be given by the person who makes the statement, but the dying declaration is exception to this, as the declaration made by the deceased person relating to the cause of his death may be proved by the person to whom the statement is made. This statement is valid irrespective of whether the person concerned was under expectation of death or not. The dying declaration can be oral or written and no oath is necessary. It is not necessary that the accused person should be present at the time. It is also not absolutely necessary that a Magistrate be present. As a rule a magistrate should be present but in exceptional cases, the Medical Officer can himself take the dying declaration if dictated by circumstances. The declaration should be taken in the language in which it is made. If it is a continuous statement well and good otherwise the questions and answers should be reproduced faithfully. There should not be an extraneous person around and there should also be no prompting to the person making the declaration.

If the person making the declaration survives, it loses its value as a dying declaration but it is still useful as a supporting statement, in case that person is examined.

How to record Dying Declaration

Preferably, dying declaration should be written down by the injured person. If this is not possible it may be taken down in the form of questions and answers. There should be no leading questions. There should be no police officer near about. After taking down the declaration it should be read over to the person who may sign it or give his left hand thumb impression. The magistrate and two witnesses should attest and forward it to the concerned Court. If a Medical Officer takes it down he signs it and is witnessed. It should be in the language of the accused.

If the person is not able to speak, the signs made by him in response to questions are admissible in evidence.

Medical Officers have to certify before a Magistrate can take down the dying declaration that the patient is capable of making it and understanding question put to him. Medical Officers should take great care in giving this opinion. They should make a thorough examination and express their opinion fearlessly. The opinions have often become matters of argument subsequently. When over confronted by a choice between recording a dying declaration and treatment the obvious choice is for giving the necessary treatment. In fact this applies to all matters of medico-legal formalities vis-à-vis treatment to save a life.

After recording of declaration, again MO should certify that during examination, patient was in composmentis.

17.14 Evidence in Court of Law

It is important for the Medical Officers to realize that giving proper evidence in the Court of Law is necessary not only for projecting a good image of the medical department but also in the interest of law

order and justice.

A person suffering from an injury may secondarily get tetanus infection as the result of which the patient may die. The original injury may also be a severe one. The Medical Officer is called upon to give an opinion in the court of law as regards whether the injury was primarily fatal. In this case, the medical Officer has to consider whether the injury though severe by itself, could have given rise to fatality and whether it was not the secondary infection by tetanus bacilli that caused the fatality. The Medical Officers opinion is so important in this case that the life of a person may well depend upon it. If the wound was not primarily fatal, the charge against the accused is mitigated. If a contrary opinion is given the charge would be very serious. The important classification of injuries besides that given above, is

- (a) Wounds which are necessarily fatal
- (b) Wounds sufficient in the ordinary courses of events to cause death.
- (c) Wounds likely to cause death
- (d) Grievous hurts and
- (e) Simple hurts.

According to the rules of evidence an ordinary witness is not supposed to state his conclusions but only facts. In the case of Medical Officer, however he is considered as an expert witness and therefore there is a great amount of significance attached to the opinion given by him.

Medical Officers should not pressure that the magnitude of the importance of their evidence parallels the magnitude of injuries. Even very ordinary injuries may be of very great medico-legal significance. An instance in this connection is worth citing:-

A person was stabbed in the neck and he received a deep punctured wound which injured the Internal Maxillary Artery. The injured person was brought to the Casualty department, where the Casualty Medical Officer examined him and being a serious case immediately admitted him in the surgical ward. There, he was examined by the houseman in charge of the ward. The patient died within a few minutes and an autopsy was performed by another doctor. This case went to the High court in due course of time and all the three doctors were called. The defending counsel was very keen to establish that the injury to the deceased had occurred in a scuffle. The casualty Medical Officer was examined first. The defending counsel let loose a barrage of questions in different words, the meaning of which was one and the same, i.e. whether there was only one injury and also to the opinion that there could not have been struggle as far as medical evidences showed. This opinion was consistently given in all the replies to the various question from the defending counsel. In spite of strenuous efforts, the counsel could not dislodge the Medical Officer from this opinion. Subsequently, the houseman was put in the witness box. The houseman also opined that, as far as medical evidence showed there was no scuffle. Later on, he was asked a number of questions which were very leading and evoked the reply 'yes'. The Medical Officer failed to realize their significance. Ultimately, the counsel asked the following questions to which the answer given was; yes in both cases:-

