

Kingdom of Cambodia

Nation – Religion – King



Ministry of Health

Guidelines
on
Complementary Package of
Activities for Referral Hospital
Development

June 2014

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FORWARD

The Ministry of Health has been strengthening the roles and functions of Health Centers and Referral Hospitals to enable all public health facilities a better capacity to provide health care to people in accordance with the principles of supporting social health, patient's care, high quality of health care and interventions, strengthening human resource, good governance and accountability. Within this aspect, the Ministry of Health reviewed and updated the Guideline on Complementary Package Activities as guidance for the Referral Hospitals development across the country.

This guideline is an important technical tool for all levels of public health facilities, particularly referral hospitals to strengthen the functions of hospitals such as management and provision of service as defined in the Complementary Package Activities. These two functions are co-relation. Good leadership and management will make provision of services with quality and effectiveness, build confidence of the public and encourage them to use the services of the hospital when they have health problem. Seeking health care timely and receiving quality of health care will contribute in improving better health of people.

As above- mentioned, the Ministry of Health believes that all health officers and staff who are working at the central level, provincial health departments, operational districts, particularly all referral hospitals entire country will implement and follow strictly this guideline to improve hospital management, development, monitoring and provision of health services in the hospital in order to ensure all people's health, especially the poor receive quality of health care and treatment with high effectiveness and equity.

Phnom Penh, 26 June 2014

Signed and Stamped

Dr. Mam Bunheng

Minister of Health

CHAPTER 1: INTRODUCTION

1.1 Background

In 1996, the Ministry of Health of the Kingdom of Cambodia started a reform program by defining clear functions and roles of each level in the health system such as function and role of Health Center and Referral Hospital throughout the health approaches of the Operational District levels. The Operational District is responsible for the provision of health care to people at two levels. Level 1 is at Health Center which provides full Minimum Package Activity (MPA). And the level 2 is Referral Hospital which provides Complementary Package of Activity (CPA). In principle, the Referral Hospital provides CPA services and HCs provide MPA services. CPA and MPA have two components 1) health care provision and 2) management.

In 2012, there are 82 RHs at the municipality, provinces and district levels in the entire country including 36 CPA1, 28 CPA2 18 CPA3, 1004 HCs and 123 Health Posts.

In general, referral hospital based at the district level is under direct management of Operational District and referral hospital based at the provincial level is under direct management of Provincial Health Department (PHD) and national hospital is under direct management of the Ministry of Health (MOH).

1.2 Role of Referral Hospital (RH)

RH has three main roles in the health system which is a service provision organization and must have skilled staff and physicians, infrastructure and other necessary materials to deliver medical services including health care and other related services within 24 hours a day and 7 days a week.

With reference to common criteria of the health coverage plan, Referral Hospital must serve the populations from 100,000 to 200,000 and cover 30km square (under the catchment area of hospitals) or spend 2 hours by vehicles or boats to reach the hospital.

Referral hospitals are classified into 3 categories based on the clinical capacity, number of staff, physicians and number of beds. Referral Hospital base at District/Khan/Town is CPA Level 1 or CPA Level 2 and Referral Hospital base at province and municipality is CPA Level 3. Provincial hospital has a special condition to play a role as referral hospital for its based Operational District and as well as other Operational Districts in the province and the national hospital is referral hospital for nationwide.

- **CPA 1:** a referral hospital which has no grand surgery (without general anesthesia) but at least it should have obstetric service;
- **CPA 2:** a referral hospital which has emergency care services and grand surgery with general anesthesia. Medical and co-medical services are more than CPA1 but less than CPA3;

- **CPA 3:** a referral hospital which has emergency care services and grand surgery with general anesthesia more than CPA2 (both number of patients and activities) and other specialized services.

The following table shows the level of CPA services based on each type of hospital:

Complementary Package Activities (CPA)	Level of Hospital		
1. Provision of Health Services	1	2	3
a. Clinical Services	✓	✓	✓
Patient Flow	✓	✓	✓
Triage	✓	✓	✓
Central Registration (for all)	✓	✓	✓
Referral Consultation (general and specialized services)	✓	✓	✓
Kinetic Therapy	✓	✓	✓
Emergency Care (various packages of service)	✓	✓	✓
ICU	✓	✓	✓
Pediatrics	✓	✓	✓
General Medicine for Adults	✓	✓	✓
Surgery		✓	✓
Gynecology-Obstetrics	✓	✓	✓
Operation Theatre and Anesthesia		✓	✓
Infectious Diseases: TB, HIV/AIDS, Malaria	✓	✓	✓
Other Specialized Services			
• Ophthalmology			✓
• Oral and Dentist	✓	✓	✓
• E.N.T			✓
• Dermatology			✓
• Mental Health			✓
Patient care	✓	✓	✓
b. Para Medical Services			
Laboratory and Blood Transfusion: (various packages of service)	✓	✓	✓

• Laboratory			
• Blood Bank			
• Blood Depot			
Central Sterilization- Supply (for all)		✓	✓
Patient care	✓	✓	✓
Imagery	✓	✓	✓
Pharmacy	✓	✓	✓
Sanitation-Infection Control			
• Hygiene and Waste	✓	✓	✓
• Infection Control and Prevention	✓	✓	✓
c. Technical Support and Logistics			
Communication	✓	✓	✓
Patient Flow	✓	✓	✓
Triage	✓	✓	✓
Central Registration (for all)	✓	✓	✓
Laundry	✓	✓	✓
Canteen-Nutrition	✓	✓	✓
Central Store (for all)	✓	✓	✓
Medical Equipment Management-Workshop	✓	✓	✓
Ambulance-Transportation	✓	✓	✓
d. Infrastructure			
Buildings	✓	✓	✓
Electricity supply	✓	✓	✓
Water supply	✓	✓	✓
Sewage System	✓	✓	✓
Incinerator	✓	✓	✓
Pit	✓	✓	✓
Toilet	✓	✓	✓
Mortuary	✓	✓	✓
e. Sanitation-Infection Control			
• Hygiene and Waste	✓	✓	✓
• Infection Control and Prevention	✓	✓	✓

2. Hospital Management			
a. Management Structure			
Organization Chart	✓	✓	✓
Description table of role and duty of management and staff in charge by section/ward (based on organization chart)	✓	✓	✓
Main Committee and Working Group	✓	✓	✓
Planning and Budget Preparation	✓	✓	✓
Health Information System	✓	✓	✓
Human Resource for Health			
• Human Resource Development	✓	✓	✓
• Human Resources Management	✓	✓	✓
Health Financing	✓	✓	✓
Administration and Finance			
Finance and Accounting	✓	✓	✓
Administration and Personnel	✓	✓	✓
Transportation, Ambulance, and Security	✓	✓	✓
Medical Equipment Maintenance	✓	✓	✓
Warehouse Management	✓	✓	✓
Sanitation, waste Management, and Morgue	✓	✓	✓
Laundry and Canteen	✓	✓	✓

Since Referral Hospital has higher medical expertise than Health Center, the Referral Hospital must resolve all health issues which could not be handled by Health Center to complement medical services of the health center.

Beside the specialized consultation, emergency care, diagnostic, in- patients, and rehabilitation, the hospital must focus on:

- Health education, health promotion, infection control and prevention for the patient and their attendants are one of crucial activities to effectively enhance quality of treatment in the hospital.
- Provide technical support, supervision and training to staff of Health Center, if requested by the Operational District.
- Strengthen referral system and orientation between Health Center and Referral Hospital, and National Hospital by providing feedback on situation of patient treatment at Health Center and receiving feedback from the National Hospital. Standard procedure must put

in place and regularly implemented all referral and feedback forms, record keeping, and clinical protocols etc.

- Emergency referral system must be effectively arranged at any time. The radio communication must operate 24 hours, covering all HCs in the operational district, and offering the health centers the possibility to call to the hospital staff on duty for advice.
- The referral hospital should have an ambulance equipped with emergency care equipment in order to referral patient to health centers or other hospitals which road is accessible.
- Hospital must be a free smoking area.

1.3 Principles of Referral Hospital Development

1.3.1 Quality Monitoring

Provision of health service at referral hospital should focus on the following necessary point:

- **Patient Care**
 - To provide quality of services and ensure personal safety and for patient
 - To ensure and prevent the privacy and value of patient
 - Be accountable with patients and relatives regarding medical condition
- **Communication and Record**
 - Admission criteria document should be well prepared.
 - Adequate information should be given to the patients prior to their consent to any treatment, particularly operation.
 - Medical records must be accurate and clear according to the patients' past medical histories, get updated every time after each assessment, and can be easily and quickly found, if needed.
 - There should be effective communication between services, wards and facilities.
 - The Ministry's guidelines on investigative procedures and treatment protocols are properly kept and easily accessible by staff whenever needed.
 - Results surveys should be made available in a timely manner.
 - There should be a formal procedure for patient education, particularly for the use of medicines.
 - The discharge or referral procedures should be appropriately developed including the completed summary of discharged patients and communication with a physician who is responsible for receiving patient.

Treatments and health services which are provided by the referral hospital must be qualitative, effective, efficient and acceptable by all patients/clients without considering about economic status and affordability of patients/clients. Patients/clients who are affordable and those who are affordable to pay or those who will be exempted must receive quality of health services when needed; it is a vision of enhancing equity stated in the social health protection and health care

system. Physicians and staff who deliver health services in the hospital must always consider the satisfaction of patients/clients is core business in the provision of health services. Ensuring the quality of health services are based on 3 factors.

- **Infrastructure:** buildings, essential drugs, medical equipment, materials and physicians/staff (number and qualification of medical and non-medical staff).
- **Procedure of service provision:** operation based on protocols, advises, guideline, quality standard treatment and care, and professionals ethics.
- **Result of Health Care:** cure, and rehabilitate un-function physical or health of patients/clients

Even though infrastructure, protocols, guidelines and quality standard are sufficient or appropriated to enable smooth operation, it could not ensure the quality of health services for patients/clients or quality of health services could be automatically upgraded. The main factor is to manage operations which will be provided by each section and must be appropriated, systematic, physicians and staff must work in a team based on each role and responsibility (as described in table of role and responsibility). So the hospital must conduct regularly monitoring and evaluation for quality health care to monitor other factors as mentioned above by using quality assessment tools of the Ministry of Health and finding new approaches to enhance/improve quality of health services. Infrastructure and procedure of service provision are main factors and result of health is factor to assess quality.

1.3.2 Criteria of Referral Hospital Development

Provision of Complementary Package Activities based on the defined service package requires lots of resources to invest on essential infrastructure, human resource, equipment, medical technology, and expenses on the operation such drugs, medical materials, and other substitute services etc. Hospital development must have clear plan and it should be implemented step by step within the framework of resources availability. Thus, hospital development needs to fulfill the following preconditions in advance.

- **Infrastructure:** Lots of existing buildings require improvement. Each building should be examined to define scope of work. Mobilize financial resources and execute under the plan of the Ministry of Health for the development and maintenance.
- **Staffs receive appropriated trainings:** This is the most important factor. This issue requires human resource development plan by focusing on the right recruitment, deployment and timing. These activities must be implemented; detail role and function of all levels must be clearly written. Anticipating the staff's needs at each section, assess the training needs for existing staff, what should be done? Designing an appropriated training program based on the needs. Staff deployment plan must be developed and it should be consistent with hospital development plan.
- **Basic essential medical equipment and materials:** It is necessary to be in place with good condition and be operatable. Those medical equipment and materials must be

effectively used as much as possible. The hospital should regularly take care, maintain, and repair those equipment and materials for long-lasting used based on its life-span.

- **Essential drugs and consumables:** The CPA drugs list requires regular review to ensure that it is consistent with clinical requirement, that it contains the most appropriate drugs, and that the quotas are reasonable. The prescribing patterns are developed in the *Therapeutic Guideline for referral hospital*.
- **Financial resources:** Must have adequate financial resource to operate the referral hospital and the financial resource should be effectively executed including revenues from user-fee and other social health protection schemes such as Health Equity Funds, Community Based Health Insurance, and National Social Security Funds etc.

In addition to above-mentioned criteria, any expanded clinical services in the CPA which will be provided by the referral hospital must take into consideration on the priority of diseases based on area of the located referral hospital, capacity of physicians, and way forwards.

1.4 Purposes of the Guidelines

The main purpose of this document is to provide a comprehensive guidance on development of referral hospital focused on a package of clinical services and paramedical services of each section which will be provided to people by the referral hospitals such as laboratory, imagery, and pharmacy, etc. to support diagnosis, care, and treatment which will contribute for better quality and effectiveness.

This document also described the arrangement, management and functions of a referral hospital such as essential organization structure, human resource development, maintenance of buildings, medical equipment and materials, planning, health information and management of user fees, etc.

This guideline was compiled by the existing official documents published by the Ministry of Health and national programs such as protocol of treatment guidelines, therapeutic manual and other bibliographies.

Quality Assurance of Clinical Services

To achieve above goals, officials, physicians, and staffs of public hospital must anticipate in enhancing a systematic and sustainable service management, and improve quality of service under the resource availability. Improvement of clinical services should be done through the evaluation cycle of the progress and changes by focusing on:

- Update and utilization of protocols and clinical guidelines should be enhanced for the quality of treatment, effectiveness, efficiency based on the clinical evidence.
- Conduct regular evaluation on quality of care and treatment by reviewing indicators of the executed protocols and clinical guidelines, assess the satisfactory of clients and staff for the services and quality of care and treatment by concentrating on the structure, formality and result of provision of service in order to:
 - (1) investigate the case of death and sickness

- (2) assess the implementation of hand-hygiene and
- (3) control infections
- Updating and developing standard evaluation tool to monitor the gaps which need to be improved and prepare and implement action plan for quality improvement and continuously evaluate the progress.

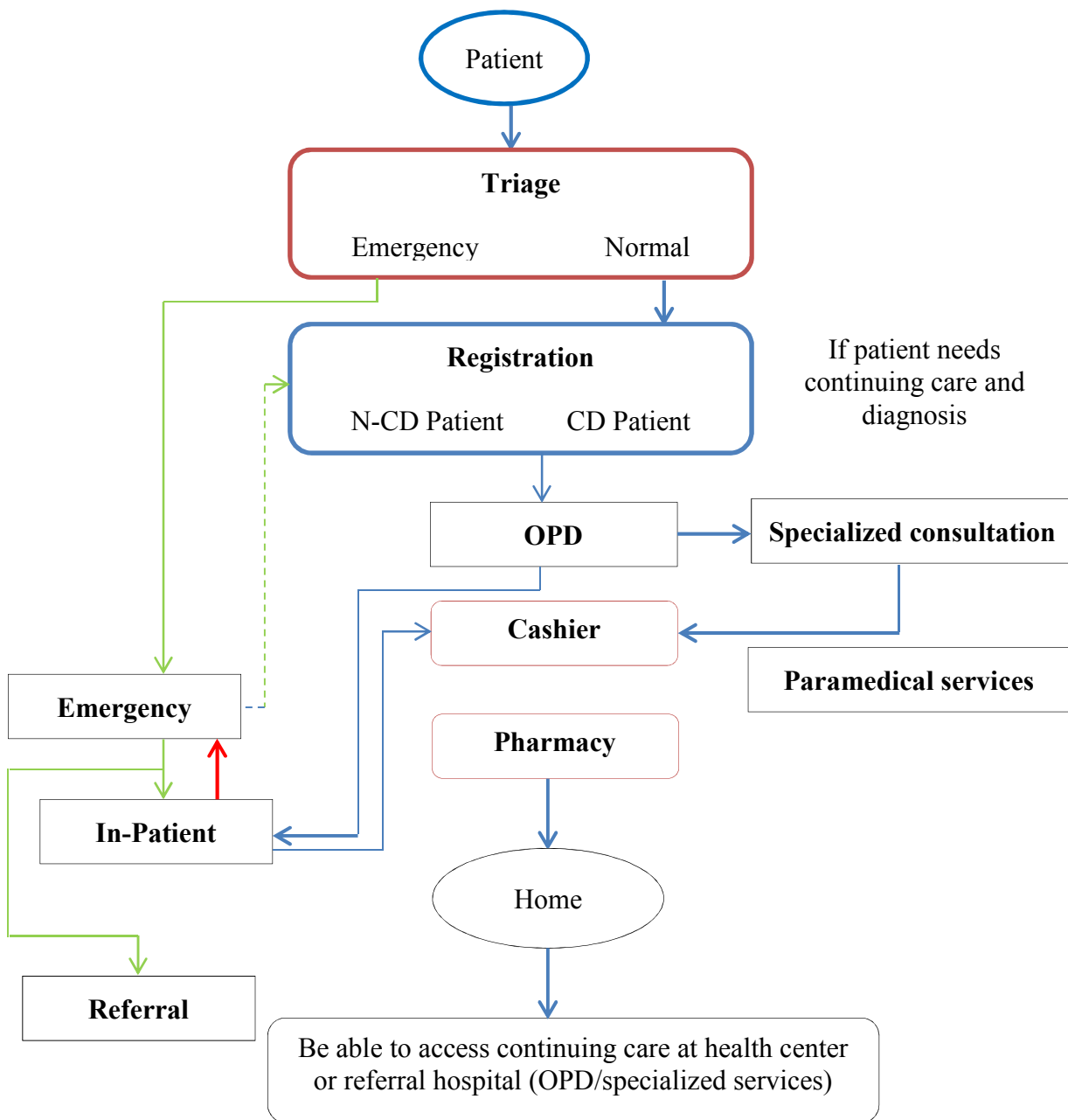
CHAPTER 2: CLINICAL SERVICES

All medical or clinical services must be complied with the National Policy on Quality endorsed in 2005 and strictly follows the therapeutic protocols and quality standards of the Ministry of Health and referral hospital. Outpatient, care and treatment must be with quality, safety, efficiency and equity. Chapter 2 describes about type of clinical services and provision of services.

2-1 Patient Flow

Patient Flow is a procedure to refer in-patient including arrival and discharge. Proper organized patient flow would reduce crowded and waiting time of patients, prevent care less of staff and avoid late provision of services. This flow helps improving quality and safety of services. So the referral hospital must smoothly enhance management, arrangement and preparation for patient flow by preparing standard of operation for all staff to refer in-patient and discharge to OPD, emergency or other clinical services in the hospital based on patient's medical condition.

Picture 1: Sample of Patient Flow in the referral hospitals



2-2 Triage

Triage is a system which allows hospital's staff to define the priority of care and treatment for patient based on primary diagnosis of the severity of their condition. In principle, the process of triage is depended on the available resources in the hospital including number of staffs and their capacity.

a. Infrastructure

Department/ward: Triage must be located at the entrance of OPD/General Medicine/Specialized services. The entrance must have large space which could be easily referral patient from ambulance, trailer, or cart. (please refer to Building Brief for CPA1,2,3)

Staff: At least one trained nurse on triage should be at CPA1 and two trained nurses at CPA2 and CPA3.

Medical Equipment, Materials and Instruments: (please refer to Medical Equipment Standard List for CPA and Essential Medicine List)

b. Procedure

- Staff must implement the standard triage defined by the Ministry of Health or Provincial Health Department when conduct rapid diagnosis of the severity of patient's sickness or injury.
- When finishing the primary diagnosis, staff could identify the illness as follows:
 - Which patient/injured do need emergency services?
 - Which patient/injured do need general services and should send to which section?
 - Which patient/injured do need to referral to high level referral hospital?
 - Which patient who is suspected being infectious need to be isolated? Must prepare waiting areas for those patients.

2-3 Registration

Registration is a communication/conversation area between patients/clients and staff of hospital. Hospital must have a central registration or a central center.

a. Infrastructure

Department/ward: Registration must be located at the triage and OPD/General Medicine/Specialized Services. There should be large area, opened and ventilated in front of the registration for the patient to wait. (please refer to Building Brief for CPA1,2,3)

Staff: At least one trained nurse on registration should be at CPA1 and two trained nurses at CPA2 and CPA3.

Medical Equipment, Materials and Instruments: Desk, chairs, standard registration book or computer and printer for the hospital that utilize Patient Medical Registration System. (Please refer to Medical Equipment Standard List for CPA and Essential Medicine List)

b. Procedure

- Every patient is required to register before receiving consultation and treatment, except the emergency case who can register later.

- Patient record must be recorded clearly, correctly and completely based on the standard registration form of the Ministry of Health.
- Staff must issue patient card to each patient, and patient requires to shows patient card when the next consultation and treatment are done.
- One patient has only one record and the record must keep properly for the usage. Because information in the record is very important for arranging patient's schedule, issuing other letters, and settlements.

Communication during the registration can affect the satisfactions of patient/client for the next decision of using hospital's services.

2-4 Out-patient Consultation (referral/general medicine/specialized services)

Out-patient Consultation is a first meeting place between patient and hospital's staff and could be said that it is a progress reflection of the provision of health services in the hospital because this section is functioned to provide some essential services such as consultation, advice, ambulatory care services, health check, referral, specialized service, continuum treatment, in-patient service, kinetic therapy etc. So, patient flow should be well prepared for smooth operation.

a. Infrastructure

Department/ward: CPA1, 2 and 3 must have out-patient room for consultation, general medicine and specialized service for each specific disease. All levels of referral hospital must prepare plan to create and expand specialized services step by step based on the available resources such as oral and dental health, ophthalmology, E.N.T, dermatology, STI/HIV, mental health, injury, and some prioritized non-communicable disease such as diabetes, hypertension and cancers etc. (please refer to Building Brief for CPA1,2,3)

Staff: There should be one medical doctor or physician and two nurses and one or two trained assistants to help providing health education, advice and properly register patient for referral consultation.

Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List

b. Procedure

- Manage cases of health problems referred by health center, lower referral hospital, private clinic, clinic of NGO or patient who accessed services by themselves.
- To ensure the emergency case is immediately treated to save patient's life timely.
- Registration, record of past medical history of patient, patient distribution to each medical ward should be based on the condition of patient's health problems.
- Regularly prepare schedule for general consultation and specialized consultation.

- Physician must treat patient by writing down briefly a patient's medical history such as physical check, paramedical check, diagnosis and treatment on the document of out-patient.
- Diagnosis, treatment, and health education must follow the clinical guidelines and protocols of the Ministry of Health. Issuing prescription should utilize the drugs mentioned in Essential Medicines List.
- Separately record and keep individual patient's medical history for the re-visit of patient or referral treatment.
- After diagnosed, patient should be admitted or sent back home with treatment or referred to higher referral hospital or national hospital with referral paper.
- Check referral paper referred by health center or lower referral hospital and record all basic information such as clinical signs, suspected diagnosis, and medicines provided to patient.
- Referral paper or assessment must well prepare such referral paper referred by health center or paper for referring to higher referral hospital, and feedback information.
- Written feedback information must send back to the health facilities that referred patient with information of provided interventions, result of consultation and treatment and be ensured that all feedback is reached at those health facilities. Feedback information must be disseminated at the monthly meeting held at OD which participated by chief of health center.
- For gynecologic/obstetric patient, she should be consulted by a medical doctor or a secondary midwife who has the competent skill in this section.
- Referral patient should must use standard referral format and train staff how to fill out form and encourage them to use it.
- A referral hospital should have at least one ambulance equipped with radio communication system, mobile phone which can communicate with health center and other referral hospitals and ambulance should have adequate fuel, and driver must be well prepared and standby for 24-hour service for referring patients.
- Referral hospital must prepare relief plan if any disasters occurred incidentally.
- Payment and exemption for patient and the poor must follow the principle of health care financing of the Ministry of Health.

(please refer to Annex 4: Out-patient Consultation Form)

2-5 Kinetic Therapy

Kinetic therapy service is part of the medical rehabilitation services to improve health and physical body of victim and patient and minimize the possibility of disability. A referral hospital of all CPA levels must arrange highly quality and effective kinetic therapy service. *Annex 1* shows the criteria of kinetic therapy services based on type of disease and CPA level.

a. Infrastructure

Department/ward: A referral hospital of CPA1, 2, 3 must have proper room for kinetic therapy with adequate medical equipment and materials for the operation. (please refer to Building Brief for CPA1,2,3)

Staff: There should be one medical doctor or physician and two nurses and trained assistant staff.