- 1) Doctor, is it not a fact that the injury was very severe and fatal?
- 2) Does it not show that there was a terrific struggle?

This doctor had himself originally stuck to the opinion that there could not have been a struggle, as far as medical evidences showed, and now he admitted that there must have been a terrific struggle. The presiding judge rebuked the doctor for shifting his opinion and asked him whether he understood at all the implications of what was saying. The only result of all this was that the houseman became more confused and could not extricate him from that awkward situation. This instance shows the importance of minor injuries from a medico-legal point of view and also emphasizes how a doctor must remain calm and cool and give proper answer according to his conviction without getting confused.

The defending counsel can ask all sorts of questions which are very confusing and exacting. Sometime, minute anatomical, Physiological and medical details are also asked by the counsel and the Medical

Officer must be reasonably prepared to answer them. In all cases, the Medical Officer must understand the question and then answer it. If the question is not clear he is at liberty to ask for clarification. This answer should be exact and to the question put.

The summons for attending the court is sent in duplicate. The Doctor who is to attend has to sign one copy and send it back to the concerned court and the other should be retained in the office. In order to avoid all confusion, it is necessary to maintain a summons register. This should show the name of the Medical Officer called, name of the court, the date and time of hearing and the name and register number (Indoor and /or Outdoor) of the case paper. This register should be checked by the Principal Medical Officer as well as the Additional Civil Surgeon/Medical Superintendent and Medical Officer concerned reminded on the previous day. It should be ensured that the Medical Officer is relieved of his duty and he attends on the date at the required time.

Doctors should not refuse to attend the Court or remain absent without proper intimation to the court. Medical officers are usually treated with consideration but they must realize that they are liable to be pulled up for contempt of court for such lapses. It is quite illogical to say that the doctor cannot attend the court on account of other work. The court work has precedence over other work. Courts also consider the preoccupations of Medical officer with medical work and inform the Medical officer the exact time his evidence would be taken so that the time of a Medical officer is not wasted. It is, therefore, incumbent on Medical officer to respect the order of the court. Instructions have already been issued by this office.

It should be easy to identify the name of the doctor or the name of the principal doctor who has treated the case from the records on the case papers. In fact, as already stated the name of the doctor or the name of the principal doctor should be written on the case papers. It is observed that occasions arise where it is difficult to find out which doctor treated a particular case, Medical officers are frequently transferred from one place to the other and it actually happens that the office from which he has been transferred does not know the Medical officer's subsequent address. The difficulty, therefore, arises in transmitting the summons to the new address or supplying the address to the police or Court. The new address should, therefore, invariably be kept on record in detail. This must also invariably be done in the case of those who leave the service on any account. In cases where more than one Medical officer has treated the case of way of continuation of treatment the Medical officer who examined the case first and who handled the important treatment or issued certificates ,should attend the court .There should be a principle M.O. for each M.L. case.

Sometimes there is difficulty in finding the Outpatient and In-door case records of the patients concerned in Court-cases. This is quite indefensible. As already stated, the case papers should be filed serially month wise and they should be under lock and key with the ACSACS/Medical Superintendent. In case a papers removed from the bundle, a paper should be inserted to show to whom the paper was issued and the purpose for which it was issued with signature of the person. Additional Civil Surgeon/Medical Superintendent must see that the paper is returned immediately after the work is done. It is the duty of the Medical Officer to make available the case papers to the court whenever required. A duplicate copy of the case paper in addition to the entries made in the medico-legal register, should be made in such cases, as already stated.