Medical equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List

b. Procedure

- Kinetic therapist must be qualified and at least has kinetic therapy certificate from a technical school for medical care of the Ministry of Health or equivalence recognized by the Ministry of Health.
- All necessary equipment to make this service function should be adequately provided based on the standard of service and must be safely maintained all the time before and after use.
- Kinetic therapy service should have relationship with medical services, surgery, and other relevant services so that it can provide effective diagnosis and treatment.
- Standard should be properly developed for assessment of symptoms, diagnosis, treatment plan, implementation and appropriate follow-up of the treatment including follow-up the result of treatment, continuum of treatment both at home and health center.
- Arrange schedule for kinetic therapy care and treatment based on the needs of each section, number of treatments, patient and duration in collaboration with medical doctor, physician, nurse of all sections.
- Prepare plan for equipment requirement to implement the schedule of kinetic therapy and care.
- Record/keep patient list and condition of patient who treated.
- Instruct patient and family members to under proper attitude which requires movement for better condition.
- Send feedback information of kinetic therapy to doctor.
- Make appointment with patient to follow up the treatment and progress of disease.
- Must have clear appointment schedule with patient based on type of patient.
- Home visits must be done within 10 days, 20 days, and 30 days after the patient discharged to check the progress of patient and predict the treatment result and provide explanation on the required continuum of treatment and prevention.
- Must referral unaffordable patient to the place with adequate materials with referral paper from kinetic therapy section. (please refer to *Annex 4*: Kinetic Therapy Form)

2-6 Emergency Section/Room

A referral hospital of all CPA levels must have emergency section/room to provide an effective emergency care which requires to timely saving patient's life or victim and manage referral (if necessary) higher technical skill/specialty.

a. Infrastructure

Department/ward: Each referral hospital should have only one emergency section/room. Emergency divides into two parts which is emergency for suddenly injure and life threaten and ordinary emergency. (please refer to Building Brief for CPA1,2,3)

Location of building/ward must have:

- big sign to indicate emergency care services which requires to display sign or word that could be clearly readable. The sign should generally display at the entrance and exit in the compound of the referral hospital.
- area should be wide, easily access and referral patient from cart or trailer or ambulance.
- treatment and emergency area must have pathway to move patient to other section such as surgery ward, operation theater, ICU, general medicine and maternity ward etc.
- available area for the triage between the entrance and patient's bed for sudden admissions caused by any major incidents. At the ordinary hours, this area can be used as information desk or waiting place for the patient.

Staff: There should be medical doctor or physician who trained in emergency care and nurse specialized in anesthesia or at least one or two nurses who trained in emergency care.

Medical equipment, Materials and Instruments: There should be enough medical equipment, materials and drugs in stock for 24-hours services without going to take from the pharmacy section.

Resuscitation Room:

- Oxygen tube
- Pulse oxymetry
- Defibrillator
- Electric pump
- Intubation set
- Valve-bag mask
- Patient monitor
- ECG
- Ventilator, if human resource is available
- Other necessary materials such urine catheter and oxygen tube

- Other necessary medicines should be enough in stock for 24-hours services without going to take from the pharmacy section
(Please refer to Medical Equipment Standard List for CPA and Essential Medicines List)

Normal emergency care (for example: fever, colic, and urinary obstruction etc.) should have partition walls or screen, particularly during the consultation and treatment time. This section should not have many materials and there should be only oxygen and patient monitor (manual or electronic). (Please refer to Medical Equipment Standard List for CPA and Essential Medicines List)

b. Procedure

- 24-hours services and there should be sufficient staff for emergency care.
- Patient who referral to the emergency department must receive immediate emergency care.
- If patient needs to referral to other health facilities, patient must be referral by ambulance equipped with emergency equipment, medical staff and referral paper.
- There must be permanent and full-time health staff (nurse and doctor) and physician and there should be also additional physicians who could be reached at any times to ask for emergency assistance and intervention.
- When patient's condition is stable, patient must transfer to other relevant sections for treatment and care or transfer to ICU or other higher health facilities, or permit to discharge.
- Resuscitation room should be one wide isolated room with one bed and equip with necessary medical equipment for emergency care out of the basic materials. Door should be wide which can be accessed by x-ray and ultrasound machine.
- With reference to ability, necessity, and human resources, each referral hospital can arrange the emergency department as follows:
 - The resuscitation room that has only nurse and chief of department must have physician who is on duty and can be shifted.
 - Staff of emergency department can be a chief of department, chief of ward who is specialized doctors in anesthesia, ICU, emergency care or emergency skill, and work under responsibility of the hospital's management in collaboration with other wards. This section is technically responsible for ambulance of the hospital.
 - Prepare regular training plan to improve staff's capacity to utilize existing equipment to comply with protocols and formality of the department.
 - Prepare patient's medical history who admitted and ask for previous patient's medical history from the team who referring patient. Prepare referral letter if patient needs to transfer to other hospitals.
 - Hand washing materials must be equipped in the room.

- Emergency care guideline must be in place for using.

2-7 Intensive Care Unit (ICU) or polyvalent ICU

A referral hospital of all levels, especially CPA2 and 3 must have general/polyvalent Intensive Care Unit which is the place for adult and pediatric who has acute disease, operation, unstable condition and needs to receive higher level of care (follow-up and treatment). Large hospital and specialized hospital must have newborn ICU as well. ICU has several types based on the needs of hospital such as:

- General/polyvalent ICU
- Neuro ICU
- Coronary care ICU
- Newborn ICU, etc.

In case that the referral hospital cannot provide ICU service, a referral system must be developed timely and effectively.

a. Infrastructure

Department/ward: ICU Building must be constructed by the special designed layout to ensure the high security and safety. An isolated room must be prepared for patient who has acute infectious disease and to keep and dispose dirty things. (Please refer to Building Brief for CPA1,2,3)

- ICU must be closed to emergency, imagery and operation theater, if possible. If not, easy means of communication must be prepared.
- Number of beds of ICU must be accounted from 5% to 10% of the total beds in the hospital.

Staff: There should be enough medical doctor and nurse who used to train in anesthesia, ICU, emergency care or equivalent training.

Medical Equipment, Materials and Instruments:

- There must be enough necessary equipment and materials, especially respirator and other measuring machines which will be used by physician and skilled staff. If not, the referral hospital must have separated section to manage and operate those equipment.
- There must be oxygen and resources to save patient life which can be used tube or equip along the wall with oxygen system.
- Schedule for monitoring and maintenance must be regularly developed to ensure all materials and equipment are operatable when requires to use.
- There must be enough materials, equipment and standard medicine supply and reservation must be 24-hours ready and stock management must be regularly check and fulfilled.

(Please refer to Medical Equipment Standard List for CPA and Essential Medicines List)

b. Procedure

- Daily 24-hours services must be provided by qualified and skilled physician/staff.
- ICU ward must be skillful to consult and treat patient who has failure parts of essential physical system such as kidney failure, coma (brain failure), shock (circulatory), breathing failure which requires to strictly monitoring the progress of patient with support of equipment.
- Location of every bed must be wide which physician and staff stand at the both sides.
 - There must be shelf to keep motor on the top of bed.
 - There must be Respirator and auto IV at the both sides of bed and can be accessed by x-ray machine.
 - There must be 6 to 8 sockets closed to the bed that can be used at the same time.
 - There must be Respirator Balloon when electricity is blackout.
- Nurse should have location which can easily see the patient from the distance.
- There must be permanent staff and doctors who have relevant skills to join in taking care; for example: patient who stayed at ICU after the operation must be managed by doctor of ICU ward and as well as doctor of O.T ward.
- Doctor on duty must be presented fully in the hospital and there must be meeting to shift nurse and doctor.
- There must be orientation program for new staff to enable them to understand the purpose, guideline, and formality of the ICU ward.
- Contract must be always made when patient needs any kinds of polyvalent ICU.
- Medical history of patient must record whenever assessed and treated and keep properly which easily found as needed.
- When patient's condition is stable, it must transfer patient to IPD or permit to discharge. And some necessary cases, patient needs to refer to higher level hospital.
- Patients who permit to discharge must receive both verbal and written information regarding the status of illness, treatment and follow-up from the physician/staff. That information must record in the patient's medical records.
- There must be available latest diagnosis, treatment, care and kinetic therapy guidelines and protocols.
- There must be written Prakas on Social and Legal Policy that can be used by staff as needs.
- Incident reports are properly compiled, recorded, investigated and discussed in a hospital and appropriate actions must be taken.

2-8 Pediatrics

Pediatric ward provides health care and treatment to infants and children, and also consultation and health education to their parents.

Below table shows type of services for child illness which will be provided by referral hospital of all levels.

Table 1: for Pediatrics Ward

No.	Criteria and Procedure	CPA1	CPA2	CPA3
1	Pediatric Emergency Care Table	✓	✓	✓
2	Neonatal Resuscitation	✓	✓	✓
3	Routine Neonatal Care	✓	✓	✓
4	Severe Bacterial Infections on infants less than 2 months	✓	✓	✓
5	Neonatal Tetanus	✓	✓	✓
6	Broncho-pneumopathy on infants from 2 months to 5 years	✓	✓	✓
7	Dyspnea Case Management	✓	✓	✓
8	Respiratory Infection Case Management for infants	✓	✓	✓
9	Pleuro-pulmonary Staphylococcal Infections	✓	✓	✓
10	Myositis	✓	✓	✓
11	Severe Malnutrition	✓	✓	✓
12	Nephritis	✓	✓	✓
13	Nephritic Syndromes	✓	✓	✓
14	Measles	✓	✓	✓
15	Whooping Cough	✓	✓	✓
16	Poliomyelitis	✓	✓	✓
17	Hemorrhagic Dengue Fever	✓	✓	✓
18	Malaria	✓	✓	✓
19	Tuberculosis	✓	✓	✓
20	Acute Diarrhea	✓	✓	✓
21	Meningitis	✓	✓	✓
22	Encephalitis	✓	✓	✓
23	Dermatitis	✓	✓	✓
24	Mumps	✓	✓	✓
25	Chicken Pox	✓	✓	✓
26	Pleuresia	✓	✓	✓

27	Septicemia	✓	✓	✓
28	Amebic Hepatitis	✓	✓	✓
29	Valvular Rheumatism	✓	✓	✓
30	Heart Failure	✓	✓	✓
31	Congenital Cardiopathy	✓	✓	✓
32	Heart Beriberi	✓	✓	✓
33	Acute Glomerulonephritis	✓	✓	✓
34	Intoxications	✓	✓	✓
35	Rash Thrombopenic idiopathic	✓	✓	✓
36	Anemia	✓	✓	✓
37	Opportunistic Infection/Antiretroviral Therapy	✓	✓	✓
38	Integrated Management Childhood Illness (IMCI)	✓	✓	✓
39	Kinetic Therapy	✓	✓	✓
40	Typhoid Fever	✓	✓	✓

a. Infrastructure

Building/ward: A referral hospital of all levels must have pediatric ward and the CPA3 hospital must have separated neonatal resuscitation ward or room. Pediatric ward should be closed to maternity ward. (Please refer to Building Brief for CPA1, 2, 3)

Staff: The staff must work for only this ward or neonatal resuscitation room and must be present all the time, if patient comes and seeks for care and treatment.

Medical Equipment, Materials and Instruments:

- Neonatal resuscitation equipment
- High measurement and weight scaling equipment
- Separated place for the patient who are infectious
- Hand-washing gel
- Child playground with physical safe

(Please refer to Medical Equipment Standard List for CPA and Essential Medicines List)

b. Procedure

- Providing health education to children’s parents is very important which contributes in reduction of morbidity and mortality of infants and children.

- The pediatric service includes the care and treatment for children with HIV/AIDS (OI/ART), education programs on prevention and basic home based care for simple diseases on children, which include:
 - What to do when a child gets sick? (How to resolve when a child gets sick).
 - How to manage simple care? (Simple ways in caring a child when he/she gets sick).
 - How to prevent the family from having future diseases? (means to prevent the family from having future diseases).
 - Encourage parents to apply new skills after the training when they go back to their community.

2-9 General Medical Ward for Adults

Below table shows type of services to be provided by referral hospital of all levels.

Table 2: General Medical Ward

No.	Criteria and Procedure	CPA1	CPA2	CPA3	Remark
1	Coma and convulsion	✓	✓	✓	Refer depending on status
2	Shock	✓	✓	✓	
3	Pain	✓	✓	✓	
4	Fever	✓	✓	✓	
5	Septicemia	✓	✓	✓	Bacteria culture for treatment
6	Anemia	✓	✓	✓	
7	Blood Transfusion	✓	✓	✓	Usually related to general surgery
8	Tetanus	✓	✓	✓	Need referral and ICU
9	Oral inflammation	✓	✓	✓	
10	Severe Sinusitis	✓	✓	✓	
11	Severe bronchitis	✓	✓	✓	
12	Upper Respiratory Tract Infections	✓	✓	✓	
13	Pneumonia	✓	✓	✓	
14	Emphyzene		✓	✓	
15	Asthma	✓	✓	✓	
16	Diarrhea	✓	✓	✓	
17	Typhoid Fever	✓	✓	✓	

18	Meningitis	✓	✓	✓	
19	Vitamin B1 Deficiency	✓	✓	✓	
20	Jaundice	✓	✓	✓	
21	Bacterial Hepatitis	✓	✓	✓	
22	Hepatic Abscess		✓	✓	Can keep at CPA 2 if diameter is small
23	Upper urinary track inflammation (Pyelonephritis)	✓	✓	✓	
24	Lower urinary track inflammation (cystitis)	✓	✓	✓	
25	Heart failure		✓	✓	
26	Rabies	✓	✓	✓	Declared case
27	Infectious diseases	✓	✓	✓	
28	Rickettsial Diseases	✓	✓	✓	
29	Brucellosis	✓	✓	✓	
30	Leptospirosis		✓	✓	
31	Hoemoptysis	✓	✓	✓	Refer to CPA 2 if there are complications
32	Goiter			✓	
33	Thyroidite		✓	✓	
34	Intoxications & poisoning	✓	✓	✓	Refer if complications
35	Malaria	✓	✓	✓	
36	Dengue	✓	✓	✓	
37	Leprosy	✓	✓	✓	
38	HIV/AIDS	✓	✓	✓	
39	Eye disease	✓	✓	✓	
40	Skin disease	✓	✓	✓	
41	Dentistry	✓	✓	✓	
42	Helminthes	✓	✓	✓	
43	Filariasis	✓	✓	✓	
44	Schistosomiasis	✓	✓	✓	
45	Hypertensions	✓	✓	✓	
46	Stroke			✓	
47	Gastritis and ulcer	✓	✓	✓	Refer to CPA 3 if

					needed surgery
48	Cirrhosis and Acid		✓	✓	
49	Pelvic inflammatory disease	✓	✓	✓	
50	Inflammation of prostate	✓	✓	✓	
51	Kidney stone		✓	✓	
52	Sexually Transmitted Infections (STIs)	✓	✓	✓	
53	Heart Diseases : RM, IM, IA,RA		✓	✓	ECG
54	Chest pain			✓	
55	Infarct of myocardium		✓	✓	Refer with caution
56	Pericarditis		✓	✓	
57	Diabetes	✓	✓	✓	
58	Diabetic complications			✓	
59	Bleeding through digestive system		✓	✓	Refer with caution
60	Inflammation of Pancreas		✓	✓	If there is lab
61	Inflammation of gall bladder		✓	✓	
62	Leukemia			✓	Myelogram can possibly be done
63	Medullar failure			✓	
64	Acute Glomerulonephritis (AGN)		✓	✓	
65	Nephrotic Syndromes		✓	✓	
66	Acute Arthritis Rheumatism	✓	✓	✓	
67	Polioarthritis	✓	✓	✓	
68	Pleurisia	✓	✓	✓	
69	Pneumothorax	✓	✓	✓	
70	Pulmonary Abscess	✓	✓	✓	
71	Diagnosis of coma	✓	✓	✓	
72	Amoebic Dysentery	✓	✓	✓	

a. Infrastructure

Building/ward: There must be separated ward for male and female patient and each ward must prepare an isolated room for convulsion and acute infectious patient. (Please refer to Building Brief for CPA1, 2, 3)

Staff: There must be enough medical doctor/physician and nurse who used to train in general medicine, particularly infection control.

Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

- General medical ward provides medical care for adult based on the medical terms.
- General medical services depend on the situation of the ward.
- There must be one physician who has been trained and experienced in general medical service is responsible for the ward.
- There must be nurse with appropriate capacity and experienced responsible for nursing patients.
- It must be a 24-hour service operation. If this cannot be done, there should be other possible and acceptable arrangement.

2-10 Surgery

Minor surgery can be done at referral hospital of all levels but CPA 2 and 3 are capable to operate grand surgery. Below table shows type of surgery to be provided by referral hospital of all levels.

Table 3: Surgery Ward

No.	Criteria and Procedure	CPA1	CPA2	CPA3
1	Incision and drainage of superficial abscess	✓	✓	✓
2	Normal suture and small operation	✓	✓	✓
3	Removal of lymphoma, under-skin tumor		✓	✓
4	Paraphymosis	✓	✓	✓
5	Circumcision for adults	✓	✓	✓
6	Parage the wound of war	✓	✓	✓
7	Graft en filet : 3 types (En filet, L. Total, Reverdain)			✓
8	Extraction or immobilization of upper limbs		✓	✓
9	Extraction and immobilization of lower limbs		✓	✓
10	Extraction and immobilization of open fracture		✓	✓
11	Osseous curettage and Open Fracture		✓	✓

12	Extraction of Trans Tibia			✓
13	Extraction of Trans Calcaneus's			✓
14	Amputation of limbs (upper and lower parts)		✓	✓
15	Small surgery (fingers, toes)		✓	✓
16	Injection of non-microbe arthritis		✓	✓
17	Incision of appendix		✓	✓
18	Simple Inguinal Hernia		✓	✓
19	Drainage of pleura		✓	✓
20	Cystotomy		✓	✓
21	Vasectomy		✓	✓
22	Manual reduction of Prolapsed Rectum		✓	✓
23	Suture of tendon		✓	✓
24	Treatment of severe infections on the arms (boils and pus)		✓	✓
25	Peritonitis		✓	✓
26	Contusion abdominal		✓	✓
27	Occlusion Intestinal		✓	✓
28	Surgery based schedule		✓	✓

a. Infrastructure

Building/ward: There must be room for consultation and wound disinfection and nursing. In addition to that, there must be separated patient's room for thorax unit, abdomen unit, trauma unit, kidney unit, pediatric surgery unit and burning unit etc. Number of beds is depending on the scope of work of each referral hospital. (Please refer to Building Brief for CPA1, 2, 3)

Staff: There must be medical doctor/physician and nurse who used to train in surgery and wound nursing etc. Number of staff is depending on the surgery activities of each referral hospital and the surgeon has to receive regular technical trainings.

Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

- There must be permitted regulations related to the operation of surgery intervention.

- Regular review and investigation must be undertaken for any mistake or failure.
- Emergency and daily operation cases can possibly be referred to the higher hospitals.
- There must be a table indicating schedule for surgeons to meet with staff of surgery ward at other referral hospitals in order to give or gain advice in assessing surgical case, result of surgery, and follow-up with patients after surgery.
- Follow up the result of surgery caused road accident and other injuries.

2-11 Gynecological and Obstetric Ward

A gynecological and obstetric ward is responsible for provision of quality care, treatment, and safe delivery for women. In addition, there should be a service of prevention from mother to child transmission of HIV/AIDS (PMTCT). (Please refer to PMTCT guideline)

Provision of health education to women on breastfeeding management (**breastfeeding**), family planning, nutrition (**child raising**), and the care for new born baby (please refer to National Strategy on Reproductive and Sexual Health)

Table 4: Essential Obstetrics-Emergency Obstetrics and Gynecology

No.	Criteria and Procedure	CPA1	CPA2	CPA3	Remarks
A. Antenatal Care: Routine Management					
1	Anemia	✓	✓	✓	
2	High Blood Pressure during pregnancy				
	a) Pre-eclampsia	✓	✓	✓	
	b) Eclampsia	✓	✓	✓	CPA1 can treat hypertension, then refer
3	Malaria during pregnancy	✓	✓	✓	
4	Vaginal Bleeding while pregnancy is less than 24 weeks				
	a) menace of abortion	✓	✓	✓	
	b) inevitable abortion	✓	✓	✓	
	c) Infectious induced abortion	✓	✓	✓	
	d) spontaneous abortion	✓	✓	✓	
	e) Extra-Uterin foetus		✓	✓	
	f) Molar Pregnancy		✓	✓	
5	Vaginal Bleeding while pregnancy is more than 24 weeks				
	a) Placenta Praevia (placenta blockage in the cervix)		✓	✓	
	b) Pre-delivery dilatation of placenta		✓	✓	

	c) Rupture of uterus		✓	✓	
6	Frequent vomiting during pregnancy (morning sick)	✓	✓	✓	
7	Urinary Tract Infections	✓	✓	✓	
8	Vaginal Discharge Syndromes	✓	✓	✓	
9	Genital ulcer signs	✓	✓	✓	
10	HIV/AIDS	✓	✓	✓	
11	Maternal Tuberculosis	✓	✓	✓	
12	Premature Rupture of Membrane	✓	✓	✓	
13	Multiple or twin pregnancy		✓	✓	
14	Stillbirth		✓	✓	
B. Labor and Delivery					
Routine management: Stage 1					
1	Prolonged latent phase	✓	✓	✓	
2	Prolonged active phase	✓	✓	✓	
3	Premature Rupture of membrane	✓	✓	✓	
4	Premature delivery	✓	✓	✓	Must be ready to refer
5	Placenta comes prior to presentation of the birth		✓	✓	
Routine management: Stage 2, 3, & 4					
1	Prolonged second phase		✓	✓	
2	Abnormal presentation of birth				Probably needs C-section
	a) Transverse		✓	✓	
	b) breech presentation	✓	✓	✓	
	c) Face		✓	✓	
	d) Forehead		✓	✓	
3	Rupture of uterus		✓	✓	
4	Post-delivery Hemorrhage	✓	✓	✓	Severe bleeding needs to refer
C. Post Delivery Consultation: Routine Management					
1	High Blood Pressure	✓	✓	✓	
2	Post-delivery infection	✓	✓	✓	

3	Problems on urinary system	✓	✓	✓	
4	Status of Breasts				
	a) Cracked /sore nipples	✓	✓	✓	
	b) Inverted nipples	✓	✓	✓	
	c) Engorged nipples	✓	✓	✓	
	d) Mastitis	✓	✓	✓	
	e) Abscess of breasts	✓	✓	✓	
D. Neonatal Care: Routine Management					
1	Asphyxia after birth	✓	✓	✓	
2	Premature delivery/pregnancy		✓	✓	
3	Severe bacterial infections		✓	✓	
4	Hypothermia (Abnormally cold)		✓	✓	
5	Acute Respiratory Infections	✓	✓	✓	
6	Conjunctivitis	✓	✓	✓	
7	Umbilical cord infections	✓	✓	✓	
8	Neonatal infections	✓	✓	✓	
9	Jaundice (not recover after 10 days, refer)	✓	✓	✓	
10	Diarrhea	✓	✓	✓	
11	Oral Fungus	✓	✓	✓	
12	Anemia	✓	✓	✓	
Obstetric & Gynecological Interventions and Birth Spacing					
1	Normal delivery	✓	✓	✓	
2	Breech delivery	✓	✓	✓	
3	Vaginal incision and suture	✓	✓	✓	
4	Breaking of the membranes	✓	✓	✓	
5	Vacuum Extractor	✓	✓	✓	
6	Removal of Placenta	✓	✓	✓	
7	C-section		✓	✓	
8	Suture of ruptured uterus to stop bleeding		✓	✓	
9	Suture of vaginal rupture at level 1, level 2	✓	✓	✓	Only for normal jaundice
10	Suture of anal rupture at level 3	✓	✓	✓	
11	Suture of ruptured cervix	✓	✓	✓	

12	Craniotomy		✓	✓	
13	Induced abortion by vacuum extractor or curettage	✓	✓	✓	
14	Complete removal of uterus		✓	✓	
15	Tubectomy (surgery removal of Fallopian Tube)		✓	✓	
16	Tubilization		✓	✓	
17	Searching for cervix cancer	✓	✓	✓	
18	Marsupialization of bartholinite	✓	✓	✓	
19	Cautérisation et conisation du col utérin		✓	✓	
20	Contraception (IUD, Norplant, tubal ligation)	✓	✓	✓	
21	Surgery of breast abscess and breast lump that is not cancer		✓	✓	
22	Contraception (IUD, Norplant, tubal ligation)	✓	✓	✓	
23	Modern method (Pill, Injection, Condom)	✓	✓	✓	
24	Birth spacing (IUD, Norplant, tubal ligation)	✓	✓	✓	

BEmONC and CEmONC are a package of interventions to resolve the causes of maternal death. Health center and CPA1 referral hospital can provide BEmONC service and CPA2 and 3 referral hospitals can offer CEmONC as shown in the below table.