Before appearing in the court, the Medical Officers should study the case papers thoroughly and brush up any points about which he may have doubt by referring to the standard books. The attendance should, be with full realization of the importance attached to medical evidence. Many times, Medical Officers cut a very poor figure in the court of law and become subjects of derision and laughter. The Medical Officer should refresh his knowledge about the Anatomy and also normal sizes and weights etc.as well as medico legal significance of the problem.

The examination in the court of law consists of—

- (1) The examination-in-chief,
- (2) The cross examination,

(3) The re-examination

Examination in Chief

This is one which is taken first. Leading questions are not allowed in this examination. The medical officer has to answer relevantly the questions put to him. As a rule, he should not supply additional information and extra opinion or comments. The answers have to be to the point.

Cross Examination

This follows the examination-in-chief and in this, leading questions are allowed. Many times the defending counsel will try to put words in the mouth of the Medical Officer. There is a great amount of latitude given to the defending counsel in this respect. At times the defense counsel may put questions which may be irritating but the Medical Officers must not be perturbed and must give their opinion supported by facts of the case observed by them. Defense counsels even go to the extent of asking the age and experience and ridicule the fact of being young or having very little experience. The Medical Officers should not be upset as long as they give their opinion supported by facts of their observations. The courts always take care to see that the Medical Officers are not unnecessarily harassed.

Re-Examination

After the cross examination is over, there could be what is called re-examination, conducted by the counsel who conducts the examination in chief. In this examination, no new matters can be introduced. It is only for the purpose of clarification of any matters that may have been raised during the cross examination.

The court of course, has unlimited powers of asking any question for clarification at any time.

While answering the questions during any of these examinations, the basic philosophy should be to the true facts of the case. A medical officer should also give his opinion according to his best possible judgment which he should be prepared to defend with sufficient technical knowledge.

Many times, the defending counsel will quote extracts from certain books and throw them as challenge to the Medical officer should call for the book. He should make sure that it is by a recognized author and that the edition is latest or nearly so and read the whole relevant portion. Many times, words or portions torn out of context may assume a different meaning.

Privileged Communication

A Medical Officer should remember that communications between him and the patient are not considered as privileged. This is in contrast to the communications between a lawyer and his client. The Medical Officer will have, therefore, to divulge any communication, if asked to do so, in the court of law.

The Medical Officer cannot refuse to answer any questions unless they are irrelevant in which case, the court usually intervenes.

Some times, Medical Officers who have not examined cases under trial are called upon to give evidence as expert witnesses. The Medical Officer should not consent to give such evidence unless they are confident about their knowledge on the subject.

While giving evidence in the court of law the medical Officers should as far as possible, talk in terms of common language and avoid highly technical terms.

The Medical Officers are often required to give evidence in the lower court as well as in the higher court. It is quite necessary that the opinions and the reports should not be contradictory. The Medical Officers should remember that they are allowed to refresh their memory from case notes and records. They can also have the help of statements made by them in the past which may have been prepared by them or under their instruction and also of medical text-books. They refer to the previous reports they have made

regarding the case at the time they were treating the patient. They can see copies of reports, submitted by them, if the court has been furnished with copies of the reports.

By taking recourse to all this, the Medical Officers should ensure that there is no contradiction in their evidence in two courts.

As an expert witness, a doctor can volunteer a statement if he thinks that injustice will result if such a statement is not made. The Medical Officer should also never try to imagine or concoct evidence due to force or pressure of the court atmosphere. If he does not, in fact, remember, he should say so. He should be willing to admit his ignorance of a particular subject rather than make incorrect statement, which later he may find difficult to support.