Table 5: Emergency Obstetric and Newborn Care

Basic Emergency Obstetric and Newborn Care (BEmONC)	Comprehensive Emergency Obstetric and Newborn Care (CEmONC)
Antibiotic by IM and IV	BEmONC +
Oxidation(IM and IV)	Cesarean Section
Anti-convulsion Drug such as MgSO ₄	Blood transfusion
Manual Extraction of Placenta	
Post-abortion Care	
Delivery via uterus with assisted equipment	
Vacuum	
Help Baby Breath(HBB)	

(Please refer to Maternal and Neonatal Planning in Cambodia, 2010-2015)

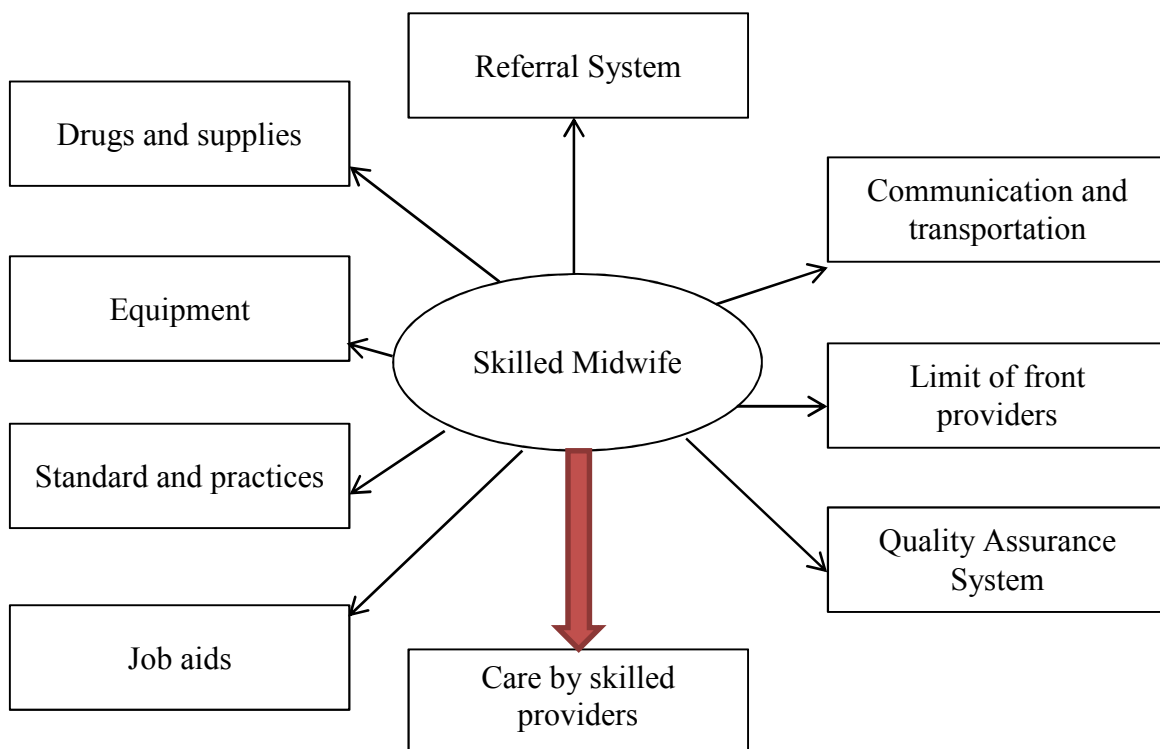
a. Infrastructure

Department/ward:

- There must be obstetric ward, gynecological ward, and newborn care ward.
- There must be gynecological and obstetric consultation room.
- Obstetric ward must have a delivery room with broad size and privacy for frequent deliveries at a hospital.
- Number of beds for each ward can be ranged from 20 to 50 depending on the scope of work of the referral hospital.

Staff: There must be at least one skilled midwife and physician who trained and experienced and one qualified nurse and physician who trained in ultrasonic skill. Skilled midwife (physician) manages and refers 15% of total deliveries, so the present of skilled midwife is very crucial during the delivery and after because it is very important to survive life of mother and newborn. Effective management of midwife during labor, delivery and after the delivery could avoid the complication such as Extraction of Placenta without modern methods and requires C-section and blood transfusion. Skilled midwife must be ready with an appropriate environment including the possibility of good referral system, communication, transportation, consumables, drugs and materials. Care with skill is refer to skilled midwife with an appropriate environment which cannot disconnect from emergency obstetric and newborn care.

Picture 2: Appropriate Environment



Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

- To be ensure 24-hours services
- There must be obstetric and genecology internal regulation and needs timely updated. All related staff must obey and follow this regulation.

2-12 Operation Theater and Anesthesia

Operation theatre and anesthesia ward at a referral hospital of CPA 2 & 3 is responsible for arranging the operation program and following up the status of a patient after surgery, the consciousness, and post-surgery pain. Manage medical equipment by skill, sterilize equipment to ensure adequate surgery equipment and anesthesia medicines for operation. The operation theater must be always clear to avoid infection.

a. Infrastructure

Department/ward: Patient preparation room, 2 or 3 operation rooms, and recovery room which is under the responsibility of physician or nurse who trained in anesthesia to follow up the status of patient. Care ward with some beds for post operation patients should be equipped with emergency equipment, oxygen tank, and other necessary equipment for emergency.

Staff: There must be skilled medical doctor, anesthesia expertise or someone who is specialized in anesthesia, nurse who trained in Operation Theater.

Medical Equipment, Materials and Instruments: Operation Theatres equipped with operational tables, medical equipment for anesthesia, disinfection materials, and other necessary materials and supplies.

b. Procedure

- Prepare weekly operation schedule, except emergency case.
- Manage patient before starting operation.
- Prepare in advance the equipment, materials, anesthesia medicine before starting operation.
- There must be operation protocols during the operation.
- Regular daily meeting should be held to review and improve mistakes and failures.
- There must be consultations and regular monitoring on the result of anesthesia, operations, and post operations.

2-13 Communicable Diseases (TB, HIV/AIDS, Malaria, and Dengue)

2.13.1 Tuberculosis

TB treatment in the referral hospital is responsible for the care and treatment including health education. In CPA 3, TB services are to provide diagnosis and subsequent treatment for TB BK+ and TB in children. In the near future, most of referral hospitals can conduct rapid diagnosis for MDR-TB.

a. Infrastructure

Department/ward:

- TB ward must have one laboratory, and TB ward separately located from other with good ventilation.
- The number of beds for the TB ward varies according the conditions of the suspected patients, patient who needs hospitalization and the size of the hospital (10-30 beds).

Staff: An average of 5 staff members for the TB ward for CPA 1 and 2, including 1 doctor and 1 lab technician. For CPA 3, the staff can exceed this number.

Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

- Diagnosis, treatment and care for TB patient must be in separated ward (if severe case) or TB patient who stayed at home requires to take daily medicine in front of nurse (mobile DOTS).
- Provide health education to suspected TB patient, TB patient, and as well as their attendants.
- Suspected TB patient who has severe condition or requires hospitalization for diagnosis that cannot return back for next services at the hospital because house is far or any other reasons.
- Severe TB patient who requires care till getting better. TB patient who cannot access to DOTS service everyday at the hospital and C-DOTS.
- MDR-TB patient who cannot receive home-based treatment because requires to preventing infection.
- The laboratory is responsible for examining the sputum of patients that come for OPD, hospitalization and referrals from all health centers in the districts.
- There are 3 considerable options for the suspected MDR-TB patients as follows:
 - Option 1: Receiving suspected MDR-TB patient and take sputum and send sputum to GeneXpert center or sputum culture center.
 - Option 2: Visit suspected MDR-TB patient at home and take sputum and send sputum to GeneXpert center or sputum culture center.

- Option 3: Receive sputum from health facilities in the regions and send it to GeneXpert center or sputum culture center.

Table 6: Coverage area (provinces) of the 3 sputum culture centers in Cambodia

Sputum Culture Center	Provinces that need to refer to sputum culture center
CENAT	Kandal, Kampong Speu, Kampong Chnang, Prey Veng, Preah Sihanouk, Koh Kong, Takeo, Kampot, Kep, Phnom Penh City
Kampong Cham	Kampong Cham, Kampong Thom, Kratie, Stung Treng, Ratanakirri, Mondulkirri, Preah Vihear
Battambang	Battambang, Pailin, Pursat, Siem Reap, Bantey Meanchey, Oddar Meanchey

2.13.2 HIV/AIDS

HIV/AIDS and STI treatment at the referral hospital of CPA1, 2 and 3 is consultation, HIV/AIDS testing, diagnosis, and treatment of opportunity infections, Antiretroviral Therapy, STI, and the laboratory service must do HIV/AIDS diagnosis, STI and viral load test, CD4 counting, and other necessary tests for the treatment of opportunity infections and providing ART such as liver function test, kidney function and hemoglobin.

For infrastructure includes building, staff medical equipment and materials, please refer to the following guidelines.

1. National Guidelines for the Prevention and Treatment of Opportunistic Infections in HIV Infected Adult and Adolescents in Cambodia 2012
2. National Guidelines for the use of Antiretroviral Therapy in Adults and Adolescents in Cambodia 2012
3. National Guidelines for the Prevention and Treatment of Opportunistic Infections among HIV Exposed and HIV Infected Children in Cambodia 2011
4. National Guidelines for the use of Antiretroviral Therapy in HIV infected children in Cambodia 2011
5. Standard Operating Procedure (SOP) for STI/RTI prevention and care service delivery at Family Health Clinic
6. National Guidelines on Sexuality Transmitted Infections (STI) and Reproductive Tract (RTI) Case Management

2.13.3 Malaria

The Royal Government of Cambodia endorsed to implement the National Strategy on Malaria Elimination by 2025. To successfully implement this strategy, the hospital must:

- Timely diagnosis and implement the effectiveness of Malaria diagnosis and treatment based on the national guideline.
- Support the trainings for service providers, particularly health centers and private service providers and conduct regular monitoring.
- Support the regular monitoring, survey and research in the high risk areas.
- Provide health messages to Malaria patients and their relatives to comprehensive understand about Malaria and keep proper manner in treatment and prevention.

2.13.4 Dengue

The specific treatment of Dengue Fever should include:

- Responsible diagnosis, treatment and care of the patient following the National Guidelines for Dengue Fever Treatment.
- Promote health education on Dengue fever prevention.
- Equip Hematocrite Centrifuge Machine at Dengue Fever treatment ward in order to monitor the changes in blood concentration and mosquito nets for beds and screens for windows and doors to prevent the spread of Dengue Fever virus by mosquito bites.
- For CPA 1 and 2 hospital where there is no blood bank or there is no possibility to treat Dengue Fever patient, they should be appropriate referral system to refer patient to the closed CPA 3 or National hospital for emergency.
- For infrastructure including building, staff, medical equipment and materials for Malaria and Dengue services must be integrated with other services of the hospital.

2-14 Other Specialty Services

2.14.1 Ophthalmologic Service

A referral hospital is a place for provision of consultation, diagnosis, care, treatment, and ophthalmologic surgery provided by an ophthalmologist.

Table 7: Ophthalmology

No.	Criteria and Procedure	CPA1	CPA2	CPA3
1	Red Eye	✓	✓	✓
2	Active Trachoma	✓	✓	✓
3	Disorders of conjunctiva	✓	✓	✓
4	Inflammation of Eye Lid	✓	✓	✓
5	Uveitis			✓
6	Dry Eye			✓
7	Refractive Errors			✓
8	Corneal Diseases		✓	✓

9	Cataract		✓	✓
10	Eye Injuries		✓	✓
11	Glaucoma		✓	✓
12	Strabismus			✓
13	Lid surgeries			✓
14	Endophthalmitis			✓
15	Pterygium			✓
16	Retinal Surgery			✓
17	Evisceration/Enucleation			✓
18	Dacryocystitis			✓
19	Keratoplasty			✓
20	Diabetic Retinopathy			✓
21	Community Ophthalmology	✓	✓	✓

a. Infrastructure

Department/ward: Ophthalmologic ward must have 16 square meters of out-patient consultation room, admission room with at least 10 beds, standard surgery room, sterilization room, and section for the provision of failure picture service.

Staff:

- The provision of ophthalmologic services must have at least one physician specialized in ophthalmology, two ophthalmologic nurses, and one ophthalmologist.
- The service must be provided by an ophthalmologist who has been trained on ophthalmology for at least 2 years.

Medical Equipment, Materials and Instruments: Provision of services must be equipped with equipment that can diagnose, treat and appropriate standard surgery. Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

Provision of ophthalmologic service is made according to appropriate standard of the National Eye Policy.

2.14.2 Dentistry

Table 8: Oral and Dental Service

No.	Criteria and Procedure	CPA1	CPA2	CPA3
1	Scaling	✓	✓	✓
2	Temporary restoration	✓	✓	✓
3	Permanent restorative	✓	✓	✓

4	Root canal treatment	✓	✓	✓
5	Fractured jaw	✓	✓	✓
6	Dislocation	✓	✓	✓
7	Simple extraction	✓	✓	✓
8	Extraction: Impacted tooth		✓	✓
9	Drainage Abscess	✓	✓	✓
10	Hare clips and cleft palate			✓
11	Facial esthetics			✓
12	Fixed Prosthodontics		✓	✓
13	Partial Denture, sequels		✓	✓
14	Complete Denture		✓	✓
15	Pediatric dentistry	✓	✓	✓
16	Orthodontics			✓
17	Periodontics		✓	✓
18	Oral X-ray	✓	✓	✓
19	Implant			✓
20	Oral pathology	✓	✓	✓
21	Pits and fissure protection	✓	✓	✓
22	Fluoride varnish/gel	✓	✓	✓

a. Infrastructure

Department/ward: The dental ward of CPA3 referral hospital should have 2 to 3 beds for the patient who requires for hospitality. Prosthodontics and orthodontic must be available at the referral hospital of all levels.

Staff: Dental treatment must be provided by health staff specifically trained in dentistry. The minimum staff requirement is one dentist or dentist assistant and one dental nurse.

Medical Equipment, Materials and Instruments: A referral hospital must equip dental equipment to provide basic dental care including emergency dental extraction, normal extraction, basic fillings and various preventive services. Equipment and materials are dental chair with spittoon, operating light, portable dental equipment (for drilling and suction), examination set, emergency extraction set, normal extraction set, dental filling kits, amalgam, box for sterilizing instruments and sterilizer, and boiling type.

b. Procedure

- Dental service is, in principle, a part of out-patient consultation and referral service.
- Both patients and providers for dental service are at risk of transmission. Therefore, strict measure for disinfection must be undertaken.

- Beside dental treatment and care services at the health center and referral hospital, dental nurse, dentist and dental physician must prepare oral and dental health promotion program at the schools and community that is under its coverage area. Community oral and dental health activities must link with other public health activities.
- Staff of dentistry of all health facilities must cooperate with staff of MCH to expand oral health education to pregnant women and women who has small child to keep positive attitude on oral and dental health.
- In case of emergency dental at the CPA1 and 2, there must be provision of primary emergency dental and then refer to the CPA3 that specialized and qualified in emergency and provision of appropriate treatment. There must be closed collaboration with emergency ward, if requires timely emergency.
- There must be research and monitoring for oral and dental health.

2.14.3 Ear, Nose, Throat (E.N.T), Head and Neck Treatment and Surgery

A referral hospital is a place for provision of assessment, diagnosis, care and treatment of the diseases of ears, noses, throats, Head and Neck Treatment and Surgery by specialized doctor in E.N.T, Head and Neck Treatment and Surgery.

Table 9: Ears, Noses, Throats, Head and Neck Treatment and Surgery

No.	Criteria and Procedure	CPA1	CPA2	CPA3
1	Rhino pharynges	✓	✓	✓
2	Hypertrophic tonsillitis	✓	✓	✓
3	Pharyngitis chronic	✓	✓	✓
4	Hypertrophie des végétations adénoïdes		✓	✓
5	Tonsillectomy			✓
6	acute laryngitis	✓	✓	✓
7	Laryngite chronique		✓	✓
8	Allergic Rhinitis		✓	✓
9	Hypertrophy Rhinitis		✓	✓
10	Cauterization des cornets		✓	✓
11	Extraction des corps étrangers de l'hypopharynx		✓	✓
12	Extraction des corps étrangers du nez		✓	✓
13	Extraction des corps étrangers de l'oreille		✓	✓
14	Otite externe	✓	✓	✓
15	Furoncle du Conduit Auditif Extern	✓	✓	✓
16	Otomycosis		✓	✓
17	Perichondritis	✓	✓	✓
18	Mastoiditis		✓	✓

19	Otite moyenne aiguë		✓	✓
20	Chronic otitis media		✓	✓
21	Serous (Serous otitis media)		✓	✓
22	Otite moyenne chronique holestéatomateuse		✓	✓
23	facial paralysis		✓	✓
24	Epistaxis	✓	✓	✓
25	Fracture de l'os propre du nez		✓	✓
26	Ponction du sinus maxillaire		✓	✓
27	Acute rhinosinusitis		✓	✓
28	Chronic rhinosinusitis		✓	✓
29	pansinusitis		✓	✓
30	Nasosinus Polypose		✓	✓
31	Ethmoidite aiguë chez l'enfant		✓	✓
32	Atrophic Rhinitis		✓	✓
33	Meatotomy			✓
34	Septal deviation or deviation of the nasal septum	✓	✓	✓
35	Operation of the maxillary sinus			✓
36	Killian operation			✓
37	Esophagoscopy			✓
38	Dysphonia			✓
39	Tracheotomy			✓

a. Infrastructure

Department/ward: Ward of Ears, Noses, Throats, Head and Neck Treatment and Surgery must have OPD and IPD with at least 10 beds including surgery room and sterilization room.

Staff: Provision of services for ears, noses, throats, Head and Neck Treatment and Surgery must be provided by doctor who has been appropriately trained and all doctors and nurses have to undertake continuing medical education every year. It requires at least one ENT doctor and more than 2 nurses

Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

Provision of care for E.N.T, Head and Neck Surgery is referred to the appropriate standard level.

2.14.4 Dermatology

A referral hospital is a place for provision of consultation, diagnosis, care, treatment, and surgery of dermatological diseases by dermatologist.

Table 10: Dermatology

No.	Criteria and Procedure	CPA1	CPA2	CPA3
1	Eczema	✓	✓	✓
2	Superficial Fungal Skin infection	✓	✓	✓
3	Bacterial Skin Infection	✓	✓	✓
4	Viral Skin Infection		✓	✓
5	Parasitic Skin Infection	✓	✓	✓
6	Acne Vulgaris			✓
7	Urticaria	✓	✓	✓
8	Psoriasis		✓	✓
9	Drug Eruption		✓	✓
10	Pigmented skin disorder			✓
11	Alopecia			✓
12	Insect bite reaction	✓	✓	✓
13	Oral Candidiasis	✓	✓	✓
14	Pruritic Papular Eruption in HIV		✓	✓
15	Vitiligo			✓
16	Syringoma			✓
17	Xanthelasma			✓
18	STDs	✓	✓	✓
19	Skin infection by Arsenic			✓
20	Others skin diseases			✓

a. Infrastructure

Department/ward: Dermatology ward must have consultation room with 16 square meters (4 meters by 4 meters) and a pair of sinks. There must be a room for consultation with some equipment for diagnosis and treatment at a referral hospital.

Staff: Care and treatment of dermatological diseases should be provided by a dermatologist who has been appropriately trained. The provision of the services requires one doctor and one nurse who have been trained on dermatology.

Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

Provision of dermatological services must be properly and technically according to appropriate standard level.

2.14.5 Mental Health

A Mental Health Service is a Mental Health and Drug Treatment Services including counseling, psycho education, and psychosocial intervention. The below table shows type of services to be provided by referral hospitals. A referral hospital of CPA1 and 2 could provide mental health services as CPA3, if there is enough human resource.

Table 11: Mental Health (Diagnostic Criteria: Adapted to ICD-10 & DSM-IV TR)

No.	Criteria and Procedure	CPA1	CPA2	CPA3
1	Anxiety Disorders	✓	✓	✓
2	Depression	✓	✓	✓
3	Bipolar Affective Disorders/ Mania	✓	✓	✓
4	Post-Traumatic Stress Disorders” PTSD		✓	✓
5	Somatoform Disorders		✓	✓
6	Acute Psychosis		✓	✓
7	Schizophrenia		✓	✓
8	Epilepsy	✓	✓	✓
9	Organic Brain Disorders/ Dementia	✓	✓	✓
10	ATS induced Mental Disorders		✓	✓
11	ATS induced Depression		✓	✓
12	ATS induced Anxiety		✓	✓
13	ATS induced psychotic Disorders			✓
14	ATS induced withdrawal Disorders			✓
15	Others ATS induced mental disorders			✓
16	Alcohol induced mental disorders*		✓	✓
17	Alcohol induced behavioral Disorders*		✓	✓
18	Alcohol induced depressive Disorders*		✓	✓
19	Alcohol induced anxiety disorders*		✓	✓

20	Alcohol induced psychotic disorders			✓
21	Alcohol induced withdrawal disorders			✓
22	Other alcohol induced mental disorders			✓
23	Emergency psychiatric cases		✓	✓
24	Suicide*		✓	✓
25	Aggressive patients*		✓	✓
26	Crisis			✓
27	Acute intoxication			✓

a. Infrastructure

Department/ward: Number of beds should range from 5 to 10 depending on resource of each referral hospital. For treatment of emergency must use the emergency ward of the referral hospital but monitoring, care and treatment must be done by staff of mental health.

Staff: Staff for mental health service provision are the existing staff at a referral hospital, who have been trained on Basic mental health treatment and care (at least 1 month training). Number of staff varies with the proportion of at least one doctor and two nurses.

Medical Equipment, Materials and Instruments: Please refer to Medical Equipment Standard List for CPA and Essential Medicines List.

b. Procedure

- diagnosis making and treatment and care provision, for mentally ill and substance abuse patients
- providing consultation liaison with other medical services
- providing psycho-education for mentally ill and substance dependent patients as well as their families
- organizing an optimal services for mentally ill and substance dependent patients
- collaborating with other partners to get a comprehensive treatment and care for mentally ill and substance dependent patients
- Mental health service must be integrated service for mental health and substance abuse, and have 3 units.
 - **Psychiatric Out-patient unit:** Provide ambulatory treatment for mild or moderate cases. The service provision at Psychiatric Out-patient unit should focus on both medication and counseling.
 - **Psychiatric In-patient unit:** to provide a short stay for treatment of emergency or severe cases or detoxification of substance dependence.
 - **Day Care Unit:** This unit must provide Psychosocial Intervention.

2-15 Central sterilization and Supply

Infection in the hospital is one of the challenges requires hospital to pay further attentions. Infection caused by several factors. Major factors include cleaning, washing, and sterilizing with improper equipment and reuses those equipment for surgery, treatment and care.

Each referral hospital must prepare one central sterilization section. This section has to collect all the used equipment from other sections in the hospital to soak, wash, clean, dry, package, and sterilize in the sterilizer and then return back to each section. Another option is each ward should to soak, wash, clean, dry, and package before sending to the center sterilization to sterilize. Referral hospital must have autoclave to sterilize medical equipment and materials. Staff must have sterilization skills and knowledge to sterilize medical equipment and materials. **(Please refer to Infection Control and Prevention Guideline for Health Facilities)**

2-16 Nursing

A. Principles

Nursing ward must be established at referral hospital of all level to be responsible for the improvement of nursing quality and safety of patient. Nurse and midwife must implement nursing care at the safety and effectiveness environment in cooperation with other staff by keeping professional ethic, regular career development, conducting research to improve skills to enhance nursing quality and participate in nursing management system of the hospital.

Nursing is an autonomous professional practice in cooperation with other health professionals in nursing care without considering of religion, status, race, political trends and social economic status. Nursing includes health education, disease prevention, nursing care for disability and dying.

a. Nursing Infrastructure

Infrastructure of nursing ward is under the technical bureau of the hospital. Nursing ward must have clear vision, mission and purpose to achieve nursing quality and standard following the guideline of the Ministry of Health.

Composition of nursing ward includes:

- One chief (nurse or midwife)
- One vice chief or more based on the needs (nurse or midwife)
- All chiefs of ward are member
- All vice chiefs of ward are member
- All nurses and midwives are member

Roles of staff of nursing must follow the below criteria:

- Provide patient care based on the prescription order of the physician
- Make own decision following the nursing protocols/procedure
- Provide nursing which is an assistance of physician

- Provide specialized nursing defined by the Ministry of Health
- Provide emergency nursing

b. Nursing Activities: Nursing activities should focus on:

- Record
- Procedure
- Nursing/midwifery protocols
- Duty hand-over (information)
- Nursing regulations
- Professional ethic for nurse
- Demarcation of professional practice
- Roles and duties of nurse
- Roles and duties of regional chief, nursing chief and chief of ward
- Roles and duties of preceptor

CHAPTER 3: PARAMEDICAL/CLINICAL SUPPORT SERVICES

3-1 Laboratory

Laboratory has very important roles in the process of diagnosis, surgery and emergency etc. by providing the accurate and clear analytical results such microbiological, hematological, and biochemical analysis and etc.

Laboratory services must ensure the quality and safety of the operation by focusing on the following principles.

- **Monitoring:** regularly review and follow-up the operation to enhance quality and safety of services by participating in the external and internal quality control program.
- **Assessment:** regular assessment should be conducted to identify key problems in service provision, and identify ways for improvements.
- **Evaluation:** effective implementation must be evaluated to monitor the progress and ensure the sustainable laboratory development.
- **Feedback:** activity outcomes must be regularly shared with staff of laboratory and staff of other sections.
- **Documentation:** all documents must properly manage and keep the confidentiality of information of patient and staff

a. Infrastructure

Department/ward:

- The lab should have adequate space, safety, and equipment for conducting microbiological, hematological, and biochemical analysis responsive to the needs of medical and surgery ward or other wards.
- There must be clean water supply, water tap, water without containing ion, and ink in the proper technical water system.
- Permanently connect the electricity supply with main electricity line and other sub-line.

Staff: There must be staff who properly trained in laboratory and sufficient staff based on the size of each laboratory.

Medical Equipment, Materials and Instruments: Laboratory equipment and materials must be in good condition all the time to timely analyze based on the request of each ward in the hospital. **(Please refer to Laboratory Guideline)**

b. Procedure

- Provide 24-hour basic services or at a time according to the request of other wards in the hospital for the case of emergency or disease outbreak.
- Implement the laboratory safety principles including safety at work to prevent infection, prevention of danger caused by misuse, misplacing of chemical substance or misuse of the equipment or materials, regular schedule for equipment maintenance, an effective disinfection system, and lab waste management system.
- Analyst request forms include the following patient information:
 - Name, age (date of birth), sex, address, hospital ID number, ward, room number, bed number
 - Name of requested physician and entry diagnosis, type of lab request, type of sample, date and time, name of sample-taker and whether it is a normal or urgent request.
 - Patient arrangement, taking specimen, packaging, keeping and transporting of specimen, and compiling data must be carefully and seriously for the accuracy of analytical result
 - Filing all documents of specimens received by the laboratory.
 - Files must have proper identity and can be easily found in the laboratory.
 - Reporting format should be developed according to the patient's record and make it easily comparable with further analysis. Information in the reporting format must be same as written in the analyst request form but additional information is requires as followings.
 - Signature and name of analyzer

- Signature and name of controller
- Result
- Date and time result
- Signature and name of physician who received result
- A comprehensive analysis manual and standard describing all different methods and references for the usage in the laboratory.
- Those responsible for the lab should have been trained on lab management including management of quality assurance, budget, and statistics, purchase order of materials & agents, and equipment maintenance.

3-2 Blood Transfusion

The main goal of blood transfusion is to provide safest blood in order to save the patient's life based on the medical necessity and ensure the safety and health of provider.

Summary of Quality Assurance – Blood Facility

- Blood donation should be done on voluntary basis without paying any fee to a blood donor.
- Due to lack of blood, family or relatives of a patient can be requested to donate blood. However, the selection of a donating person from the patients' family or relative should be done in technically manner.
- Avoid receiving blood from the professional blood donors because most of this group is at high risk of infectious diseases through blood.
- One of the best indicators for quality control of blood donation is the proportion voluntary blood donors among blood donors and among group at risk-of infectious diseases through blood and the youth group is a very important source of safe and sustainable blood donation.
- Community must participate in education and blood donation program.
- The national blood transfusion must implement the Quality control and Standard Operation Procedures to meet the technical standard goal which is acceptable.
- Adequate and recorded documents should be well kept and confidential.
- Blood collection must follow the standard formality by skilled staff of blood transfusion ward; if possible, blood production must follow the international standard. The products should be kept in a standard of safe and quality cold chain system
- The proper use of blood and its products must follow National Guideline of blood utilization.

Blood transfusion service must be consistent with CPA level of a hospital. A referral hospital with minor surgery activities such CPA2 which the blood transfusion cases is maximum 10 cases per month and with favorable geography by taking least than an hour to get to the provincial

blood bank should have only a blood depot. Staff at the blood bank service is responsible for collecting blood from volunteer blood donors at the public institutions and private. Collected blood must be properly arranged by types of blood, keep and distribute to all health facilities based on the regulations of the national blood transfusion of the Ministry of Health.

Blood transfusion is depending on voluntary basis of blood donors without paying any fee in order to have sufficient and safe blood and blood production based on the needs. There are three types of voluntary-basis blood donation in Cambodia:

- **Voluntary blood donors:** Those who go to give blood at the center with their own will. Mobile teams of the national blood bank center often go to collect blood among low-risk group of population such as students, monks, and general people in various public institutions. Mobile blood collection is one of the best methods because it provides good quality of blood and also opportunity to educate the people on blood donation. Awareness and educational campaigns gradually increase the number of this type of donors.
- **Blood donation by the patient's relatives as a replacement:** Those are the patient's relatives who have been requested to donate blood (This is frequently done on voluntary basis) to blood transfusion center to exchange for safe blood in stock.
- **Professional blood donors (blood dealer):** Should be avoided because their blood have high risk of various infections such as HIV/AIDS, Hepatitis B, Hepatitis C, and syphilis which could infect the patient through blood transfusion. Blood donation from this group is a major concern because blood could bring severely danger for patient, even though the analytical result is positive because it is in the window period.

a. Infrastructure

Department/ward:

- The facility must be sanitary, clean and lighted. This is stipulated in the norms of sanitation and safety.
- The facility includes a consultation room, a medical check-up room with privacy, room for blood serology grouping, hemoglobin, a blood- taking room, and a relaxation room for blood donors.
- The medical check-up, blood testing, and blood-taking rooms must be equipped with furniture, cabinets to keep reagents and necessary materials.

Staff: There must be sufficient staff who trained in blood transfusion based on the size of hospital.

Medical Equipment, Materials and Instruments:

- A refrigerator for storing blood and blood product must have constant temperature. It, therefore, requires readable thermometer and a bell.

- The refrigerator alarm must be set alarm for the temperature prior to the temperature at which the blood or blood product can deteriorate.
- The alarm must be placed close to the staff so that they can easily hear when it rings.
- If there is only one refrigerator, it must have different draws marked with tested and untested blood, compatible and incompatible blood.
- Blood can be stored with reagents and samples. Therefore, the fridge should have different draws marked with each different product. Check and record the temperature in the fridge at least twice a day.

b. Procedure

- In principle, this service must be 24-hour operation a day.
- Blood collection must be implemented as following:
 - Blood donor must answer following the questions as described in blood donation form in order to review the criteria of blood donation whether it is acceptable or not.
 - A doctor and nurse conduct consulting and asking the past histories and behavior which could potentially face with risk of spreading HIV/AIDS and infection through blood transfusion, then medical check-up such as weighting, checking blood pressure, blood serology grouping (hemoglobin) with respect to criteria of a blood donor.
 - When above process is completed, blood taking will be done by nurse.
 - Testing of donated blood must follow the defined standard blood testing.
- **Blood serology grouping:** The testing to identify the type of blood in ABO system and Rhesus system must be done according to appropriate formula. Any sack of blood whose group or type of blood has not yet been identified must not be allowed to be used. Information regarding ABO or Rhesus obtained from a previous blood donor cannot be used to identify on the current blood sack even though he/she used to donate blood in the past.
- **Compatibility testing:** Cross-match testing must be done appropriately according to the guideline of the National Blood Bank Center for every blood sample of a patient requesting for blood transfusion in order to identify antibodies which can eventually cause clinically significant unexpected antibodies.
- **Infectious diseases testing:** must be done only in the laboratory. The blood sample in a trial tube from a blood donor should require the following tests. Effective implementation of the valid guideline of National Blood Bank Center in order to identify infectious agents:
 - HIV^{1/2}. Minimum- antibodies to HIV
 - HBV. Minimum-HBsAg
 - HCV. Minimum- antibodies to HCV

- Minimum-Nonspecific tests (RPR, VDRL) or Specific tests: (TPHA, TPPA)
- **Tests for other infectious diseases** may be necessary according to epidemiology such malaria testing etc. 100% of blood sacks of donated blood must test for infectious diseases. Negative blood sacks must keep at cold chain system with temperature of +4 degree C and prepare for distribution.
- Positive blood sacks of above-mentioned disease must take it out and safely and properly disposed later on. Information of blood donor and result of blood testing must be confidentially kept. Not writing down name of blood donor on the blood sack, sample or document of laboratory testing.
- **Maintenance of blood:** Blood must be always kept in cold chain system between temperature of +20 degree C and +24 degree C from the time it was collected until the time to use.
- Blood and blood product (blood sack) and keep with the temperature of +4 degree C from 35 to 42 days based on the chemical contained in the blood sack. Staff must be responsible for keeping blood and to ensure the cold chain system function well.
- Blood distribution and transportation must be done under the following conditions:
 - Blood must be transported by keeping in the icebox with temperature of +20 degree C and +24 degree C. (Please use ice freezer box, but not much)
 - Materials used for transport of blood sacks should be cold prior to putting them in.
 - It always requires checking to see if there are any signs of ruins such as hemolysis or contamination prior to transporting blood or plasma from the Blood Bank Center to other ward in the hospital or referral hospitals.
 - When using each sack of blood, it requires clearly label blood group, result of blood test for infectious diseases and serial number. Verifying request letter for blood such as name of patient and cross-match to avoid mistakes and danger in blood transfusion.
 - Blood sack that kept out of the icebox more than 30mn must dispose.
- **Safe disposal of blood and blood products**
 - Safety guideline for waste management of laboratory and blood bank center must be applied to ensure the safety of hospital's staff and the public. The disposal can be dangerous by contamination.
 - Autoclaving or incineration is the best method for waste disposal.
- **Use of Blood:** Blood bank at a referral hospital should have relationship with blood users and blood donors in order to ensure adequate supply of blood, proper use of blood, and report of reactions during blood transfusion. Establishment of a committee for controlling blood safety in a referral hospital is very essential for monitoring blood transfusion activities ranging from blood collection, utilization,

various methods of blood transfusion, to enhancement of the continuing education for the practices of blood transfusion in accordance with blood utilization protocol.

The National Blood Transfusion Center is not center for HIV/AIDS counseling and treatment. The goal of blood test is to identify infectious diseases, infectious bacteriology of blood transfusion and to be sure that blood is safe for patient but not diagnosis. Suspected blood donor caused by blood transfusion will receive counseling and refer to specialized health facilities to get diagnosis and treatment. Record must be always properly recorded and kept.

3-3 Imagery

The medical imagery must have high quality to be diagnosed by radiography and ultrasound which an assistance in daily care, treatment, and emergency for both medical ward and operation theater.

Referral hospital of all levels must have medical imagery services which is a part of radiography ward (X-ray imagery) and as well as ultrasound. Appropriate choice of medical imagery and accurate interpretation should be done in consultation with relevant medical technical advisors. This service must be provided within the principle of safety of X-ray for the safety of patient and staff.

Summary of Quality Assurance – Medical Imagery

The Medical Imagery ward must ensure to provide high quality of services by participating in the quality improvement program in a hospital. Audit of service implementation is to ensure that images for diagnosing are technically and safely taken.

- Assess patient's status to understand the patients' comfort and their waiting time outside the room.
- Review the use of X-ray machine, ultrasound and other resources pertinent to medical imagery services.
- Regularly monitor and update information of the situation of service provision.
- Assessment: Timely assessment should be conducted to identify key issues in service provision and countermeasure for improvements.
- Evaluation: Effectiveness of measures must be evaluated for sustainable improvement.
- Feedback: All results of actions should be regularly shared with staff. Documents of quality control must be properly kept and information of patients and staff should be kept confidentially.

Procedure: Mainly focuses on the following points:

- Medical imagery observation can be done with a request from a doctor or physician. The request should have adequate medical information justifying good reason for examination.
- Images are usually taken for assessment of diagnosis. Detailed notes of Ultrasound examination must be recorded on the form.
- A copy of the report should be attached with a patient's medical record, and another copy should be kept in a filing system that can be easily retrieved. After interpretation, the result of the assessment should be given in 24 hours. When seeing something unusual on any patient, a medical imagery expert should immediately discuss with a responsible doctor or physician.
- Staffs who are competent should be on duty or are available when needed.
- Safety principle of X-ray must be developed. The chief of medical imagery section must monitor the practice of this principle.
- Instructions on safety precaution methods should be given to staffs who work at the medical imagery section.
- Staff who work with substance or materials which emit radioactive ions should monitor and record the X-ray effect and report the result to the chief of section and keep record of the next substance.
- To enhance the highest quality of medical imagery service and to reduce the minimum danger caused by X-ray effect, the X-ray room and equipment should be regularly and timely checked by a capable staff member in accordance with the Ministry of Health's policy. This report should be filed:
 - Equipment, materials and safety of X-ray room is checked when new equipment is newly installed.
 - Frequently assess the function of machines and equipment for ensuring their regular function.
 - This checking of each equipment and material, and actions or measures taken to respond to any eventual gap must be accurately recorded with dates.
- There should be a manual on medical imagery practices, manual on the appropriate technical use of equipment and materials, manual on how to manage and maintain medical equipment of the Ministry of Health.
- If affordable, the hospital should have a mobile X-ray machine to use at the patients' bedsides.

3.3.1 Radiology

Radiology is the first option for the medical imagery. Image on the x-ray film or monitor provides image of lung, bone, kidney, gallbladder, stomach, abdominal, etc. X-ray with magnetic electronics can convert the ion radiation on the cells and causes danger for patient, staff and the public, if it is not properly used.

a. Infrastructure

Department/ward: The Radiology facilities should be situated on the ground floor and it is better to be attached to the emergency ward with wide path and easily accessed by wheelchair, trolley or wheeled-bed.

Department of Radiology has 4 rooms:

- **X- Ray room:** The location, size, equipment and materials should be appropriately arranged in order to ensure the quality of radiology services and protection for staff, patients and the public. The X-Ray room should meet the following criteria:
 - At least 18 square meters and each side of the room should be at least 4 meters
 - Ceiling is 2.5 meters high
 - Equipped with air conditioning
 - The walls and ceiling should be reinforced with lead or concrete according to the standards listed below:
 - Wall is 20 centimeters thick reinforced with concrete or 2mm thick reinforced with lead
 - Ceiling is 12 centimeters reinforced with concrete
 - Door is reinforced with lead of 2mm thick
 - The area for X-Ray machine must be situated in a safe location with at least 3 meters from the X-Ray and the stand is not affected by the direction of the radiation.
 - The X-Ray should not be facing to any places where people pass frequently or the waiting area.

- **Dark Room:** The room should be appropriately organized in order to ensure the safety of the staff and the quality of the film and the equipment. The room is only allowed for film developing, not others. The dark room should meet the following standards:
 - Appropriate size
 - An exhaust fan and a rotating fan or air conditioning to provide ventilation
 - The location should be safe from radiation
 - Proper lighting that will not negatively affect the quality of the film

- **Dressing Room:** The dressing room should be well organized in order to ensure the safety and privacy of the patients. The dressing room should meet the following standards:
 - The location should be safe from radiation
 - A changing screen in order to ensure the privacy of the patient
 - Appropriate dress in order to ensure safety from contagions

- **Office Room:** The office area is where physicians can view the X-Ray film and keep documents and materials. The office area should meet the following standards:

- The location should be safe from radiation
- Office furniture should include a desk, chair, cupboard and a computer system
- Should include an X-Ray viewer and magnifier

Medical Equipment, Materials and Instruments: The X-Ray machine should have 125 KV/250 mA capabilities with good condition and functions properly.

- Bucky table with grid
- Stand for Cassette with grid
- Grid with the following measurements: 24 x 30 cm, 30 x 40 cm and 35 x 43 cm
- Cassette and film: should have all sizes needed for radiology services
- Clips for hanging the film for each size
- One bucket for film development: 60 x 50 x 70 cm and divided into four different sections or an automatic film development machine

b. Procedure

- **The safety of equipment and materials:** Schedule for material testing and maintenance for monthly cleaning (film development equipment) and semi-annual cleaning (reflective surface) is not more than 24 months.
 - Calibration of x- ray unit
 - Calibrate of densitometer and sensitometer
 - Film screen contact
 - Test for lead integrity
- **Safety for health staff:** The maximum radiation exposure for a staff member should not exceed 20 mSv per year and not exceed 7.2 mSv per quarter (ICRP: 1991). The hospital should have radiology staff to replace any members that have exceeded the maximum levels of radiation exposure. The room must equip with:
 - Personal Dosimeter
 - Lead Apron
 - Lead Glasses
 - Lead Gloves
 - Thyroid Shield
- **Safety for clients and the public:** There must be
 - A red light at the top of the door leading to the X-Ray room to indicate that the X-Ray machine is in use.
 - The radiation warning sign on the outside of the room written in Khmer.
 - A warning sign to warn pregnant women to tell the X-Ray staff that she is suspected pregnant.
 - Pelvis Shield
 - Gonad Shield
 - Thyroid Shield
 - Lead Glasses

- **Safe waste disposal:** The radiology department must separate, manage and dispose waste properly according to the Ministry of Health Guidelines on Medical Care Waste Management in order to prevent any danger for humans and the environment.

3.3.2 Ultrasound

Ultrasound is an additional image but could not provide high quality image for viewing lung and bone; it is very important for ObGY, liver, kidney, pancreas, bile, and in the pelvic. The frequency of ultrasound is not affected on patient, staff and the public.

a. Infrastructure

Department/ward: There is no need special building for ultrasound section; it could be attached to the radiology section.

- The size of the room is at least 9 square meters and equipped with bed, desk, chair, cupboard and computer system.
- The room must be lighted appropriately, not too dark, too much lighted is difficult to work with patient with unclear image.
- The sink, containing soap, must be inside or close to the room.
- The toilet must be closed to the ultrasound room.

Staff: Ultrasound service must be operated by competent staff such as doctor who has a degree in Ultrasound and Medical Imagery recognized by the Ministry of Health or doctor with at least 5 years of experience using ultrasound equipment and undergoes 6 months of training in the specialty with recognition from the Ministry of Health.

Medical Equipment, Materials and Instruments: The ultrasound machine has different capabilities. The hospital must attempt to purchase high quality equipment that provides a clear image to aid in the proper diagnosis and wasting money on the poor quality of equipment.

3.3.3 Pharmacy

Every pharmacy of the public referral hospital must be managed by a pharmacist. The pharmacy is set-up for storage, management and distribute drugs in the hospital and estimating the need for drugs and supplies, make requests, management and ensuring adequate supplies of drugs and equipment in the hospital in order to promote the treatment and care for the patients and building confidence for the people. Drug management is to ensure:

- Effectively, safely and safe store drugs and medical materials with good quality.
- Timely and sufficiently dispense drugs and medical materials for both in-patient and out-patient.
- Properly record the flow of drugs in provided sample form.
- Apply an effective inventory control system and estimating the needs for drugs properly.
- Contribute to correct use of drugs in accordance with the Ministry of Health's guideline.

- Provide up-to-date information and instructions on drug use.
- Educate the patients on appropriate drug use.

Summary of Quality Assurance – Pharmacy

The pharmacy provides high quality of services by participating in quality improvement program of the hospital.

- Checking stocks when receiving is not only number counting but it is also part of the quality assurance system.
- The audit of drug items is to ensure that the drugs were appropriately distributed according to the need.
- Providing staff training on:
 - Proper drug storage
 - Use of stock review formats for daily/monthly drug flow and monthly/quarterly report of receiving and dispense drugs and the receipt
 - Use of cold-chain system including the usage and maintenance
 - Education and drug distribution to patient
- **Review of drug use:** the analysis and evaluation of drug use is to find mistakes in drug management and essential drug reactions.
- **Monitoring:** Regular updates on the situation of stock and use of drugs.
- **Assessment:** Timely assessment should be conducted to keep good use of drugs in stock and avoid out-of stock.
- **Countermeasures/activities:** When problems and ways for improvements are identified, countermeasures and actions have to be taken and documented.
- **Evaluation:** Effectiveness of measures must be evaluated for sustainable improvement by preparing action plan and summary of the outcome.
- **Feedback:** All results of actions must be regularly communicated back to staff.
- Documents of quality control must be kept appropriately and information of patients and staff must be kept confidentially.

a. Infrastructure

Department/ward:

- A facility should be at a size of 50 square meters for 50 beds and monthly drug supply. For 100 beds and monthly drug supply, a facility should be at a size of 100 square meters and 200 square meters for a quarterly drug supply.
- Drug should be kept in good and safe conditions. No sun light should go into), temperature not exceed 30 degree C, humidity resistance, dry room without condensation, and all these conditions can be monitored.

- Drug store must have some necessary conditions. For example, X-ray film must be kept in high temperature at 21 degree C, and open packages should be protected from humidity.
- There must be adequate shelves for storing drugs, and be easily reachable.
- The system must be properly arranged to ensure the security for drug services and drug storage all the time (for example, the windows with iron frames and the doors should be locked but be able to open when there is a fire).
- Separate receipt storage must be arranged and all packages of goods must be verified when they arrive.
- Hazardous and inflammable materials must be stored separately, preventing from fire.
- Fire extinguishers must be regularly controlled and kept in good condition, and all staff must be drilled on fire extinguishing.
- Addicted drugs should be kept in safety cabinet.
- There must be a facility and necessary materials for administrative, technical, and secretariat work in the pharmacy section.

Staff: A pharmacist who is responsible for preparing report of income, expenses of drugs and medical materials, and preparing request to the central medical store.

Medical Equipment, Materials and Instruments:

- There must be a separate refrigerator to keep vaccines, reagents, drugs. There must be thermometer to check and record the temperature. Freezing and high temperature can damage some materials in the refrigerator.
- Following the safety standard with maintenance service and advices from equipment expertise.
- There must be drug storage at IPD for keeping and dispense to patient.

b. Technical Procedure

Written policy and procedure on the process and operation of the pharmacy must be easily accessible and applicable by all relevant staff all the time.

- **Drug and medical materials supply system**
 - The supplies from CMS: All national and provincial-city hospitals will receive supplies of drugs and medical equipment from CMS every quarter as mentioned in the Drugs and Supplies Guidelines for referral hospital.
 - The supplies from OD pharmacy: All district hospitals will receive supplies of drugs and medical equipment from OD pharmacy every month as mentioned in the Drugs and Supplies Guidelines for referral hospital.
 - In the context of user fee system, the hospital must follow the regulation of user fee.

- **Procedures for receiving drugs and medical equipment**
 - A pharmacist or an assigned staff member who officially receive the drugs and medical materials based on schedule central medical store (for provincial referral hospitals) and based schedule of OD pharmacy for district hospitals.
 - Both receiver and provider must ensure that receipt is belonging to their facility. There must be counting number of cartons, checking drugs and medical materials in the cartons by separating good drugs and medical materials with the broken ones.
 - Both receiver and provider must record all the abnormal points such as opened boxes, loss of goods, actual quantity is different from a table of described items of goods. Not-requested or deteriorated goods, goods with close expiration dates should not be received unless they can be used and finished in a short period of time. They must report to their director of their institution to take countermeasure on the problems raised.
 - Finally, they must sign on delivery receipt and keep at least for five years.
 - The hospital's pharmacy must establish a committee to be responsible for making reports about the drugs and supplies received. (please refer to the Drugs and Supplies Guidelines for Referral Hospital).
- **Guideline for Managing Drugs and Medical Materials:** Based on this guideline, the pharmacy must properly manage drugs and medical materials to keep quality, safety, and efficiency of the drugs and medical materials. Technical procedure for managing drugs and medical materials are:
 - Storing by alphabet order (A.B.C....), type, level and national programs.
 - Implement the principles of First expires, first out (FEFO) and First in, First out (FIFO). FEFO: drugs and medical supplies that have a long expiration date should be shelved behind and those with a shorter expiration date must be shelved in front. FIFO: drugs and medical supplies that have no expiration date should be shelved by placing the first shipment received in front and the following shipment behind and so forth.
 - Spoiled drugs and medical equipment should be placed in cartons, labeled and stored separately.
- **Recording and reporting:** The Ministry of Health has created a sample of documents for the management of drugs and medical equipment for the pharmacies in public hospitals to assist them in recording the movement of drugs and medical equipment and other events.
 - The amount of drugs dispensed for OPD and IPD must be recorded daily and monthly card.
 - The amount of drugs from received from all sources, and dispensed and other information must be recorded on the stock card.

- The amount of received/dispensed drugs and any other problems relating to them should be reported in the monthly or quarterly report (please refer to the Drugs and Supplies Guideline for referral hospital).
- **Guidelines for the distribution of drugs and supplies to patients in the hospitals:** Pharmacy is appropriate place to distribute drugs and medical supplies to wards and patients. The pharmacy must organize and effectively and easily manage a distribution system depending on the scope of work of the hospital. The referral hospital can organize two structures for pharmacies 1) central pharmacy and dispensary pharmacy and 2) only one pharmacy (the hospital's pharmacy).
 - **Central pharmacy and dispensary pharmacy:** The dispensary pharmacy is the place to weekly distribute drugs and medical equipment to the IPD and OPD wards based on the DOS. The pharmacy staff has the responsibility to distribute drugs and medical equipment to the IPD, OPD and specialty patients by putting the drugs into a correctly labeled plastic bag as stated in the Drugs and Supplies Guidelines for Referral Hospital.
 - **Only one pharmacy (the hospital's pharmacy):** is the place for distributing drugs and medical equipment to the OPD and IPD in the hospital.
- **IPD ward** must pack drugs and distribute to each patient depending on the prescription and monitor the status of patient by 24 hours.
- **After-hours at the pharmacy:** To ensure the supply of drugs and medical materials 24 hours a day. The hospital must organize a system to supply drugs and equipment outside of administration hours. If the hospital has an adequate number of staff in the pharmacy, there must be pharmacy staff working during after-hours. If the hospital doesn't have enough number of staff, the hospital must organize to have staff members on duty during after-hours with clear responsibilities and system for drug and medical materials distribution:
 - Appointing staff to be responsible for drugs and medical materials after-hours.
 - Limiting amount of drugs and medical materials for after-hours
 - A place to distribute drugs and medical materials after-hours when the hospital's pharmacy is closed
 - The appointed pharmacy staff is responsible to distribute and educate patients on the use of drugs and record all expenses of drugs and medical materials and report to the chief of the hospital's pharmacy by the end of working shift.
 - Refilling of stock should be made by the hospital's pharmacist depending on the report submitted by the after-hours staff.
- **Storage Safety:** In order to meet safety standards, security, and good hygiene, the following criteria should be followed: adequate storage space, a shelving cabinet with a raised foundation, proper lighting and ventilation, sealed windows

and doors with locks and a sturdy roof on the building. The pharmacy should have a fire extinguisher and the staff in charge should be trained in the proper use of the fire extinguisher and no smoking rule should be strictly enforced.