17.15 Medico Legal Registers:

There should be a medico-legal register where a complete replica of the case paper is reproduced. Every institution dealing with medico-legal work must maintain two "Medico-legal Registers", one for antemortem work and other for post mortem work. This is also called variously as "Police Register" or "Emergency Police Register" (E.P.R). In antemortem register, entries related to injury certification, examination in sex assault accused and victims, age estimation, examination in cases of alcohol etc. may be made under these following headings

- a) Sr. No
- b) Reg. No
- c) Name
- d) Age & Sex
- e) Name of PC, BN, PS
- f) Referring letter No & Date from PS
- g) Remarks.

In single register, separate parts may be made for each category of antemortem medicolegal work. In postmortem register entry under following headings may be made:

- 1) MLC PM No.
- 2) Name of deceased
- 3) Age & Sex
- 4) Place from where body is brought
- 5) Name, BN, PS of police
- 6) Manner of death as per police history i.e. accident/suicide/homicide/natural/unknown.
- 7) Cause of death after PM
- 8) Viscera collected or not
- 9) Name of mortuary attendant
- 10) Remarks.

Entry in col. 6), 7) and 8) should be done by doctor who has performed PM examination. In this register a copy of all the entries on the case-paper is made. The register also shows the serial number the date and time of attendance, the buckle number (BN) of the police constable (PC) and the police station (PS) of the police constable, the finding and how the patient has been treated. This register should contain a reference to the medico-legal case paper number. The register should also contain in its remark column entries about receipt and dispatch of letters and replies etc. As a routine, Additional Civil Surgeon / Medical Superintendent should scrutinize this medico-legal register every morning with a view to find out whether all cases have been entered properly or not and also with a view to find out whether the correspondence has been replied promptly or not. He should also see, if the necessary certificates have been issued to police authorities.

The Medical Records must be accurate, appropriate, chronological, factual, relevant and complete. Nothing should be altered, deleted, substituted or added from the record, i.e. Tampering should not be done.

Records and supplies should be maintained in a Post Mortem Room.

- a. Dead stock registers of equipment and supplies.
- b. Incoming and outgoing dead body register giving the time and date of dead bodies admitted to the morgue, identification data about the patient such as admitted to which ward etc., the time of handing over the dead body and signature of person receiving the dead body should be indicated.
- c. Medico-legal Register for Medico-Legal Post Mortem (MLPM) as stated above.
- d. A register for consent in case of Non-Medico-Legal Post Mortem (NMLPM) examination or pathological autopsy.
- e. Standard PM forms
- f. Standard Viscera forms
- g. Standard Other than Viscera forms
- h. Labels
- i. Advance Reports as to the cause of death
- j. Plastic or white cotton cloth

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Annexure QR Codes



Chapter IV
Annexure: 4.1
Annexure: 4.2

Organisation of the outpatient department
Facilities to be provided in Dental OPD in District/
Sub District Hospitals
Minimum Performance Standards for Specialist &
Health Care Staff (IPHS 2022)

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Chapter VI
Annexure : 6.1
Annexure : 6.2
Annexure : 6.3
Annexure: 6.4
Annexure: 6.5
Annexure: 6.6
Annexure: 6.7

Indoor Wards
Hospital Cleaning Time table circular23-12-2010 (DHS Mumbai)
Use of CCTV at all levels of hospitals
Bed Distribution in ICU/HDU as per IPHS 2022
Human Resource for ICU
Job Responsibilities of the staff
List of Equipment
Guidelines & Recommendations for Fire Safety in hospitals



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Chapter VII
Annexure: 7.1
Annexure: 7.2
Annexure: 7.3
Annexure: 7.4
Annexure: 7.5

SOP (Standard Operation Procedures) Operation Theatre
Job charts
Standardized sterilization
Registers to be kept in Operation Theater
List of equipments at sub-district and district hospital
Technical Requirements for Surgical , Operation Theatres from
Surgeon's Viewpoint