- Must arrange drugs and medical materials and record the status of stock by using the stock cards.
- Record the sum of the IPD and OPD uses in the daily/monthly consumption report.
- The disposal of improperly labeled drugs and expired drugs should be done following the Ministry of Health guidelines.
- The pharmacy staff should be well-trained on how to store drugs, how to use the stock card, how to use the cold chain and how to properly dispense drugs.
- There should be a specific process registering requests, receipts, distribution, management and the control of addictive drugs (morphine, etc.).

CHAPTER 4: TECHNICAL SUPPORT AND LOGISTICS SECTION

4-1 Laundry

Laundry service is to provide clean uniform, physician's clothes, patient's clothes and other materials such as sheets for surgery, sheets for operation table, mat, and pillowcases, etc, with hygiene for staff and patient. The supply of laundry service is very important for provision of medical services with safe and providing confidence to medical staff for treatment and care and for the patient. Out of mentioned above, the laundry section must classify all above items to be purchased and counted quantity in stock and as well as estimate the requirement of each ward in the hospital. If the hospital intrusts and make contract with private laundry company or laundry services, it is necessary to define the responsibilities of the company or laundry services to comply with technical procedure as mentioned belows:

a. Infrastructure

Building/room: Laundry should be located at the ground floor and in separate building/room with good lighting and ventilation and it must be closed to water and electricity supply. Size of building/room should be wide enough to place washing machine. Having washing machine is the best choice but it is costly. Manual laundry requires more workers but it is still good option, particularly it is applicable for CPA1 and 2. There must be the followings in the laundry building/room:

- area for separating the dirty things or mixed with dirty things or not much dirty
- space for drying with good sunshine
- appropriate area which can place sewing machine
- ironing area

- space for keeping soap or detergents

Staff: There must be number of staff based on the number of beds and activities in the hospital and it also depends on the laundry facilities (manual washing or by washer).

- Staff in charge: to monitor and manage all activities in the laundry section such as recording and keeping in-out receipt, checking broken clothes which need to be replaced, etc.
- Staff: to classify dirty things based on type for washing, drying and ironing
- Staff: to receive and distribute
- Tailor: in case of having sewing machine

Medical Equipment, Materials and Instruments:

- Soap or detergents
- Automatic washer
- Sewing machine
- Materials for manual washing such uniform of physician and other dirty things
- A basket used for dirty clothes and clean clothes (after washing) with noticeable signs.
- Clothes hanger
- Pushing cart for receiving and distributing clothes
- An autoclave for sterilization of surgery clothes, if affordable
- Ironing table
- Desk for recording receipt/document

b. Procedure

- **Collection of dirty/stained things:** each ward in the hospital must classify those things based on the type (E.g. infectious ward) and properly package in plastic bag or basket to prevent the spread of infection
- **Washing:** to be careful, safe and clean in order to clean out virus from those things which requires for reusing. Regularly clean the floor and other materials in the laundry section. No smoking at the laundry.
- **Supply/distribution:** properly package, transport (do not use basket for dirty things to transport clean mat and pillowcase) and distribute to each ward in the hospital following the schedule.

4-2 Canteen and Nutrition

A referral hospital must provide food to patients properly following the subsidy of the government offered to each patient. A canteen must make clean and nutritious food for patients and staff. There must be a central canteen for patient’s relatives for dinning and cooking.

a. Infrastructure

Building/room: The location of canteen should be far away from the patient wards so that the fire cannot reach. It must be safe, hygiene, sunshine, good ventilation and far from dustbin and toilet, etc. and it must be closed to clean water or water sources. Canteen must be properly covered and managed for patient's relatives for dining or cooking.

Staff: Administrative staff of the hospital must check canteen daily in order to ensure the safety and hygiene or supply and maintain other necessary equipment.

Medical Equipment, Materials and Instruments: Canteen must have the following materials.

- Hand-washing pan with soap and a cleaning towel
- Stove with less expense and easy to use. Woods-used stoves are the most preferable ones but the chimney should be well arranged because woods firing in an open stove make a lot of smoke. Another option is a kerosene-used stove but it will be easily broken.
- Cabinet for keeping dishes, glass and other materials
- Broom, pan, and dustbin with cover
- Extinguisher

b. Procedure

- Food provided to staff and patient must be tasty and adequate.
- Staff of canteen must be hygiene and materials are also clean and food must be properly kept following the hygiene rules.
- Rubbish must be thrown in a dustbin with a close cover in order to cut down infectious insects and the dustbin should be emptied at least once a day.
- Measures should be regularly taken to control perilous animals such as cockroaches and rats.
- Compiling and implementing the safety countermeasure, particularly precaution of fire
- There must be schedule to educate patient's relative on hygiene for cooking, discussion on canteen hygiene, and maintenance of equipment/materials.

4-3 Central Store

Referral hospital of all level must have central store to keep equipment and materials for the operation of technical and administrative services of the hospital.

a. Infrastructure

Building/room: There must be enough electricity.

Staff: Staff who is in charge must manage all activities in the storage and guards.

Medical Equipment, Materials and Instruments:

- There must be wooden stool for storing goods and avoid storing directly on the ground that could damage the goods by moisture.
- There must be small and big size of extinguishers (more or less depends on the scope of storage).
- Storage keeper must record outgoing and incoming equipment/materials properly including inventory which requires to updating regularly.
- Store materials and equipment with hygiene and technical standard condition.
- Manage materials and equipment in the storage with good condition without damage or loss.

4-4 Management of Medical Equipment and Workshop

The Complementary Package of Activities (CPA) requires a set of essential medical and non-medical equipment and materials with good condition for a hospital to have fully functional. Maintenance and repair broken equipment and materials are very important which requires to having one workshop in the hospital.

Quality Assurance of Management

Medical equipment/materials management, maintenance and require should focus on the following points:

- Ensuring system for safe equipment installation and operation.
- Section of medical equipment management and maintenance and the workshop has goal to provide services and medical equipment maintenance
- Providing basic trainings for staff to understand how to keep safety, equipment usage, and maintenance which could be done by staff
- Preparing procurement plan and receiving medical equipment and spare-parts
- Preparing plan and regularly implement program of medical equipment management and maintenance

a. Infrastructure

Building/room: Medical equipment management and workshop of district-provincial referral hospital is important for the maintenance of medical and engineering equipment, and it must have:

- Stable electric power supply with a standby generator (generator used jointly with the hospital)
- Clean water supply with hot and cold water
- Drainage and sewage for waste water

- Gas compressor for cleansing equipment
- A very clean room with air conditioner(s) to ensure no dust and warm wet climate which may affect equipment

Staff: Staff must be capable to use and maintain equipment following the technical standard. For most of received equipment, the suppliers do not provide enough information about maintenance; therefore staff in charge of maintenance and technician (or expertise, if available) must understand basic knowledge on equipment installation and operation and should maintain it daily and knowing the first sign of irregularity or points of getting damage of the equipment.

Medical Equipment, Materials and Instruments: Medical equipment management and workshop must have several types of testing tools (such tools for special testing) tools to check proper functioning of the medical equipment and whether they are consistent with the standard and basic electric safety such as manometer and some testing tools to test whether medical equipment operating fully? Not all hospitals have been fully equipped with all varieties of equipment, some equipment only found workshops at provincial or national level.

b. Procedure

- **Safety:** Medical equipment management and workshop must concentrate on safety of staff and patient from radioactive reaction, dangers from electricity shock or biological supplies and other incidents etc. lay out of underground electricity wire for electric power supply to all wards is properly made (E.g. plugs with three poles at the good area which are suit to the socks that electrical equipment can be connected to soil mass. Adaptor, distributor and extension wire should not be used as they may damage underground wire which may affect heavily the safety of electric power. Staff training is very important to understand the safety of electric power, other problems and reporting things which may happen.
- **Repair and Maintenance:** Repair and maintenance affect importantly on the lives of medical and non-medical equipment. Equipment is not working (out of order) because of improper uses and inappropriate maintenance. The hospital needs to implement medical equipment maintenance guidebook (please refer to MoH Medical Equipment Maintenance Guidebook). Medical equipment management and maintenance is related to spare parts, capacity of the technical staff, budget and operational conditions (please refer to MoH Operation Manual for Medical Equipment Management Network). Ensuring appropriate maintenance by users in collaboration with maintenance technician to reduce damages.

Planning and Procurement: The hospital must prepare procurement plan in the annual operational plan of the hospital, even though procurement is under the

responsibility of the Ministry of Health. The Ministry of Health supplies directly most of basic medical equipment to the hospital including furniture and other supplies such as generator and computer etc.

- Some hospitals received second hand equipment from donors or NGOs, so the hospital must evaluate carefully about the advantages and disadvantages of the equipment before accepting. **(Please refer to Technical Guideline for the Acceptance of Second-Hand Medical Equipment)**
- The procurement of spare-parts is a major issue for both new and used equipment which need to be thought through in the process of procurement. When the procurement of the equipment is made, there must be an instruction for the uses of the equipment and information about the product in Khmer from the manufacturers. Any equipment will not be useful, if there is no appropriate instruction to users and/or no training for appropriate medical ability to gain maximum benefits. **(Please refer to Manual of Medical Equipment Management for the National & CPA3 referral hospitals and Operation Manual for Medical Equipment Management Network)**
- **Maintenance System:** The hospital must develop a systematic maintenance schedule with participation from all users in the hospital and technician in order to have regular maintenance for each equipment. **(Please refer to Manual for Basic Maintenance of the Ministry of Health)**

Reading documents and information of the products from the manufacturers must concentrate on the following points:

- **Step 1:** Use and keep the equipment in right condition.
- **Step 2:** Use general concept for operating the equipment and knowing the level of operating by regular direct physical observation.
- **Step 3:** Regular check by technician including inside observation with precaution in safe manner.
- **Step 4:** Replacement of worn out parts and refilling or changing engine oil and other materials.
- **Step 5:** Testing and adjusting the equipment regularly.
- **The final step** is repairing any equipment which is out of order or not working.
- **Program for maintenance:** Must focus on the following major activities:
 - **Major steps of the maintenance activities are:** regular checks, verifying of checking schedule, verifying of checking records, checking spare parts, checking safety and reliability.
 - **Making inventory of medical equipment:** All equipment of the hospitals which is under the maintenance services of the workshop must be recorded properly on card/list which includes: location, record of repair and

maintenance, name of factory and address, ID number (attached to the equipment for permanent identity) and detail description of the equipment including their specifications.

- **Scheduling stages for maintenance:** determining actual work, and number of stages for maintenance:
 - Cleaning more often the used equipment and less checking with not much used equipment.
 - Setting minimum standard: following manuals for maintenance provided by manufacturers but determination of the procedures for the frequency of maintenance could be done by the hospital according actual utilization in the hospitals.
 - Preparing schedule for maintenance and repair of medical equipment.
(Please refer to Manual for Basic Maintenance of the Ministry of Health)
- **Reminding system:** Staff in charge must be informed to fulfill the following duties:
 - Serial activities which are written on cards, calendar or in computer calendar.
 - There must be fixed date for next maintenance needed for each equipment.
 - Determine schedule for monthly and weekly maintenance.
- **Technical library:** Medical equipment management and workshop should have a library which composes of instruction/manual on assembling and replacing spare-parts with record of code number of related equipment, electronic data books and equipment accessories, and technical guidebook.
- **Monitoring:** after implementing the activities of maintenance program, regular periodic monitoring is needed to ensure clear registering and labeling.
- **Financial resource for maintenance:** the medical equipment management and workshop must prepare annual budget plan for the maintenance activities as defined and integrate into the annual budget plan of the hospital. Out of the annual budget allocated and disbursed by the Ministry of Economy and Finance via the Ministry of Health, the hospital should utilize the revenue from the user fee schemes for the maintenance and minor repair following the right procedure. However, to ensure high effectiveness of maintenance and repair, particularly emergent repair, making contract between Ministry of Health or PHD with private services (company who is skill in repairing services) is a good option.

4-5 Transportation-Ambulance

The hospital must have ambulance for emergency services, especially to refer patient or victim from health center, accident, or home. Beside the stand-by ambulance for the operation, the hospital must have communication system for emergency which health center and general population could communicate any times to call for transporting patient and victim timely for the emergency case. Both the driver and the ambulance must be available for 24 hours and they must

have direct communication with emergency ward which has regular radio contact from operation districts, health centers and the general population. The Ambulance should not be used for staff personal interest or any purposes which not related to health issues in/out of the operational district and province or it should not use for transportation of materials or oxygen, etc.

As mentioned in the above context, the hospital must have at least two working vehicles. One normal working vehicle is for general uses and another one is ambulance.

The ambulance should be equipped with:

- A communication radio, stretcher, stabilizing equipment (registered equipment)
- The ambulance must bear official number plate with name of the hospital in red color in Khmer and written letter "AMBULANCE" in English or French with contact phone number.
- The ambulance must be available for 24 hours, except when it is used for referring patient.
- The ambulance must have 2/3 of fuel reservoir with working fuel indicator.
- Regularly check of engine oil, wheels, lights, and important parts of the engine.
- Keep maintenance logbook updated. E.g. date and time of in and out, target and purpose of the operation, etc.)
- There must be a permanent driver at least one for an ambulance and a reserved driver. The driver(s) must have proper driving skills, driving license, good health and not alcoholic, good knowledge of traffic rules, knowledge of maintaining the ambulance and cleaning as well.

4-6 Communication System

Unit of communication system of the hospital must have permanent duty services for emergency care and can be contacted any times health centers and the general populations.

a. Infrastructure

Building and equipment: There must be arrangement for the communication between hospital and health center under OD coverage area. The voice should be clear the voice transmission of the VHF radio from high place up to 50 meter high or from the top story of the building or directly from one place to another without crossing stratosphere at 10 to 50 km from the earth. This kind of radio can be used for a distance of less than 100 km. Communication system arrangement must concentrate on the following points.

- Radio must be installed in or closed to the emergency room.
- Reserved spare-parts should be available for fixing, when communication equipment has problems.
- The telephone line is needed to install for the purpose of administrative communication with the OD Office, the Provincial Health Department and NGOs.

b. Procedure

- There must be at least one VHF radio which turn-on permanently with the same frequency level with other health facilities (health centers and other hospitals), telephone and vehicle logbooks for recording the movement of the ambulance.
- The VHF radio should be well installed with thunder protection.
- There must be maintenance and repairing system. In case something wrong, it must be fixed immediately.
- There must be skills staff to provide advice and instruction to health centers, in case staff of health center may need help.
- Telephone must be controlled and used appropriately to reduce unnecessary expenses.
- The hospital should have communication via email. In such a case, telephone line must be a separate line from the emergency contact line, so that communication via email and communication via radio will be not interrupted.
- Communication means for emergency is not allowed to use for personal works and out of the purpose.

CHAPTER 5: INFRASTRUCTURE

5-1 Building

Hospital construction, installation of medical equipment and materials, their function and maintenance, should all be done with the goal of patient care, safety including physical and mental comfort of patients, staffs, and guests. Referral hospital of all levels must develop short-term and long-term infrastructure development plan and implement step by step based on the availability of adequate budget and human resources.

The implementation of infrastructure development plan must be done the following points:

- The construction must be in the compound of a hospital and legally belong to the hospital with land entitlement recognized by local authorities prior to any construction.
- Renovation/expansion of the building must be made based on the master plan of the hospital and take into account of water supply, sewage system, toilets, etc., that could be accessible by staffs, patients and handicap.
- The facility plan must take into consideration of natural disaster.
- The location of the facility for infectious diseases should be away from the others.
- The facility plan must be conducive to movement and transportation of patients by using stretchers, wheelchairs, by foot (grounds, corridor, door size, stairs or ramps should all take into account of this issue).
- Plan of building, electricity supply, water supply, sewage system, location of installed machine and medical equipment, record of construction, maintenance manual of building, equipment and material must properly keep.

- Regularly review life-span of equipment and materials, cost, utilization of building, equipment and materials, and prepare plan for renovation, expansion or replacement and budget plan, if necessary.
- There must be separate room for the prisoner who access for health care.
- Signs with international symbols indicate where each section is and its function such as pharmacy and emergency sections must be located at the converging point of a hospital and close to the pathway that is easily seen.

5-2 Electricity Supply

Electricity system in the hospital must design well in according with the technical standard and must be an integral part of a hospital plan.

- The standard level for electricity supply in Cambodia is 220 voltages and 50 Hertz for a single-phase current or 380 voltages and 50 Hertz for three-phase current. Most of equipment can be used at 10% more or less than this standard.
- Instable electricity supply (the current goes up and down) is the factor that caused equipment easily broken.
- A hospital can use electricity energy supplied by the state or private companies or its own generator and must have other sources of electricity supply beside routine supply for emergency and for the function of key equipment.
- Generator is a substitute power sources in case of electricity blackout if it uses electricity from the central current or there must be a complete set of generator system or the electricity network from the central if it uses electricity from the neighboring area. This complete set of generator system must have the capacity to provide at least 50 to 60% of the overall hospital needs of energy so that it can operate the minimum services.
 - The capacity of the generator must be adequate to respond to the hospital needs if it totally depends on the electricity energy from the generator for a long run or in case of the closure of the main electricity power supply.
 - Too small generator will stop when using the equipment that requires strong energy.
 - Bigger capacity generator will consume more fuel, making higher expenses too. There must be one staff to regularly maintain the generator and in charge of shutting down and turning on the electricity.
- The energy from the solar power can be used for a refrigerator, water pumping machine, and light when emergency, but the equipment and its maintenance cost is high.
- New electricity equipment must be inspected to make sure that they are consistent with the standard before using them.
- Appropriate installation of electricity energy system will enhance safety and smooth function (E.g. pediatric facility, electricity plugs should be closed by safety cover in order to prevent electricity shock).
- There must be lamps and/or other energy generating equipment for replacement during electricity blackout.

- Emergency sign system should be put in bath rooms and patient wards and be regularly inspected and maintained.

5-3 Water Supply

Water is the important need for running a hospital, supply of clean, drinking, and safe water will contribute to enhancing the patients' well-being, reducing risks of infections and the spread of other diseases such as dysentery, ulcer of intestines and other waterborne diseases. Unclean water affects the analysis result of laboratory. Water used in the health facilities must be clean with no infectious disease, and poisonous contacts such as calcium, magnesium, manganese, iron, and too much non- carbons with no color, odorous, taste, metal substance and lower temperature.

Policy and procedure for Water Supply

- Water must be supplied 24 hours a day both inside and outside of the building including toilet, bathroom, kitchen, laundry for the patient and their attendant.
- Water must be supplied 24 hours a day for staff, medial and non-medial ward (E.g. laboratory and Operation Theater).
- There must be washing pan at staff room, IPD, toilet, bathroom, and kitchen.
- One person needs minimum 60 liters of water per day. A hospital with 100 patients, 200 attendants and 50 staffs will need at least 21,100 liters per day. Moreover hospital needs 9,000 liters for permanent reserved water for watering lawns and extinguishing fire.
- Water supply system includes:
 - **Water supply system:** connectable with public water supply system. If there is no public water supply system, the hospital can use water from other sources such as well or raining water. Underground water from the depth of 25 meters is safe to drink but the wells should be deeper than this in some regions to ensure the safety for drinking.
 - **Disinfection system:** There must be one or more reservoir to filter solid substances and reserve water for filtering before distribution. Using chemicals is to purify residue from the water. Purifying the residue, changing ion and filtering membranes are to take out all particles. Killing virus by using chlorines.
 - **Distribution system:** There must be one or more reservoir holding post-disinfected water connected with pipe system by pumping water from the reservoir to the target place for using. In general, the reservoir could store water only 36 hours for using in the health facilities. Concrete basin constructed in the building usually leaks, it is recommended to use plastic basin to avoid leaking.

5-4 Sewage System

Medical waste looks similar to the general wastes in the city but medical waste could cause dangers such as virus, chemical, medicine, radioactive, and contains of other dangerous substances.

The effectiveness for principle of medical waste management is to limit throwing of the dangerous liquid waste in the public sewage system. There are some methods should be used to

manage liquid waste such as connecting to the public sewage system which requires to conducting post-infection or keep it in the filter basin.

(Please refer to Guideline on Health-Care Waste Management)

5-5 Incinerator

Burning is one of the best choices to manage wastes, particularly infectious waste and sharp waste. Each hospital produces medical waste every day. In the developing country, one patient daily produces 0.3kg waste. So each hospital must have incinerator. *(Please refer to Guideline for Infection Control and Prevention for Health Facilities)*

5-6 Placenta Pit

Placenta from the delivery is a physical waste which requires proper management. Burying in the compound of hospital and allowing relative to bring back home is not a solution. Each hospital must have placenta pit and the placenta must be throw into the pit. Construction of pit must follow some technical standard in order to protect water leaking to the underground water. *(Please refer to Guideline for Infection Control and Prevention for Health Facilities)*

5-7 Hygiene System/Toilet

Hospital sanitation system must be appropriate and satisfactory and all wastes and sewage must be best managed and the system must be in the building plan of the hospital.

Toilets, bathrooms and equipment

- Water-used toilets are preferable because it can prevent from infectious insects, smell and be easy to use (water use is 40 liters a day). There should be three types of toilets—men, ladies, and handicaps.
- If toilets cannot be used because of lack of water, deep latrines should be used.
- It is recommended to build a squatting toilet because it is steady and easy to clean.
- Water running tap and soap should be close to the toilet/bathroom with a hand-washing sign for both patients and staff.
- It is useful to use toilet paper, avoiding using other materials that can obstruct the toilet or sewage system and it will cost more to repair it.

Policy and procedure

- There must be enough toilet/bathroom for patient, attendant, guest and staff.
- Toilet and bathroom must be clean regularly.
- The hospital must manage toilet and bathroom appropriately for the 24 hours service.
- Cleaners should be told not to put antiseptic solution in the toilet pan because it will stop the degradation process leading to getting stuck.
- Staff should advice patients and new staff on the use of the toilet/bathroom and personal hygiene.

5-8 Mortuary

a. Infrastructure, Equipment and Material Resources

- Mortuary must be located on the outskirts of campus of the hospital.
- There must be access road by vehicle, worker and light must be available day and night time.
- If mortuary is far from patient ward, there must be concrete road for a safe moving during the rainy season.
- If possible, mortuary should be equipped with air conditioner, equipment and materials to operate the dead body and keep microorganism in proper manner.
- There must be hand-washing pan and soap in place.
- There must be an incinerator for burning patient's physical body, and used materials at the mortuary.

b. Policy and Procedure

- Physician must inform the responsible medical doctor(s) about death and confirm them that the patients actually died.
- After the body has been examined and documented, the body should be covered and taken immediately to the mortuary where the body is kept in proper manner to avoid other patients have anxiety and depress.
- There must be workers available for carrying, moving and transport bodies.
- If autopsy is needed, there should be consent from the closest relative(s) of the body, it is better in writing, and it should be done by the examining committee of the hospital with laboratory team.
- In case that infectious is suspected, then measures to prevent the spreading of microorganism should be taken by washing hands, isolating contacted persons if necessary, disinfecting mat, pillow cover and clothes and other things which touched with the body (refer to guideline of the Ministry of Health).
- Removed organ of the body must be taken immediately to mortuary to burn out.

Summary of Quality Assurance – Mortuary

The mortuary should be at standard acceptable to both hygiene principle and dignity of the body and generally out of attention of other patients.

* Issues relating to mortuary must be identified and improvement must be made at the end of receiving or delivering services.

CHAPTER 6: HOSPITAL MANAGEMENT

The hospital must organize management structure including the assignment, role, and clear responsibility for all levels of staff in the hospital starting from the management level to staff of each ward in order to ensure high effectiveness of the utilization of both human resource and finance by aiming at enhancement of health care services with quality, effectiveness, and equity for patient, and general populations, especially the poor and vulnerable group. Organization structure arrangement must follow the basic regulations, policies, and guidelines of the Ministry of Health.

6-1 Hospital Management Structure

The management of the hospital should have one director and one or more vice-directors dependent on the hospital's workload. Each vice-director should be appointed for the main tasks to be in charge of administration, planning and finance, technical treatment, nursing, training, and research. The hospital should also establish committees to assist the management of the hospital on specific task such as technical committee, health financing committee, hygiene, infection control and waste management committee, disease outbreak and disaster response committee, rational drug, equipment and material use committee, etc.

The hospital also can establish some working groups such as blood management and safety working group, medical equipment maintenance working group, Annual Operation Plan (AOP) working group, drug injection safety working group, based on the actual needs of the hospital.

Defining roles and responsibilities of each committee must be not duplicated, especially the duplication of committee's function and responsibilities as stated in the hospital management committee or organization chart of the hospital (office or ward) to avoid the inconsistency (conflict of interest) during the execution of role and function of each committee and working group.

Beside of the defined roles and tasks, all committees and working groups must its own program/schedule including monthly and quarterly meeting as scheduled.

6-2 Organization Structure

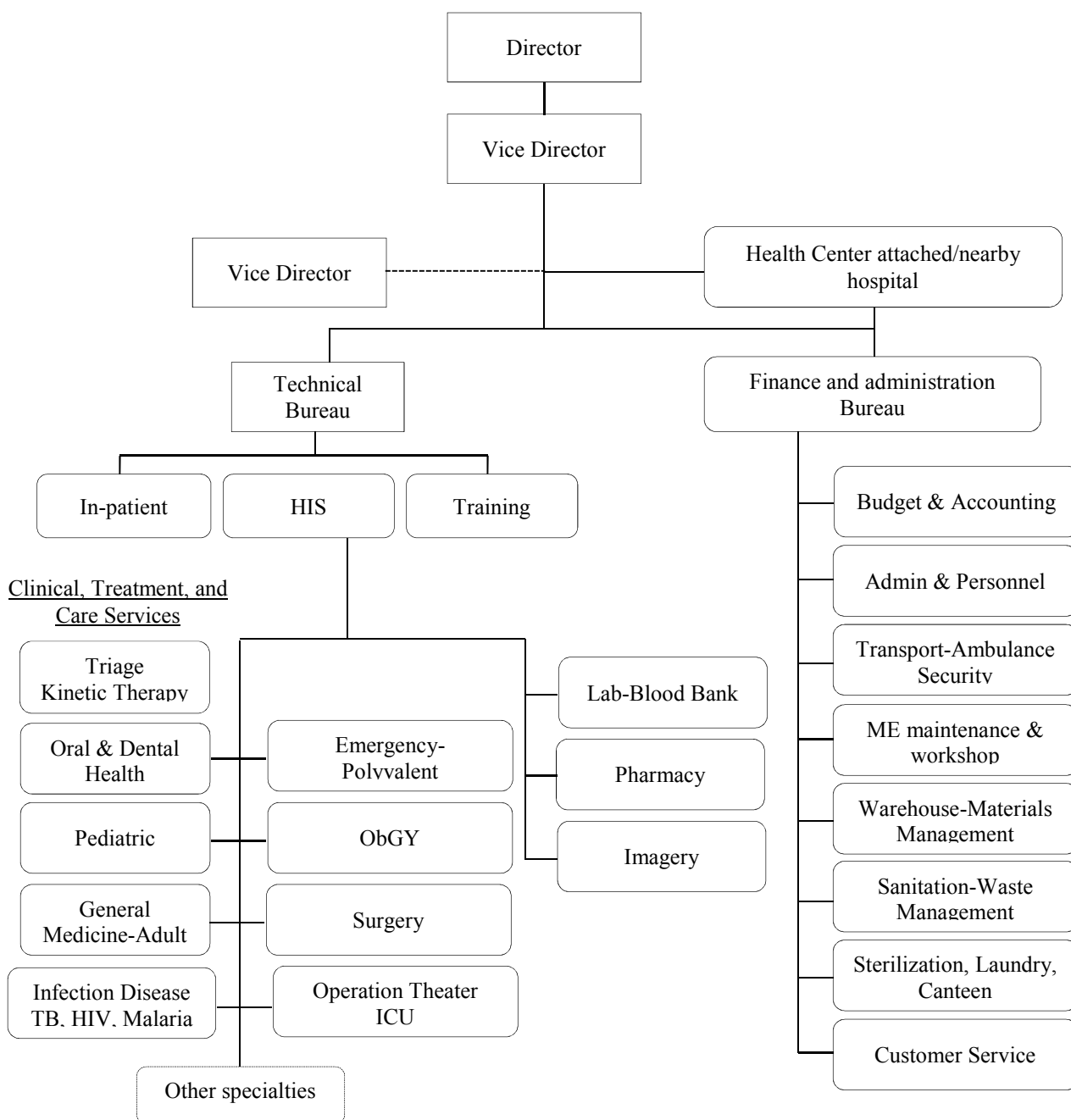
Each referral hospital must have a clear organizational structure by establishing organization chart to identify the ranks of staff in the hospital management structure. An organizational chart must show lines of order, responsibility and report between the management team and officials of each office to all staff of all wards or sections. Each ward or section must have its own organizational chart and the hospital should have one for all. The organizational chart should be displayed where it can be seen by all staff.

The chart below shows a way of organizing a structure in a referral hospital. The template should be used to adapt to a specific organizational structure in a particular hospital. Organizational chart may change over time and needs to be updated after significant structural changes or hospital reform.

Each ward or section should have their detailed organizational charts in order to give further information. For example, there should be one specific organizational chart for out-patient & paramedical services, and another organizational chart for in-patient services, etc., in which names of managers, assistants or advisors should be included. The detailed organizational chart should indicate clearly for example that a chief of ward and a chief of unit (director of department) who manage the ward.

Chief of unit of district referral hospital must be nominated by the director of operational district which have written request from the referral hospital.

Picture 2: Sample Organizational Chart of CPA 3Referral Hospital



6.3 Role and Responsibilities

6.3.1 Roles and Responsibilities of Hospital Director

a. Nomination and Responsibilities

- Director of the national hospital must be appointed by Sub-degree and be responsible to the Minister of Health and be responsible for all staff of the hospital.
- Director of provincial/municipal hospital must be appointed by the order of provincial/municipal governor and be responsible to the director of provincial/municipal health department and be responsible for all staff of the hospital.
- Director of district referral hospital must be appointed by the order of provincial/municipal governor and be responsible to the director of operational district and be responsible for all personnel of the hospital.

b. Qualification

- Have high diploma of health administration, or business administration, or medical and with 5 years experiences in administration and management
- Have basic know of hospital management, health system, strategic plan, accounting, budgeting, health information technology, law, code of conducts, and epidemiology.
- Have skills of public relation and personal relation.

c. Roles and Responsibilities

The hospital director is responsible for all operation and management with assistance from the vice directors. The hospital director should understand the needs of patient/client, staff and expert/technician and as well as the needs of community. Moreover, the hospital direct must understand health technology (including nursing care).

The responsibilities for budget, staff, health care services (care and treatment), materials, equipment, procurement, staff training, and public relation are an end-up responsibility of the hospital director, even though vice directors directly manage one those or all. The hospital director must have job description which described roles to be implemented. The leadership of the director is an important part for the successes of the function of hospital, particularly provision of services to patient/client. A successful manager should:

- be serious and be a model for other personnel
- take into consideration all the feedback and idea of staff before making decision.
- be clever in problem/conflict solving
- have good relation, friendly and serious behavior
- consider the common benefit and transparency of the hospital
- consider the benefits of all staff based on work accomplishment
- have good relation and collaboration with all levels of health facility, local authority and community

6.3.2 Roles and Responsibilities of Vice Hospital Director

Vice-director is the assistants of hospital director, so hospital director must assign task and duty to the vice director to be in charge or responsible for. Vice director must be responsible to hospital director and be responsible for all personnel/official of the bureau/unit who in charge of. Each vice director must have job description as the same as hospital director.

Vice director could be assigned to be in charge of some major functions based on the organization chart of the hospital management structure.

- **Vice director who is in charge of administrative affairs, staff and finance:** manage the operation of administration and finance bureau and other units under this bureau.
- **Vice director who is in charge of technical affairs:** manage the operation of technical bureau and other units under this bureau.

Technical functions of the national hospital and CPA3 hospital have more working burden than administration, staff and finance, so hospital director could assign vice directors to be in charge of each unit if there are more than 2 vice directors.

- **Vice director who is in charge of administrative affairs, staff and finance:** manage the operation of administration and finance bureau and other units under this bureau.
- **Vice director who is in charge of medical services:** manage the operation of medical wards and others under the technical bureau.
- **Vice director who is in charge of paramedical services:** manage the operation of paramedical services/supporting services under the technical bureau.

6.3.3 Roles and Responsibilities of Chief of Department

Chief of department is responsible to the hospital director and all staff of the department.

Major responsibilities of the chief of department are:

- **Treatment/nursing:** to ensure smooth and regular procedure for treatment and care to all patients with good quality and effectiveness.
 - Assign appropriate duties to each staff based on the their capacity and skills
 - Implement the protocols of health care
 - Assess the quality of health care
 - Monitor regularly the status of patient in the period of hospitalization
 - Arrange, manage and coordinate to refer patient
 - Coordinate the cooperation between physician, nurse, chief of ward, patients and their relative
 - Manage the internal environment such as sanitation, clean equipment and material, etc.
 - Monitor and evaluate the internal activities and performance
- **Management of personnel, training and information sharing**
 - Create culture of team working

- Solving problem and inactivity of staff
- Create initiative to encourage and improve staff
- Assess the staff's achievement
- Sharing information, report and other documents of the hospital to all staff
- Develop training plan based on the specialty and skill of department and conduct the follow-up after the training
- Manage works related to clinical practices of the student in collaboration with training institutions
- Participate in the internal and external meetings
- **Management of financial resources**
 - Collaborate with other department to develop quarterly and annual plan for the needs department based on the activities of the department
 - Focus on the utilization and maintenance of major medical equipment and material and prepare the request for maintenance
 - Manage stock (drugs, equipment and other consumables) and to prepare the request, dispense and check
 - Manage and taking care of all properties in the department

6.3.4 Roles and Responsibilities of Chief of Nurse

Chief of nurse is responsible to the hospital director and all personnel of the department. Chief of nurse must have clear job description and duty. The responsibilities of the chief of nurse are:

- Nursing care:
 - Instruct for the implementation of the National Protocol on Nursing and monitor the appropriate implementation following the instruction of the protocol
 - Monitor the quality of nursing care
 - Supervise, coordinate and monitor the performance of nursing staff according to the job description
 - Monitor the status and progress of patient in the period of hospitalization
 - Participate in the study and research on issues related to hygiene and infection prevention in the hospital and bear on the appropriate method for better nursing care
 - Communicate and collaborate with all levels of nursing team
- **Management of personnel, training and information sharing**
 - Participating in the discussions with hospital management committee to design role of nursing staff
 - Participating in the assessments for awarding to encourage staff
 - Participating in the assessments of staff's achievement
 - Monitor daily work of chief of ward and how to maintain the equipment, manage inventory stock and prepare the request

- Develop manuals for training program on nursing care for staff, clinical student and encourage the chief of ward to assess the outcome after the completion of training
- Develop protocols of nursing and disseminate to each ward for the implementation
- Collect and share necessary information to staff and patient
- Participate in meeting with committees/working groups in the hospital

6.3.5 Roles and Responsibilities of Chief of Ward

The chief of ward is responsible for day to day management of the ward related to technical nursing care, communication, training and administration. Chief of ward must have clear job description and duty. The major responsibilities are:

- Participate in the morning meeting to provide an effective hand-over of information
- Assign tasks to staff based on their skill levels
- Implement protocols to be used in the ward
- Participate carefully in providing patient care and treatment to improve the daily status of patient
- Assess the quality of care provided to the patients
- Educate patients and the patient's caregiver on hygiene and the proper use of the toilet, meals and health equity fund
- Provide training to staff
- Participate in the training development plan with the Chief of Nurse and Regional Training Center
- Coordinating and facilitating working of staff and national programs

The primary managerial responsibilities are:

- Implementation of instructions introduced by the Chief of Nurse
- Assist in making job description
- Make the schedules for staff members
- Developing action plan
- Assist in performing tasks on behalf of staff when s/he is absent
- Monitoring professionalism such as wearing uniforms etc.
- Cooperate with other ward chiefs, committees of other staff in the hospital
- Know and understand well how to use and maintain equipment in the ward
- Ensuring good drug management and rational drug uses
- Monitor and educate staff and patient on waste sorting and management
- Regularly remind staff about the professional ethics
- Insuring good management of inventory, drugs, equipment and materials
- Manage patient records, correspondents, and completing other documents
- Timely prepare and submit monthly, quarterly, semi-annual, and annual reports

6.3.6 Hospital Management Committee

a. Purpose

The establishment of hospital management committee is to ensure effective management and appropriate response to the needs of the provision of health care services.

b. Roles and Responsibilities

The responsibilities of hospital management committee are:

- to ensure the successful function in order to achieve hospital's goal as a model
- to ensure the resources and equipment of hospital are effectively used
- to ensure the high quality of treatment and care by developing quality improvement program and establish mechanism to regularly assess the quality
- to ensure that official/staff seriously complied the profession ethics
- to ensure that the operation complied with the Standard Operation Procedure and good governance
- to develop and update the strategic development plan and operational plan and ensure that all decision making and activity implementation are carried out based on those plans
- to monitor and evaluate the implementation of plan, program and Standard Operation Procedure responded to priorities set and targets of the hospital
- to mobilize technical and financial resources to develop the hospital, particularly quality improvement for both treatment and care

c. Membership

- Hospital director
- Vice director
- Chief of Administration, Personnel and Finance Bureau
- Chief of Technical Bureau
- Chief of Laboratory
- Chief of Pharmacy
- Chief of Health Financing Committee
- Chiefs of other working groups (such as clinical, quality improvement, safe blood, infection control etc.)
- Chief of Nurse
- Chief of Midwife

6.3.7 Technical Committee

a. Purpose

The establishment of technical committee is to ensure the quality and safety of treatment and care and the effectiveness follows the guidelines, national protocols, and professional ethics.

b. Roles and Responsibilities

- Instruct physician and staff how to use and implement the newly updated guidelines and national protocols
- Analyze the important health data and indicators such as average bed occupancy rate, death rate, etc. then identify the priority, challenge and countermeasure
- Assess the requirement of resources (personnel, budget, equipment, material, and technology) and support from other departments in order to ensure the effective and efficient operation of clinical services
- Lead the clinical research to strengthen clinical procedure for the quality based on medicine-based evidences and conduct case study on morbidity and death in the hospital
- Develop programs for quality improvement, infection control, and monitor the implementation
- Evaluate trainings in the hospitals and organize and implement the training program to improve capacity of staff
- Development feedback mechanism from patient of the quality of health care service and monitor the satisfactory of patient/client
- Facilitate the clinical practices for students in order to ensure the quality of the training for human resource development
- Enhance the collaboration between technical department and other departments in the hospital

c. Membership

- | | |
|---|------------|
| • Vice-director of hospital in charge of technical services | Chair |
| • Chief of technical bureau | Vice-Chair |
| • Chief of department (all departments) | Member |
| • Chief of nurse (nursing) | Member |
| • Chief of midwife | Member |

6.3.8 Health Financing Committee

a. Purpose

The establishment of health financing committee is to ensure the effective and transparent management of hospital's resources.

b. Membership, roles and responsibilities

Roles and responsibilities of the health financing committee must comply with Chapter 5 "management and implementation of health financing at the health facilities" of the Guideline for Health Financing Management of the Ministry of Health.

6.3.9 Working Group for Clinic, Drug and Therapeutic

a. Purpose

The establishment of Working Group for clinic, drug and therapeutic is to ensure that quality and safe drug supply to use in the hospital which is an important basis for the provision of quality and effective services.

b. Roles and responsibilities

- to ensure the rational use of drugs (essential drugs) follows the national guidelines and protocols by regularly select and review documents for treatment, care and prescription order and providing feedback to physician or health center
- to estimate the quarterly and annual requirement of drugs, materials and reagents (type, quantity and estimated cost) and submit to finance bureau/procurement bureau to integrate into the annual budget plan and procurement plan of the hospital in order to purchase and supply
- to participate in supplying-receiving drugs, materials and reagents from the central medical store or supplier to ensure appropriate supply, dispense/purchase based on the defined criteria such as type, quantity, and quality (especially the expiration) and source of products.
- to collect and analyze information of the usage of drugs, materials, and reagents by connecting to the trend of use which is a basis in estimating the requirement of drugs and evaluating the efficiency of use and effectiveness of therapeutics.
- to conduct research and disseminate new information about banning of pharmacology or should be used with high attention etc. in order to ensure the effectiveness and safety of patient.
- to regularly assess the essential drug list and could request the national committee and the Ministry of Health for reviewing and approval for the integration of new drugs which is necessary to be listed in the essential drugs list.
- to manage the storage of drugs, materials and reagents in the warehouse and pharmacy including drug packaging for the patient
- to develop and carry out trainings for staff/physician in the hospital or health center to enhance capacity of therapeutic and care.
- to support and cooperate with supervision team of drug use from central level, provincial/municipal and operational district
- to conduct 30-60mn morning meeting to review activity report of the management of clinic, drug and therapeutic
- to conduct 90-120mn technical meeting on clinic and therapeutic one time to two times a week.

c. Membership

- The chief of the technical office/technical section (OD hospital) Chair

- | | |
|---|------------|
| • Chief of pharmacy | Vice Chair |
| • Chief of detail pharmacy | Secretary |
| • Doctor/specialist doctor | Member |
| • Chief of each ward | Member |
| • Chief of health center (health center nearby OD hospital) | Member |

6.3.10 Working Group for Transfusion Control

a. Purpose

The establishment of this working group is to ensure the blood transfusion service in the hospital and be response to the quality and safety standard as defined in the national policy and the guideline on the use of blood and product of blood. For detail, please refer to the national infection control policy.

b. Roles and responsibilities

- to ensure the quality and safety of use of blood and blood product in the hospital responded to medical conditions or clinical requirement therapeutic and care.
- to ensure the safety for staff and patient which could be caused by the transfusion of blood and blood product.
- to ensure the sufficient and timely supplies of blood and blood product requested by each clinical ward.
- to ensure that there will no blood selling in the hospital for both blood and blood product supplied by the national blood bank and blood donated by patient's relative. Receiving blood from professional blood donors is prohibited.
- to disseminate, train and educate staff about the principles and technical procedure of the use of blood, transfusion, and management of patient's blood.
- to monitor the use of blood and blood product including storage of blood and blood product in proper manner follows the Standard Operational Procedure.
- to review incidents of severe adverse effects or errors associated with transfusion and take immediate action to solve the problem. If necessary, it should submit the report to the national committee for the use of blood for clinical purpose in order to get feedback and recommendations for the hospital or other relevant institutions.
- to conduct 60-120mn monthly meeting to review clinical report of blood and blood product.

c. Membership

- | | |
|---|------------|
| • Vice hospital director | Chair |
| • Chief of transfusion or staff in charge (mainly at OD hospital) | Vice Chair |
| • Physician or specialist doctor | Member |
| • Chief of laboratory | Member |
| • Chief of pharmacy | Member |

- Staff of pharmacy Member
- Nurse Member
- Midwife Member
- Administrative staff who is in charge of patient's record Member
- Staff of finance bureau Member

6.3.11 Working Group for Infection Control

a. Purpose

The establishment of working group for infection control is to ensure the protection for staff and patient/client and the public from infection by preventing and managing the epidemic in the hospital. The main measure is to keep hygiene.

b. Roles and responsibilities

- to instruct physician/staff related to the implementation of infection control, other strategies for the follow up, prevention and management of care which is a challenge for the infection and drug resistant that threat the prevention and treatment of bacteria, parasite, virus and bug.
- to develop infection control and prevention plan including the training plan and integrate into the AOP and as well as budget plan.
- to monitor the implementation activities of infection control and prevention of each ward in the hospital such supervise and monitor the daily patient care and assess the infection situation in the hospital.
- to follow up the hot news and disseminate it to staff/official about infection and disease outbreak in order to raise awareness and preparation to timely and effectively respond, especially big scale of disease outbreak.
- to provide training on program for infection control and prevention to health staff at least one a year.
- to ensure sufficient supply of medical equipment, materials and hygiene materials such as syringes, needles, safety box, soap, disinfection solution, plastic bags, rubbish bins, etc.
- to ensure the necessary infrastructure for the health facility including running water, toilets, sewage system and electricity.

c. Membership

- Vice hospital director Chair
- Chief of Technical Bureau Vice chair
- Chief of Nurse Secretary
- Chief of Administration and Finance Member
- Chief of each clinical department Member
- Representative from clinical microbiology Member

- Chief of pharmacy Member
- Chief of sterilizing service Member
- Chief of housekeeping Member

6.3.12 Working Group for Quality Improvement (QI)

a. Purpose

The establishment of this working group is to ensure that the provision of services with quality, effectiveness and safe for the patient.

b. Roles and responsibilities

- to coordinate and support the establishment of the QI working group in the hospitals in order to develop QI plan.
- to support, encourage and initiate all QI working group in creating and implementing QI plan in their own facilities.
- to analyze and find the critical problems in relation to the health care services in order to promote QI.
- to encourage all hospitals and health centers in their province-city for regular self-assessments.
- to provide technical support and resource mobilization for implementing the QI plan.
- to collect and manage policies, strategies, protocols, guidelines, regulations and standards concerning QI.
- to create an approach to improve motivation for the success of QI.
- to regularly monitor, assess, resource mobilization, coordinate for external assessments on QI and compile recommendations for the National QI Working Group.
- to prepare report on QI in the hospital and health center every three months.

c. Membership

- Chief of Provincial-Municipal QI: PHD Director Chair
- One Vice Chief of Provincial-Municipal QI: Vice Director of PHD Vice-Chair
- Member of Working Group for Provincial-Municipal QI: Chief of technical bureau and other bureau of PHD, all OD Directors, Directors of Provincial-District referral hospitals, donors who are supporting health in the province-municipality.

6.3.13 Working Group for Nursing Care

a. Purpose

The establishment of this working group is to ensure the quality of nursing care. The Working Group for Nursing Care: Chiefs of wards, chiefs of departments and the chief of nursing of the hospital.

b. Roles and responsibilities

- Participation in patient care
- Evaluation of quality of patient care
- Patient education
- Training for staff, students, nurses, and midwife
- Coordination and assistance to national program

Cooperation with management section of ward includes:

- Assistance for developing job description
- Development of work plan
- Assistance for staff's work
- Monitoring of professional activities such wearing uniforms etc.
- Cooperation and communication with other ward chiefs, other committees of the hospital and other staff
- Assurance of management of medical equipment supplies in good condition and hygiene
- Management of patient records, correspondents, and other documents
- Arrangement and submitting monthly, quarterly, semi-annual and annual report

c. Membership

- The head of the working group for management and care of patients is a nurse or midwife who has been trained.
- Chiefs of wards, departments etc.

d. Appointment of members

- The head of the working group for management and care of patients is a nurse or midwife who has been trained.
- The leader and members must be appointed by the hospital director.
- Any member has rights to request the hospital director to appoint any necessary member(s).

e. Number of meetings

- The group convenes monthly meeting for 60-120 minutes to monitor and evaluate the infection control program.

6.4 Public Relations Unit

a. Purpose

The public relations unit should be created in all hospitals in order to facilitate a good relationship between hospital staff and patients.

b. Roles and responsibilities

- to provide necessary information to patient/client when they access for health care services at the hospital, and especially for the patient/client who came for first time by directing the location of each department, financing schemes, office of Health Equity Fund, and Community Based Health Insurance, etc.
- Explain to the client the hospital's health financing schemes, user fees, Health Equity Fund, and other social health funds.
- to explain to the clients anything they do not understand. If the staff member does not know how to answer a question, he/she needs to ask help from the Chief of Administration.
- to accept and record any complaints from the clients and report to the Chief of Administration every day.
- to collect and receive feedback from clients on their satisfaction.

c. Membership

This unit should have 1-3 staff members based on the level of hospital. They can be civil servant or contracted staff who should meet the following criteria:

- Familiar with the function of all departments of the hospital
- Familiar with all the shift duties in the hospital
- Familiar with all health financing schemes including health equity fund and other social health funds
- Skillful in communication with clients and be personable

6-5 Sub-Committees

6-5-1 Sub-Committee for Discipline and Regulation

a. Purpose

This sub-committee is established to strengthen the implementation of professional ethics among the health staff of the hospital.

b. Roles and responsibilities

The roles and functions of the sub-committee are:

- To inform staff about internal regulation
- To supervise and monitor staff attendance
- To monitor and seek for misconduct and take timely corrective actions
- To receive and respond to staff requests and complaints
- To be responsible for security, discipline in the hospital
- To discuss and decide on majority votes over difficult cases
- To review and improve internal regulation
- To evaluate and encourage staff to well perform their tasks

c. Membership

- **Appointment of members:** The hospital director has rights to appoint the members of the sub-committee for discipline and regulation.
- **Number of meetings:** The sub-committee for discipline and regulation must invite staff for a monthly meeting before the meeting of the Health Financing Committee.