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	Laboratory Service	Chapter IX
	Services	re 9.1
	List of Equipments	Annexure 9.2
List of Equipment available under Various Programs		Annexure 9.3
List of Monitoring Indicators		Annexure 9.4



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Chapter X
Annexure 10.1

Blood Centre(Blood Bank)
Criteria of donor for blood transfusion

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Chapter XI
Annexure 11.1

Special Paediatric Services

The high court Criminal Writ Petition 56/2009,
6th May 2009

Annexure 11.2
Annexure 11.3

List of equipments
Equipment in DEIC



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Chapter XII

Dialysis Units in Hospitals

Annexure 12.1 Minimum Space Requirement in Dialysis unit
Annexure 12.2 Dialysis Centre layout plan
Annexure 12.3 Staffing Pattern for 4 dialysis machines
Annexure 12.4 List of Equipment
Annexure 12.5 List of Drugs, Consumables and disposables
Annexure 12.6 Monitoring

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Chapter XIII

Physiotherapy

Annexure: 13.1
Annexure: 13.2

Settings in which physiotherapy is practised
Nomenclature of Physiotherapists Based on
career Progression according to Model Curriculum
Handbook of Physiotherapy MOHFW 2017



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Chapter XVI

Hospital Infection Control Practices

Annexure 16.1 Hand Hygiene
Annexure: 16.2 Isolation Precautions
Annexure: 16.3 Cover & Cough
Annexure: 16.4 Post-Exposure Prophylaxis (PEP)
Annexure: 16.5 Healthcare Workers Precautions/ Protection
Annexure: 16.6 Healthcare associated infections and their surveillance
Introduction
Annexure: 16.7 Format For Bio Medical Waste Register/Record
Annexure 16.8 Flow chart for the Effluent Treatment Plant
Annexure: 16.9 Antimicrobial Stewardship Programme(ASP)

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Chapter XVII

Post Mortem and Medico- Legal Work

Annexure 17.1

Important points to be remembered while handling medico-legal cases

Annexure: 17.2

Commonly done post-mortem examinations at government hospitals

Annexure 17.3

Special circumstances

Annexure 17.4

proforma for medico-legal examination of injuries

Annexure 17.5

Injury Report

Annexure 17.6

Medical Certificate of Cause of Death

Annexure 17.7

Bharatiya Nyay Sanhita



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State Technical Group

1. Dr Nitin Ambadekar, Director of Health Services, Mumbai
2. Dr Vijay Kandewad, Additional Project Director, MSACS, Mumbai
3. Dr Sunita Golhait, Jt. Director Health Services (Hospitals), Mumbai
4. Dr Sandip Sangle, Jt. Director Health Services, NTEP, Pune
5. Dr Ashok Nandapurkar, Deputy Director of Health Services, Thane
6. Dr Kanchan Wanere, Deputy Director of Health Services, Nagpur
7. Dr Aamod Gadikar, Assistant Director of Health Services, SFWB, Pune
8. Dr Abhijit Phadnis, Assistant Director (Hospitals), Mumbai
9. Dr Arati Kulwal, Assistant Director of Health Services, Akola Circle
10. Dr Ashok Randive, Assistant Director, NTEP, Pune
11. Dr Purushottam Nandeshwar, Assistant Professor, SIHFW, Nagpur
12. Dr Shafiya Fatema, Assistant Professor, SIHFW, Nagpur
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23. Dr Kranti Raut, Medical Superintendent, Etapalli RH, Gaadchiroli
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43. Mrs Kranti Deshmukh, Physiotherapist, Gondia
44. Mrs Pooja Nawathey, Physiotherapist, Nagpur

SHSRC Technical Group

1. Dr Sanjay Deshmukh, Deputy Executive Director, State Health System Resource Center, Maharashtra
2. Dr Swapnil Nimkar, Sr. Consultant-Research & Documentation, State Health System Resource Center, Maharashtra
3. Dr Geetanjali Ghule, Programme Manager, State Health System Resource Center, Maharashtra

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