6.5.2 Sub-committee for Monitoring and Evaluation of User-fee Scheme

a. Purpose

Develop and manage the user-fee scheme with transparency and appropriate that could be accepted by the general populations in the region.

b. Roles and responsibilities

Please refer to the guideline for the management of health financing, and for user-fee scheme for a reference of membership and other activities related to this sub-committee.

6.5.3 Sub-Committee for Procurement and Supply

This sub-committee must follow Chapter 4 “management and implementation of health financing in the health facilities” of the Guideline for Management of Health Financing.

6.6 Other Meetings

Beside meetings of the committees and sub-committees of the hospital, some other meetings should be held by inviting staff to participate in solving problems together.

- Daily meeting among key staff including the hospital director, vice directors, chiefs of wards, chiefs of departments, medical doctors, and other medical assistants, should be held in every morning, or possibly in the after to discuss patient problems, to disseminate information and to collect comments of the Technical and Management Committee.
- Organize weekly and annual clinical meeting and inter-ministerial meeting in the region.
- In addition to the regular meetings, there should be information boards posted with policies and new rules related to daily activities of the hospital staff. For results of the hospital services such as number of patients, number of staff, health outputs and health financing information etc. should be posted for sharing information as well.
- Meeting with local communities should be held for at least once or twice a year.

Summary of Quality Assurance- Management Structure

- Each senior staff should have a copy of job description for clear understanding of their responsibility.
- Clear roles and responsibilities of the committees should be described clearly. Also the rights of the committees should be clearly described. They should not be in contrast with responsibilities of the chiefs of departments or wards.

6.7 Planning and Budgeting

a. Purpose

All referral hospitals must establish a team for planning and budgeting which is under the responsibilities of one vice director of the hospital to be in charge of developing short and medium-term plan for the sustainable hospital development including hospital development strategic plan, 3 years rolling plan, annual operational and budget plan.

b. Roles and Responsibilities

- to develop 5 years hospital development plan which is carried out through the 3 years rolling plan and annual operational plan.
- to prepare schedule for the development of 3 years rolling plan and annual operational plan including program based budgeting and non- program based budgeting of the Ministry of Health with instruction of the Ministry of Economy and Finance. Disseminate this schedule to all staff to be carried out.
- Carrying out the program based budgeting and non- program based budgeting with the following activities:
 - Conducting meeting to review the result of last year plan with participation of all staff but staff of each ward and department must be remained at their working place to ensure the normal functions.
 - Developing budget plan and operation plan which respond to all action plan and budget plan of all departments and submit to the hospital management committee for reviewing and approval before submitting to OD, PHD and MoH.
 - Developing quarterly plan to carry out the operational plan.
- to provide technical support for the development of operational and budget plan to each ward and department.
- to monitor the implementation of plans throughout the quarterly meeting to review results with participation of all bureaus and departments in the hospital.
- to manage health data system for the development of annual planning and budgeting and use the data of the health information system to monthly, quarterly and annually analyze the results of provision of health services in the hospital.
- to ensure that there is adequate information of provision of health services, situation of staff, finance, procurement, supplies of drugs, equipment, materials, reagents and

other consumables including essential infrastructure to analyze the results, targets, weakness, strength, challenges, priorities and countermeasure.

c. Membership

• Vice Hospital Director	Chair
• Chief of technical bureau/department	Member
• Chief of personnel and finance bureau/department	Member
• Staff in charge of planning and health information	Member
• Staff in charge of pharmacy/drug	Member
• Chief of all departments	Member

6.8 Health Information System

Accurate, quality and timely information is a potential tool to support the hospital management team and staff in charge to have right decision making for the quality improvement and provide services to respond the needs of patient/client. The management of health information must pay attention to the following perspectives.

6.8.1 Patient Record System

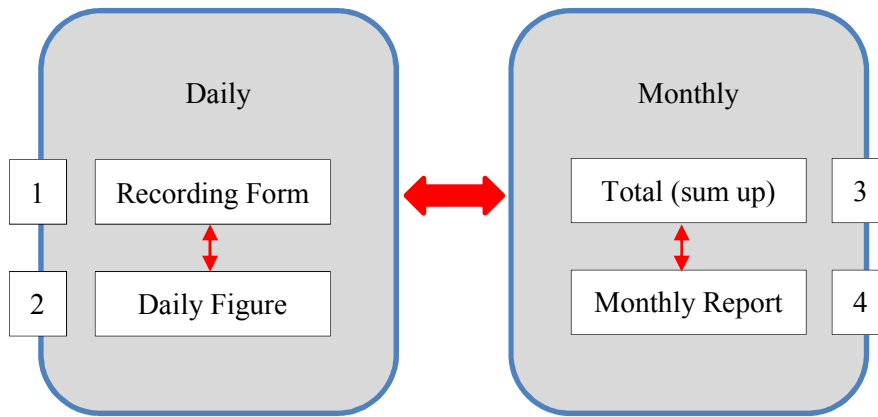
The hospital must use HO2 Form and daily record form defined by the Ministry of Health (*please refer to Guideline for Patient Record 2012*). Sums up health information must be done at last day of the month (from day 1 till last day of the month), and fill HO2 form properly. The hospital should input health data of each month via webpage of HMIS by 5th of the day of the following month, if the hospital has computer system and internet.

The record forms used in the hospital includes:

1. ANC Register
2. Maternity register
3. Delivery register
4. PNC register
5. Gynecology register
6. ENT register
7. Surgery register
8. Minor surgery register
9. OPD register
10. Operation room register
11. Laboratory register
12. Ophthalmology register
13. Medicine register
14. Pediatric register
15. Emergency room register

- 16. ICU register
- 17. Odonto-Stomatology register

Picture 3: Flow of recording and reporting in the hospital



6.8.2 Patient Record System

Patient records play a role as quality monitoring tools. All patients admitted in the hospital should be registered and a dossier should be made for each. Written on the patient dossiers are illness history of the patient, prescription, prescribed medication, evolution of the illness and drugs which the patient actually received as well as recording of vital signs such as temperature and blood pressure, etc. Table of medication and monitoring of vital sign should be placed by the patient bed to make ease for visual sight of the nurses with prescription avoiding repeated error, and to make ease in monitoring any irregularity.

Prescribed drugs and care should be clearly written. Record monitoring with prescription and signature in a patient dossier. The chiefs of wards ensure proper patient filing and completeness of patient files.

The patient dossiers should be kept in alphabetical order during their stay in the hospital and kept as archived documents after discharges in alphabetical order. At any point of time, patient records might be reviewed when any patients are readmitted. This might help medical doctors in writing proper illness history.

Keep patient dossiers safely out of public views or non-medical persons and protect them from natural risks (flood, fire, and insects).

Patient dossiers that need follow up and health check-up must clearly write down the date for the follow-up and name of physician who will meet. Patient dossiers should be kept in separate shelf "**reviewed records**" which will make ease for reuse when patients come again.

6.8.3 Patient Record Storage System

The hospital must have one room for storing patient dossiers. The room must be located close to the patient registration area. The patient dossiers should be kept in numbering order of patient's ID which will make ease for reuse when patients come again.

6.8.4 Referral System and Patient Discharges

If patients who need high level of treatment then where they are staying, they need to be referred out. Those patients are provided with referral slips and copies of monitoring charts or other files which need to be handed over to receiving facilities. Make notes of reasons for referring, places referring to, and dates of referring out as well as transportation means in the patient records of the hospital. Wherever possible inform the receiving hospital about the referral case. A discharge should be noted in the patient dossier, if the patient needs not to be referred out (refer to guideline for referral system). The hospital must prepare hotline of a telephone system to communicate with other health facilities such as OD and health center.

6.8.5 Patient Feedback System

Establish a system for reviewing comments and suggestions from patients and their relatives for the improvements. For example the hospital users can write critical comments about hospital services and drop them in letter box at the hospital gate or wherever it is easily seen. Comments should be confidential. On the other hand, the hospital staff can simple use questionnaires to interview hospital users for comments on care which they have received so that alternatives for quality services improvement can be identified. Information about patient satisfaction is used to improve quality of services, and to monitor user-fee payment. Staff should receive regularly information from the results of patient satisfaction survey.

6.8.6 Health Report System (HO2)

Good quality health information is important for proper planning, implementation and evaluation of the health services.

Collecting information: Referral hospitals should use HO2 monthly form and standard registers instructed by the MoH for collecting health information. Frequency of reporting: Every end of the month staff in charge of health information, gathers information about health activities and health issues in the hospital, and fill HO2 form properly. The HO2 monthly report which is reviewed and signed by the director or vice director should be submitted to the OD by 5th of the following month and keep one copy in the hospital.

Uses of health information: It is necessary that the director, vice director, chief of bureau and staff in charge of planning and budgeting must understand clearly the health information system/reporting system and how to use it. The data should be accurate and reliable.

Reviewing monthly, quarterly and annual health achievements must use data of the health information system to monitor the progress of health indicators of the implementation of annual

operational plan, identify the challenges, and make action plan in order to improve the activities. Hospital and health center must use Tableau de Bord to monitor the result of provision of health services.

Reviewing monthly, quarterly and annual health achievements must be widely disseminated to all departments in the hospital as a tool to enhance quality of services in the future.

Data Quality Assurance: The Department of Planning, and Health Information is responsible for controlling the quality of data, completeness and time-based report which reported by the health facilities (referral hospital and health center across the country) to be ensured that data inputted in the HMIS Web Database is accurate and reliable. This controlling is done to check the irregularity of data through HMIS Web Database, supervision, rapid assessment, and data evaluation survey by using WHO evaluation tools based at the health facilities and providing feedback to those health facilities.

Health facilities including provincial-municipal health department, and operational district should regularly conduct evaluation for data quality.

6.9 Human Resource for Health

Human resources are a valuable asset for health services, especially in the hospitals throughout the country. Thinking about adequate and competent human resources for all levels of the health facility should be done regularly, appropriately and be transparent. In order to have enough and competent human resources, each hospital should use these 2 points: 1) Human Resources Development and 2) Human Resources Management.

6.9.1 Human Resources Development

Human resources development ensures the staff member has the capacity to have professional skills, including knowledge, skills and behavior, in order to serve health services in all levels of the health facilities in the country. The training in the current system includes pre-service training and in-service training.

6.9.1.1 Pre-Service Training

The hospital should consider having a training development plan, including the pre-service in order to ensure adequacy and abilities of staff of serving at the health facilities in the hospital. The hospital should set up a training unit under the technical bureau in order to manage and implement the training activities for both in-service and pre-service training. There must be staff members and clinical preceptors to guide and train the students who come to practice in the hospital. The clinical preceptor should undergo a clinic preceptor course organized by the MoH and should have additional tasks in training and leading the trainee students who come from practice in the hospital and using the training books provided by the MoH. The hospital should organize training materials according to the national program in order to support the clinical training activities for the trainee students before allowing the students to practice with patients.

6.9.1.2 In-Service Training

The hospital should organize clear plans for in-service training for their staff in order to build their working capacity and duties in the hospital for the short-term and long-term by using the national budget and/or support from NGOs. The training plan for the hospital will contribute to the national training plan and collaborate with the human resources development of the MoH to implement the training plan.

The short-term courses for the new staff members should be organized every year in the hospital because it is a good opportunity for the staff to understand working conditions, vision and goals of the hospital, so that they can participate in providing services to the hospital. Training plan must be comprehensively developed including training in country and abroad by using national budget or budget from user-fee scheme, or supports from health development partners in order to ensure the regular training to improve staff capacities which could respond to the requirement of the Ministry of Health and professional councils.

6.9.1.3 Hospital's Training Unit

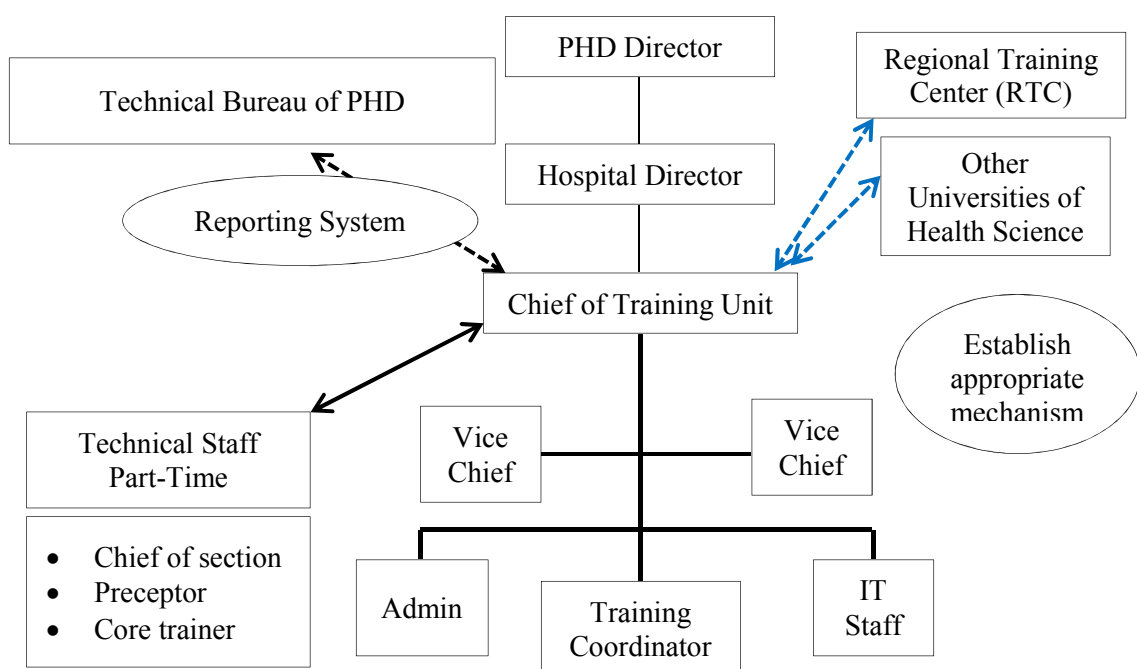
a. Purpose

In order to ensure quality and safety of care for the clients and to provide new knowledge and skills to staff and providing coaching for the trainee students.

b. Structure

A referral hospital that is applying CPA3 must organize training unit to regularly strengthen capacity of health staff. The training unit must be under the Technical Bureau and headed by the Chief or Vice Chief of the Technical Bureau.

Picture 4: Training Structure of the CPA 3 Referral Hospital



c. Tasks

- Provide pre-service training to new staff members who are under probation to make them aware of the activities that pertain to the service they will work for and the trainee students who come for practice in the hospital under supervision of the preceptor.
- Provide in-service training to the hospital staff that includes new and updated knowledge as needs of the hospital and also provide training for staff in other health facilities (health center or referral hospital) with new knowledge and skills in collaboration and the requests from PHD, referral hospital, OD, or health center in the catchment area.
- Participate in other training including theory and practices for continuing professional development.
- Organize library in the hospital
- Organize and participate in weekly clinical meetings.
- Organize and participate in annual clinical meetings in the hospital.
- Participate in intra-hospital of clinical seminars.
- Monitor, evaluate and record data after the completion of all trainings.
- Lead, train and evaluate the results of trainee students.
- Develop the annual training plan for the hospital and the requests from other relevant institutions.
- Collaborate with MoH, other relevant departments of the Ministry, RTC, health professional council, and national program to implement the trainings according to the national policies, protocols or guidelines. If it is necessary to conduct training which was not listed in the plan, prepare requests to the Ministry of Health, National Programs or health development partners for conducting the training.

d. Membership

The hospital director must organize working group for training unit with the following membership:

- | | |
|---|--------|
| - Chief or Vice Chief of Technical Bureau | Chair |
| - Each Chief of the departments | Member |
| - Physician and specialist doctor | Member |
| - Chief of Nursing | Member |
| - Chief of Midwife | Member |
| - Chief of Equipment Maintenance | Member |
| - Clinical Preceptor | Member |

Note:

- These are additional tasks of their routine tasks.
- The training can be assisted by technical staff from development partners.

6.9.2 Human Resources Management

The hospital director should explain to all staff members what is the expectation of their services to be provided and their behavior. The hospital should have internal rules and regulations for staff members that cover their working hours, registration, uniform, communication, privacy for the patient, hospital's vision for the patient, the policy on receiving under-the-table money from patients, and using equipment that belongs to the hospital for anything other than providing health care services to patients.

The hospital director should clearly emphasize the consequences of not following the hospital's internal rules and regulations and monitor and observe the actions taken against those who abuse the hospital's regulations. It is important that all staff agree on the internal rules and regulations that the hospital director puts forth for implementation. The hospital should have medical guidelines for all staff on how to handle the most common diseases. The number of multi-skilled staff members should be enough to provide 24-hour services in all departments and ensure safety. The staff should be divided and deployed per the needs. The record of staff attendance must be kept. All staff should wear uniforms and name tags. Complaints of staff must be made in order/rank.

6.9.2.1 Job Description

Job description is another management tool to manage the hospital better. Each position in the hospital should have clear description about tasks and major responsibilities. Job description should describe position requirement in relation to the hospital needs, but not personal needs of staff working in the positions. Job description written in consistent with the hospital needs is first demand for transparency. In another word, staff can only work in the required positions which are already defined. Job description has a lot functions: to inform new staff about their working standard in order to monitor their performance and to assist in planning as it consists complete indicators of staff performance and the hospitals can choose to use any model of job description. It is important to discuss the draft of any job descriptions with relevant staff to ensure that they clearly understand their tasks and responsibilities, and accept what written on.

6.9.2.2 Human Resource Planning and Staff Recruitment

Referral hospitals should have staff functional analysis to understand what activities they are performing. By understanding what tasks being performed, they can know about what number of staff needed to accomplish the tasks. They can think of what additional tasks to be performed to respond to hospital needs in the policy context and principles of the MoH. From the functional analysis the hospitals can determine what number of positions needed for making the hospital functional, both in present and future time. Number of staff actually needed for making the hospital functional is called staff planning. When making staff planning they should think about staff annual leaves, retirement, sick leaves, and senility. When any positions found vacant as a part of staff planning of the referral hospitals, they should make request to the OD and the PHD in order to assist the MoH to prepare recruitment of new staff according to civil servant law of Cambodia.

6.9.2.3 Orientation for New Staff

All new staff must attend the orientation program. In that occasion, the new staff will be informed about working condition, vision, and goals of the hospital and whether how should they participate in the decision making? How are their responsible for? And how are their complaints? There must be introduction to all management team members and introduce to all departments of the hospital.

6.9.2.4 Performance Appraisal

There should be an annual performance appraisal for each individual staff. Chiefs of wards conduct performance appraisals for nursing staff. Chiefs of departments conduct performance appraisals for medical staff and paramedical staff. Staff performance appraisals provide opportunity for managers to provide feedbacks to the staff on general performance and determine needs of staff training and development.

A sample of job descriptions and staff performance appraisals is available for each hospital to use for effective management and accountability that is disseminated by the administration reform council.

Summary of Quality Assurance – Human Resource

- Number of staff and multiple skills must be sufficient for the delivery of safe patient care, treatment for 24 hours.
- Staff must be allocated according to the need.
- Internal regulations must be established and implemented.
- Medical guidelines must be provided to staff on patient care, and disease conditions which is most frequently seen.

6.10 Health Financing

Every hospital must organize structure to manage health financing in order to ensure the sustainable operation of the hospital and enhance better quality of health services including strengthening capacity to effectively, efficiently and smoothly manage the user-fee in the hospital. There must be the establishment of health financing committee to actively manage multi-income sources with transparency.

Principles and Procedure

In principle, the hospital plays role to mobilize resources for the operation and aims at improving quality of better health services to the general populations both poor and rich based on the financial procedures. Procedure for resource mobilization includes:

1. Resources from the national budget (supply side financing) and
2. Resources from the users (demand side financing) with the following user-fee schemes

6.10.1 User-Fee System

User-fee was officially endorsed by health financing charter of the MoH in 1996. In addition to the establishment of user-fee schemes, the health financing charter also provided guidance for the exemption mechanism for the poor and other some targeted people in order to facilitate the equitable access of health care services and management of incomes and expenses. Later on, guideline for health financing management was updated in 2006 and lately updated in 2011. To be clear and well understood the procedure and management of health financing, *please refer to Guideline on Health Financing Management (March 2011)*.

6.10.2 Health Equity Fund (HEF)

Health Equity Fund is a social health approach which has been designed for better utilization and access of health services by the general populations who are identified as poor. Benefit package of HEF is payment for foods for the patient's attendant who hospitalized and as well as transportation. HEF plays role as third-party to purchase services from the public health facilities and aims at building confidence between the poor and service providers. *(For detail, please refer to Implementation of the Health Equity Funds Guideline (January 2009) and Standard Benefit Package and Provider Payment Mechanism for Health Equity Fund (June 2012))*

6.10.3 Community Based Health Insurance (CBHI)

Community based health insurance is one the strategies endorsed by the Ministry of Health to provide social health protection to any persons who are not identified as poor and not in the public sector. In general, CBHI has been operated by NGOs and Community Organizations who play role as third party to pay for services for their members.

The implementation of CBHI in the public health services is to increase the universal coverage and contribute in poverty reduction which is a goal of the government throughout the protection of drastic health expenses which was not known in advance. For detail on the arrangement, implementation and operation of CBHI, *please refer to Guideline for the Implementation of Community Based Health Insurance (CBHI) in June 2006*.

6.10.4 National Social Security Fund (NSSF)

The Ministry of Labor and Vocational Training (MLVT) has established the National Social Security Fund for employees and employers and others who are under their responsibility and the Ministry of Social Affairs, Veteran and Youth Rehabilitation also has established the National Social Security Fund for the civil servants in order to purchase health services at other provincials departments based on the affordability and policy of each individual organization. All referral hospitals must have contract system for health financing and effective and transparent use of incomes.

CHAPTER 7: ANNEX

Annex 1: Kinetic Therapy

No.	Process and Conditions	CPA1	CPA2	CPA3
1	Complications of long time in bed	✓	✓	✓
2	Sprain and dislocation	✓	✓	✓
3	Tendon and muscular traumatism	✓	✓	✓
4	Complication of burning	✓	✓	✓
5	Amputation	✓	✓	✓
6	Fracture of limbs	✓	✓	✓
7	Cranial Traumatism	✓	✓	✓
8	Surgery of thorax	✓	✓	✓
9	Traumatism of vertebral columns	✓	✓	✓
2. Medical Ward				
A. Neurology				
1	Neuralgia	✓	✓	✓
2	Amyotrophic	✓	✓	✓
3	Myopathy	✓	✓	✓
4	Dystrophic	✓	✓	✓
5	Sciatic inflammation	✓	✓	✓
6	Hemiplegia	✓	✓	✓
7	Paraplegia	✓	✓	✓
8	Quadriplegia	✓	✓	✓
9	Peripheral Paralysis	✓	✓	✓
10	Poliomyelitis	✓	✓	✓
11	Mal de Pott	✓	✓	✓
12	Coma		✓	✓
13	Leprosies	✓	✓	✓
14	Parkinson Disease	✓	✓	✓
15	Walking trouble	✓	✓	✓
16	Facial Paralysis	✓	✓	✓
17	Spasmodic Sprained Neck	✓	✓	✓
18	Muscular pain	✓	✓	✓

19	Bladder Neurological		✓	✓
B. Orthopedics				
1	Articular immobilization	✓	✓	✓
2	Scoliosis			
3	Cyphsis, lordosis	✓	✓	✓
4	Deformation of the limbs	✓	✓	✓
5	Pieds bot varus equin	✓	✓	✓
6	Boiterie	✓	✓	✓
7	Scar	✓	✓	✓
C. Lymphatic Vessels				
1	Trouble of returned veins	✓	✓	✓
2	Lymphatic edema	✓	✓	✓
3	Phlebitis	✓	✓	✓
D. Pneumology				
1	Pleurisy	✓	✓	✓
2	Chronic bronchitis	✓	✓	✓
3	Pulmonary Tuberculosis	✓	✓	✓
4	Asthma	✓	✓	✓
5	Pneumonia	✓	✓	✓
6	Bronchopneumonia	✓	✓	✓
7	Bronchi-dilatation (bronchectasy)	✓	✓	✓
8	Atalectasy	✓	✓	✓
9	Pneumothorax	✓	✓	✓
E. Rheumatology				
1	Hydarthrose	✓	✓	✓
2	Infectious arthritis	✓	✓	✓
3	Spondyloathrite ankylosante	✓	✓	✓
4	Rheumatic Poly arthritis	✓	✓	✓
5	Evolutionary Chronic arthritis	✓	✓	✓
6	Periathritis Scapulo-humerale	✓	✓	✓
7	Arthritis	✓	✓	✓
8	Lumbago, Dorsal pain, cervical pain	✓	✓	✓

9	Tendonitis	✓	✓	✓
10	Algo neuro dystrophy (shoulder swelling and finger pain)	✓	✓	✓
3. Pediatrics				
A-Traumatology (Post operation kinetic therapy)				
1	Fracture	✓	✓	✓
2	Sprain	✓	✓	✓
3	Dislocation	✓	✓	✓
4	Muscular Traumatism	✓	✓	✓
5	Burning complications	✓	✓	✓
6	Cicatrices	✓	✓	✓
B-Orthopedics				
1	Congenital Malformations of limbs	✓	✓	✓
2	Scoliosis	✓	✓	✓
3	Cyphose	✓	✓	✓
4	Congenital Torticollis	✓	✓	✓
5	Cerebral Syndrome	✓	✓	✓
6	Paraplegia	✓	✓	✓
7	Quadriplegia, Spinal bifida		✓	✓
8	Hemiplegia	✓	✓	✓
9	Coma		✓	✓
10	Cranial Traumatism		✓	✓
11	Affect on Brachial Plexus		✓	✓
12	Peripheric Paralysis	✓	✓	✓
C-Rhumatology				
1	Spondylo-arthritis ankylosante	✓	✓	✓
2	Arthritis	✓	✓	✓
3	Algo neuro dystrophy (shoulder swelling and finger pain)	✓	✓	✓
4	Tendonitis	✓	✓	✓
5	Dorsal pain	✓	✓	✓
6	Lumbago	✓	✓	✓
7	Cruralgie	✓	✓	✓
D- Pneumology (sequels)				

1	Maladies of bronchi	✓	✓	✓
2	Maladies of lung	✓	✓	✓
E- Neonatology				
1	Encephalopathy		✓	✓
2	Cerebral Paralysis	✓	✓	✓
3	Coma		✓	✓
4	Meningitis		✓	✓
5	Cerebro-meninges hemorrhage			✓
4. Obstetrics and Gynecology				
1	Pre and Post delivery	✓	✓	✓
2	Post Operation	✓	✓	✓

Annex 2: Emergency ambulance for all levels of referral hospitals

Specifications	Ambulance	Elements		
1. Ambulance Body	1. Ambulance	1. Types of body	Van with high station wagon	
		- Engine	Diesel	
		-Power	3000cc or Bigger	
		-Tires	4 wheel drive	
		-Exhaust control	Respond to Cambodian Standard	
		-Transmission	5 speed manual	
		-Fuel content	60 liters or more	
		-Steering wheel	Left steering wheel with pump	
		-Air Conditioning	Manual or automatic	
			Air tube system: in both a driving cabinet and a patient cabinet	
		-Seat	2 or 3 in the front	
			2 or more at the back	
		-Door	Front cabinet for driver: two doors in the front	
			Back cabinet for patient: back door with a ladder for patients	
			2. Spare tire	1
			3-Car repair equipment	One standard set
			4- Light lamp	One for the driving cabinet
		White long lamp for patient cabinet		
	5. Color	White		
	2. Spare parts	1. Emergency lamp on the roof		
		2. Electronic siren		
		3. Microphone, amplifier and loudspeaker		
		4. Radio communication		
		5. Infusion hook		
		6. Fire Extinguishers		
		7. ICOM fixed to the car		

2. Medical Equipment	1. Emergency Package	Oxygen mask, Nasal tube, scissors, pincer, knife, oral canal
	2. Equipment storage	
	3. Stretcher	With four legs, can be folded, and with safety belt
	4. Aspirator and accessories	Can be used with battery of 12 voltages
	5. Oxygen tube	2 for ten liters with an opening and water holder
	6. Stethoscope (with two heads)	
	7. Sphygmomanometer	Aneroid
	8. Thermometer	Digital
	9. Equipment for saving heart and lung	Manual and mask
	10. Equipment for checking loud speaker	
	11. Artells	
	12. Mattress	
	13. Folding pole type sub stretcher	
	14. Cervical collars	

Remarks:

- Ambulance with equipment and a driver should be under the management of a hospital administrator.
- The hospital technical bureau needs to assign an emergency group of physicians including one medical doctor or medical assistant, one nurse who have been trained and they should all be on shift-duty for 24 hours.

Annex 3: OPD Form

OPD Form

Patient named:Age:Sex:

Past medical history:
.....

For child: Suspected TB Cough: \geq 2-3 weeks Fever: \geq 14 days, Loss weight (a challenging factor for suspected TB) Stayed closer with family member or neighboring who has TB or Positive sputum HIV/AIDS Severe malnutrient

Physical Examination

Vital sign: Tension.....Pulse.....Respiratory Rate.....Temperature..... Weight.....

For child: Weight/age....., swelling Yes, No

.....
.....

Investigation

.....
.....

Diagnosis

.....
.....

Treatment

.....
.....

Follow up date on:/...../20

Name and signature of physician

Annex 4: Physiotherapy Card

No:.....

Physiotherapy Card

Ward:.....Bed No:.....

Evaluation Date:

Admission Date:

Patient's name:Age:.....Sex:.....

Occupation:

Address:

Causes:

Diagnosis:

Date of medical treatment and surgery:

Medical Treatment and Surgery:

Main issues of the patient for kinetic therapy:

Date	Name of kinetic therapist	Evolution	Kinetic therapy
------	---------------------------	-----------	-----------------

Advice from a physician:

.....
.....

Ministry of Health

Hospital's Name.....

Evolution of Physiotherapy Treatment

Ward:.....Room No.:.....Bed No.:.....

Patient's name:Age:.....Sex:.....

Diagnosis:

Date:

EVOLUTION

**TECHNICAL PHYSIOTHERAPY
TREATMENT**

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Ministry of Health

Hospital's Name.....

Physiotherapy Treatment Form

Ward:.....Room No.:.....Bed No.:.....

Balance Date:

Patient's name:Age:.....Sex:.....

Nationality: Profession:.....

Address:

Contact:

Admission Date:

Diagnosis:

Treatment

- Medical treatment

.....

- Intervention

.....

- Others

.....

1 Causes

.....

2 Past medical history

.....

3 Background of illness

.....

4 Clinical examination

.....

a. General Status:

• Tension.....Pulse.....Respiratory Chain.....Temperature..... Weight.....

• Respiratory Rate

b. Skin

.....

c. Pain

.....

d. Morphology

.....

e. Sensitivities

• Superficial sensitivities

• Deep sensitivities

- Gnosis sensitivities
- f. Articulation
- g. Muscular
 - Muscular Force
 - Deep tendon reflex
 - Others
- h. Daily movement
 - Upper limb
 - Body
 - Lower limb
- i. Conclusion/Diagnosis

Annex 5: Referral Letter

**Kingdom of Cambodia
Nation-Religion-King**

Name of PHD:

Name of health facility: ward: OD: Province:

Referral Letter

Date of admission: Time of admission:

Time of calling ambulance: Phone number of ambulance:

Refer to health facility: OD: Province:

Information of Patient

Patient's name: Age: Sex:

Address:

ID Number (if any):

ID Number of HEF Card:

Past Medical History

Admission number:

Causes of admission:

General Examination

Vital sign: Tension..... Pulse..... Respiratory Rate..... Temperature.....

General Status

Respiratory Apparatus

Cardiovascular Apparatus

Digestive Apparatus

Urinary genital Apparatus

Neural psychosis

Examination of head, eyes, ears, nose, throat

Others

Result from laboratory

Result from X-ray

Result from Ultrasound

Diagnosis

Treatment provided by

Causes of referral

Received by (name of health facility)

Referred by (name of health facility)

Time:..... Date:...../...../.....

Time:..... Date:...../...../.....

Signature of staff/physician

Signature of staff/physician

Tel:.....

Tel:.....

Kingdom of Cambodia
Nation-Religion-King

Name of PHD:

Name of health facility:ward:.....OD:.....Province:.....

Feedback

Referred from:.....ward:.....OD:.....Province:.....

Referred to:.....ward:.....OD:.....Province:.....

Treatment provided:

Result of diagnosis:

Reason for discharge: (cured, getting better and needs continue treatment at the nearby health facility, hopeless, or requested for discharge)

Referred to: Deceased

Next plan or advices: No follow up is requiredFollow up is required at

Date:

Additional comments:

.....

.....

Seen and Approved

Date:...../...../.....

Signature of chief of ward or representative

Date:...../...../.....

Signature of physician

Tel:

Tel:

Annex 6: Discharge Card

Kingdom of Cambodia

Nation-Religion-King

Ministry of Health

Referral Hospital.....

No.:.....

DISCHARGE CARD

Last and first name:..... Sex.....Age.....Nationality.....

Career

Address

Admission date:.....Ward.....

Diagnosis

Status of a patient at the time of discharge:

.....

Physician's advice:

.....

.....

.....Date:...../...../.....

Seen and approved

Chief

.....Date:...../...../.....

Physician

Annex 7: Admission Card

Kingdom of Cambodia

Nation-Religion-King

Ministry of Health

Referral Hospital.....

No.:.....

Admission Card

Physician in charge.....of a hospital.....

Has admitted a patient named:.....Sex.....Age.....Nationality.....

Father's name:.....Mother's name:.....

Address :

.....

Tel:

Career :.....Institution:.....

Diagnosis at the time of admission:

Ward:

Date and time of admission:

.....Date:...../...../.....

Seen and approved

Chief

.....Date:...../...../.....

Physician

Annex 8: Deceased Letter

**Kingdom of Cambodia
Nation-Religion-King**

Ministry of Health
Referral Hospital.....
No.:

DECEASED LETTER

A patient's name:Sex.....Age.....Nationality.....
Address: House No.....Street.....Village.....
Commune.....District.....City/Province.....
Career:
Date and time of admission:
Diagnosis at the time of admission:
Died on the date ofat.....
Cause of death:
Diagnostic at the time of death:

.....Date:...../...../.....

Seen and approved
Director of the hospital

.....Date:...../...../.....

Physician

Annex 9: Surgery Agreement

**Kingdom of Cambodia
Nation-Religion-King**

Ministry of Health
Referral Hospital.....
No.:

SURGERY AGREEMENT

My nameNationality.....Sex.....Age.....
Address: House #.....Street:.....Village.....
Commune.....District.....City/Province.....
Relationship:.....of the patient named.....Nationality.....
Sex.....Age.....admitted to the hospital on the date of

After having got appropriate advice and information from the physician, I would like to agree and allow the physician to treat the patient by operating technical surgery regardless of complications or obstacles which may eventually occur during the provision of this service.

For witness, I would like to fingerprint here.

Date:/...../.....

Fingerprint of the right thumb

Annex 10: Operation Protocol

Ministry of Health

Referral Hospital.....

Operation Theater

Operation Protocol

WardRoom No.....

First and last name:No.....

Surgeon:

Entry Date:

First assistant:

Second assistant:

Operation Date:

Pre-Operation Diagnosis:

.....

Per-Operation Diagnosis:

.....

Indication

.....

Technics:

Annex 11: Personnel Standard

1. CPA3 Referral Hospital (100-250 beds)

Level of Technical Skill	Number of Personnel
Specialist Doctor-Medical Doctor/Medical Assistant	23-40 Deployment of specialist doctors to each ward based on the needs with minimum of: - 6 surgeons - 1 Anesthesia specialist (CESAR) - 1 Pediatric surgeon - 1 Ophthalmologist and 1 ENT specialist - 1 psychiatrist, and 2 imagery specialists
Dentist/dentistry nurse	2-3
Nurses	86-132 (5 anesthesia technicians (ISAR), 6 for equipment and material arrangement, 3 for mental health)
Nurses with bachelor's degree	6-10
Nurses with associated degree (secondary nurse)	50-80
Specialist nurses (5 anesthesia technicians (ISAR), 6 for equipment and material arrangement, 3 for mental health, 2 dental nurses, and other specialties)	16-22
Primary nurses	14-20
Midwives	16-22
Nurses-midwives with bachelor's degree/midwives with bachelor's degree	2-4
Midwives with associated degree	12-14
Primary midwives	2-4
Pharmacists/Secondary Pharmacists	6-8
Laboratory technicians	8-10
Radiology technicians	3
Kinetic Therapists	3-4
Technicians for maintenance of equipment, material and facility	5-7 (At least there should be one electronic engineer)
Cleaners	10-20

Launderers	3-4
Kitchen workers	3-4
Driver	1-2
Administrators	4-6
Accountants	2-4
Information Technology (IT)	2-4
Communication Officers	2-3
Total	179-276

If needs: workers or floating staff or contracting staff can be recruited.

2. CPA2 Referral Hospital (60-100 beds)

At least there should be emergency care and surgery service.

Level of Technical Skill	Number of Personnel
Specialist Doctor-Medical Doctor/Medical Assistant	11-14 (There must be at least 3 surgeons and 1imagery specialist)
Dentist/dentistry nurse	2
Nurses	27-40 (5 anesthesia technicians (ISAR), 6 for equipment and material arrangement, 3 for mental health)
Nurses with bachelor's degree	2-4
Nurses with associated degree (secondary nurse)	10-14
Specialist nurses (3 anesthesia technicians (ISAR), 4 for equipment and material arrangement, 2 for mental health, 2 dental nurses and other specialties)	11-14
Primary nurses	4-8
Midwives	7-12
Nurses-midwives with bachelor's degree/midwives with bachelor's degree	1-2
Midwives with associated degree	4-6
Primary midwives	2-4
Pharmacists/Secondary Pharmacists	2-4
Laboratory technicians	3-5

Radiology technicians	3
Kinetic Therapists	2-3
Technicians for maintenance of equipment, material and facility	3-5
Cleaners	6-10
Launderers	2-3
Kitchen workers	2-3
Driver	1-2
Administrators	3-4
Accountants	2-3
Information Technology (IT)	2-3
Communication Officers	2
Total	80-118

If needs: workers or floating staff or contracting staff can be recruited.

3. CPA1 Referral Hospital (40-60 beds)

At least there should be essential obstetric service with 5-10 beds.

Level of Technical Skill	Number of Personnel
Medical Doctor/Medical Assistant	5-7
Dentist/dentistry nurse	2
Nurses	15-22
Nurses with bachelor's degree	1-2
Nurses with associated degree (secondary nurse)	8-10
Specialist nurses (2 for mental health, 2 dental nurses and other specialties)	4-6
Primary nurses	2-4
Midwives	5-10
Nurses-midwives with bachelor's degree/midwives with bachelor's degree	1-2
Midwives with associated degree	2-4
Primary midwives	2-4
Pharmacists/Secondary Pharmacists	1-3
Laboratory technicians	3
Radiology technicians	2
Kinetic Therapists	1-2

Technicians for maintenance of equipment, material and facility	2-3
Cleaners	5-10
Launderers	1-2
Kitchen workers	1-2
Driver	1
Administrators	2-5
Accountants	2-3
Information Technology (IT)	1-2
Communication Officers	1-2
Total	50-81

If needs: workers or floating staff or contracting staff can be recruited.

Annex 12: Hospitalization Record

Kingdom of Cambodia

Nation-Religion-King

Ministry of Health

PHD:

Referral Hospital:

Patient's No.:

Service: Ward: Room: Bed No.:

Name: Sex: Age:

Occupation:

Address): Village..... Commune..... District..... Province.....

Name of care giver: Phone No.:

Status: Single Married Divorced window deceased

Number of family members

Entry date: Time: come by him/herself

Referred from:

This box required to be fill out when patient discharge

Date of admission: Time:

Diagnosis:

Date of discharge: Time:.....

Diagnosis before discharge:

Number of hospitalization:

Status of discharge: Cure Getting better Referral Not better Deceased

(a toll is pregnant woman, delivery, or 42 days after delivery?) referred to.....

Physician's advice:

.....

Date:/...../.....

Signature of physician

Medical Record

Vital signs): BP:/.....mmHg P:/mn RR:/mn
T:°C O2sat:% Height:cm Weight:kg

Chief Complain:

History of present illness:

.....

Review of systems:

.....

.....

Current medications:

.....

Past medical history:

V.1: Personal History

Vaccination: BCG/HepB OPV+DPT-HepB-Hib1 OPV+DPT-HepB-Hib2 OPV+DPT-HepB-Hib3 Measles+JE Tetanus None

Medicine reaction:

Hypertension Diabetes TB Cardio disease Surgery

V.1: Family History:

Clinical examination:

General appear: Good Not good Severe Very severe Anemia Purple Jaundice

Neurological system: Conscious Fantasy Coma Convulsion

Score of Glasgow: Eye Speaking/wording Movement Total

Others:

Head, Eyes, Ears, Nose, Throat

Head:

Eyes: Left Right Fondus

Ears: Left Right

Nose:

Throat:

Neck:

Lymphadenopathy:

Respiratory system:

Inspection: Thorax asymétrique Dyspnea Polypnea Tirage Cyanosis Stridor

Others:

Palpation:

Percussion:

Auscultation:

Cardiovascular system:

Inspection:

Palpation:

Percussion:

Auscultation:

Abdomen:

Inspection:

Palpation:

Percussion:

Auscultation:

Genecology-urinary:

Extremities:

Musculoskeletal:
.....

Other Systems:
.....

Probable Diagnosis:
.....

Differential Diagnosis:
.....

Investigations:
.....

Initial treatment:
.....

Diet: Normal Salt restriction Sweet restriction Others

Monitor: Vital signs.....m Urinem Consciousnessm

Others

Annex 13: Daily Progress Note

Date:daily progress note

Vital Signs					Evolution	Treatment
Time	BP	PR	To	RR		Monitoring
						Investigation
	Nurse's name and signature				Clinical Conclusion	Doctor's name and signature

Annex 14: Scope of Nursing Practice for Associate Degree in Nursing (ADN) & Bachelor of Science in Nursing (BSN)

Scopes of Practice	Associated Nursing Degree (AND)	Bachelor of Nursing Science (BSN)
Standards of Practice		
1. Assessment	<ul style="list-style-type: none"> - Assessing based on holistic care (physical, mental, social, and spiritual domains) - Seeking advice from BSN if not clear or critical case 	<ul style="list-style-type: none"> - Assessing based on holistic care (physical, mental, social, and spiritual domains). - Assessing health risks and health promotion factors. - Analyzing data - Suggesting to ADN as reference resources.
2. Nursing Diagnosis	<ul style="list-style-type: none"> - Analyzes the assessment data - Determine the diagnosis and issues - Seek assistance from BSN, if not clear 	<ul style="list-style-type: none"> - Analyzes the assessment data - Determine the diagnosis and issues - Provide assistance to ADN during determine diagnosis, when he/she need assistances
3. Nursing Plan	<ul style="list-style-type: none"> - Developing strategies and alternatives to attain expected outcomes - Seek assistance from BSN, if not clear in order to assure patient is on the safes. 	<ul style="list-style-type: none"> - Developing strategies and alternatives to attain expected outcomes - Provide assistance to ADN when he/she need assistances - Revise care plan with ADN based on client's needs.
4. Nursing intervention	<ul style="list-style-type: none"> - Implements the identified plan - Implementing based on Prakas of Roles and Functions for Nurses (Article 5 & 6) - Implementing based on national nursing protocol - Seek assistance from BSN, if not clear in 	<ul style="list-style-type: none"> - Implements the identified plan - Implementing based on Prakas of Roles and Functions for Nurses (Article 5 & 6) - Implementing based on national nursing protocol - Provide assistance to ADN when he/she

	order to assure patient is on the safes.	need assistances
5. Evaluation	<ul style="list-style-type: none"> - Demonstrating the collection of the data related to outcome - Comparing goal of care, expected and outcome. - Evaluating a set of nursing actions selected for a client - Seek assistance from BSN, if not clear in order to assure patient is on the safes. 	<ul style="list-style-type: none"> - Demonstrating the collection of the data related to outcome - Comparing goal of care, expected and outcome. - Evaluating a set of nursing actions selected for a client - Provide assistance to ADN when he/she need assistances
Standards of professional performance		
6. Quality of Practice	<ul style="list-style-type: none"> - Participating in quality assurance process for nursing practices - Ensuring continuity of care - Participating quality improvement process - Seek assistance from BSN, if not clear in order to assure patient is on the safes. 	<ul style="list-style-type: none"> - Conducting quality assurance process for nursing practice. - Ensuring continuity of care - Developing quality improvement methods - Providing helps for ADN - Evaluating nursing performance - Developing quality improvement evaluating tools.
7. Education	<ul style="list-style-type: none"> - Educating patients, family, and community. - Educating nursing students, peers 	<ul style="list-style-type: none"> - Educating patients, family, and community. - Educating nursing students, peers - Assessing educational needs - Preparing training, workshop, or conference. - Organizing in-service training
8. Ethics	<ul style="list-style-type: none"> - Providing nursing care with respect for 	<ul style="list-style-type: none"> - Providing nursing care with respect for

	<p>personal values and beliefs as well as human dignity</p> <ul style="list-style-type: none"> - Advocating for patients/clients to be informed of their rights and to understand them. - Practicing nursing care within the code of professional conduct and in respect to relevant laws and regulations for the optimal benefits of clients. - Analyzing, decide and perform nursing practices ethically and legally. - Realizing own limitations; consult the BSN or other health professions. Never take risks which may adversely affect patients. 	<p>personal values and beliefs as well as human dignity</p> <ul style="list-style-type: none"> - Advocating for patients/clients to be informed of their rights and to understand them. - Practicing nursing care within the code of professional conduct and in respect to relevant laws and regulations for the optimal benefits of clients. - Analyzing, decide and perform nursing practices ethically and legally. - Assisting for ADN, or consult with other health professions. Never take risks which may adversely affect patients.
9. Research	<ul style="list-style-type: none"> - Assisting BSN in all activities of doing nursing research. 	<ul style="list-style-type: none"> - Assessing nursing practice gap with client's needs - Cooperating in research which is beneficial to patients, hospital and society. - Utilize research methods in pursuit of knowledge to improve work. - Utilizing nursing research result into practice.
10. Leadership	<ul style="list-style-type: none"> - Motivating patient, family, and community to participate in treating and caring. - Solving the problems that arise in practice using current information, input from patients and colleagues. - Discussing common interests in 	<ul style="list-style-type: none"> - Motivating patient, family, and community to participate in treating and caring. - Solving the problems that arise in practice using current information, input from patients and colleagues. - Negotiating for common interests in

	<p>uncomplicated situations</p> <ul style="list-style-type: none"> - Decision-making for the benefits of patients and the hospital. - Contribute to, and participate in hospital improvement - Demonstrating an ability to motivate, support, and create a healthy working environment - Seeking support and cooperation from relevant parties. 	<p>complicated situations</p> <ul style="list-style-type: none"> - Decision-making for the benefits of patients and the hospital. - Contribute to, and participate in hospital improvement. - Demonstrating an ability to motivate, support, and create a healthy working environment - Seeking support and cooperation from relevant parties - Provide assistance to ADN when he/she needs.
11. Management	<ul style="list-style-type: none"> - Managing patient out and in - Managing materials and medicines for giving care. - Managing nursing staff scheduling - Assisting to develop vision, goals, and objectives for nursing activities. 	<ul style="list-style-type: none"> - Managing patient out and in - Managing materials and medicines for giving care. - Managing nursing staff scheduling - Creating vision, goals, and objectives for nursing activities.

REFERENCES

1. Building Brief for CPA1, CPA2, CPA3
2. National Guidelines for the Prevention and Treatment of Opportunistic Infections in HIV Infected Adult and Adolescents in Cambodia 2012 (NCHADS June 2011)
3. National Guidelines for the Prevention and Treatment of Opportunistic Infections in HIV Infected Adult and Adolescents in Cambodia 2012 (NCHADS June 2011)
4. National Guidelines for the Prevention and Treatment of Opportunistic Infections among HIV Exposed and HIV Infected for Adult and Adolescent in Cambodia (NCHADS June 2011)
5. National Guidelines for the use of Antiretroviral Therapy for Adults) (NCHADS Jan 2012)
6. Standard Operating Procedure (SOP) for STI/RTI prevention and care service delivery at Family Health Clinic (NCHADS)
7. National Guidelines on Sexuality Transmitted Infections (STI) and Reproductive Tract (RTI) Case Management), NCHAD 2010
8. Essential Drugs List 2012
9. National Policy for Essential Drugs (MoH, August 2010)
10. Operation Manual for Medical Equipment Management Network, (MoH, August 2013)
11. Medical Equipment Standard List for CPA (MoH, June 2004)
12. Technical Guideline on Medical Equipment Disposal (MoH/HSD August 2011)
13. Medical Equipment Maintenance Guidebook Part A (general knowledge and technical information) (MoH/HSD August 2008)
14. Medical Equipment Maintenance Guidebook Part B Supplementary (maintenance and check list) (MoH/HSD August 2008)
15. Manual of Medical Equipment Management for the National & CPA3 referral hospitals (MoH/HSD August 2014)
16. Prakas on Health Care Waste Management in Cambodia
17. National Guideline on Health Care Waste Management (MoH/HSD August 2012)
18. Guideline on Health Financing Management (MoH/DPHI March 2011)
19. Manual of Medical Equipment Management for the National & CPA3 Referral Hospitals (MoH/HSD January 2014)
20. Technical Guideline for Acceptance of Second Hand Medical Equipment (MoH/HSD August 2011)
21. Guideline for Infection Control and Prevention at the Health Facilities (MoH July 2010)