NATIONAL POLICY
FOR
MEDICAL LABORATORY SERVICES

MINISTRY OF HEALTH
DEPARTMENT OF HOSPITAL SERVICES IN COLLABORATION
WITH WORLD HEALTH ORGANIZATION

September 2009
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<tbody>
<tr>
<td>AIDS</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<tr>
<td>AOP</td>
<td>Annual Operational Plan</td>
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<td>BMLS</td>
<td>Bureau of Medical Laboratory Services</td>
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<td>BS</td>
<td>Blood Safety</td>
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<td>CDC</td>
<td>Centers for Disease Control and Prevention</td>
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<tr>
<td>CENAT</td>
<td>National Centre for Tuberculosis and Leprosy Control</td>
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<td>CMS</td>
<td>Central Medical Stores</td>
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<td>CNM</td>
<td>National Centre for Parasitology, Entomology and Malaria Control</td>
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<tr>
<td>CPA</td>
<td>Complementary Package of Activities</td>
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<td>CPD</td>
<td>Continuing Professional Development</td>
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<td>DDFC</td>
<td>Department of Drugs, Food and Cosmetics</td>
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<td>DHS</td>
<td>Department of Hospital Services</td>
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<td>DPHI</td>
<td>Department of Planning and Health Information</td>
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<td>HC</td>
<td>Health center</td>
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<td>HIV</td>
<td>Human Immunodeficiency Virus</td>
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<td>HP</td>
<td>Health Post</td>
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<td>HSS</td>
<td>Health System Strengthening</td>
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<td>IPC</td>
<td>Institut Pasteur du Cambodia</td>
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<td>LMIS</td>
<td>Laboratory Management Information System</td>
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<td>LS</td>
<td>Laboratory Services</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<td>MPA</td>
<td>Minimum Package of Activities</td>
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<td>NEQAS</td>
<td>National External Quality Assessment Scheme</td>
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<td>NBTC</td>
<td>National Blood Transfusion Centre</td>
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<td>NCHADS</td>
<td>National Center for HIV/AIDS, Dermatology and STD Control</td>
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<td>NCMCH</td>
<td>National Center for Maternal and Child Health</td>
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<td>NIPH</td>
<td>National Institute of Public Health</td>
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<td>NPHL</td>
<td>National Public Health Laboratory</td>
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<td>NWT</td>
<td>National Workshop Team</td>
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<td>OD</td>
<td>Operational District</td>
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<td>PHD</td>
<td>Provincial Health Department</td>
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<td>PLST</td>
<td>Provincial Laboratory Supervision Team</td>
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<td>QMS</td>
<td>Quality Management System</td>
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<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
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<tr>
<td>STD</td>
<td>Sexually Transmitted Disease</td>
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<td>STWG</td>
<td>Sub-Technical Working Group</td>
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<tr>
<td>TB</td>
<td>Tuberculosis</td>
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<td>TSMC</td>
<td>Technical School for Medical Care</td>
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<tr>
<td>UHS</td>
<td>University of Health Sciences</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Laboratory services are an essential and fundamental part of all health systems and their purpose is to improve health by providing the evidence base for detection, management and prevention of diseases. Reliable and timely results from laboratory investigations are critical elements in decision making in almost all aspects of health care, and are essential for the surveillance and control of diseases of public health importance. Although HIV/AIDS, TB and malaria have been given most attention in recent years, laboratory support is required for effective care of most diseases at every level of health care.

The Bureau of Medical Laboratory Services in the Hospital Services Department was set up by the Ministry of Health in December 2008, to provide a focal point for laboratory services operations and development in the country. There is now a network of over 84 laboratories in the public sector at different levels of the health care system (CPA1, CPA2, CPA3) that endeavor to provide quality services to the general public.

This is the first National Policy for the Medical Laboratory Services of Cambodia, which has been prepared to facilitate the provision of quality laboratory services in the country. The document provides a comprehensive policy and regulatory framework for establishing, operating and monitoring the medical laboratory services. In addition, the National Policy promotes better coordination of activities among the various health programs and institutions, thereby enhancing quality. The National Policy systematically outlines the major issues to be addressed in order to provide quality laboratory services, including the organization and management structure, required human resources, laboratory infrastructure, care and maintenance of equipment, provision of laboratory commodities, a functional information management system, and adequate financial support. In particular the National Policy provides a road map for all actors and facilitates the channeling of resources to national priority areas. The National Policy provides the much needed framework for coordinated delivery of quality and accessible laboratory services country-wide.

The key challenge to all partners is to ensure that the proposed recommendations and arrangements are implemented so that the people of Cambodia can benefit from improved laboratory services at all levels of care.

The development of this policy has involved the collaborative efforts of many stakeholders in laboratory services and has relied heavily on the input and contributions from members of the Laboratory Sub-technical Working Group for Blood Safety and Laboratory Services. I wish to acknowledge the invaluable support and contribution of the following organizations: DHS, NIPH, NBTC, WHO, NPH, CDC, who provided both material and technical support in the development and finalization of this policy document. I wish, therefore, to appeal to all stakeholders to identify with this policy and give it the necessary support.

Phnom Penh, 17 September, 2009

H.E.Prof. ENG HUOT
Secretary of State
CHAPTER 1

INTRODUCTION

1.1. Vision, Mission and Objectives of the Medical Laboratory Services of Cambodia

Vision
To support an efficient and high quality health care system that is accessible, equitable and affordable for all, by the provision of high quality diagnostic medical laboratories.

Mission
To promote the health of the people of Cambodia through accepted standards of laboratory services that are effective and safe, and contribute to a reduction in cost of health services delivery.

Objectives
1. To establish laboratory services that support diagnosis, treatment, prevention, surveillance and control of diseases.
2. To ensure the quality of laboratory tests performed in medical laboratories meets accepted standards.
3. To ensure the appropriate allocation of funds to support efficient laboratory services.

1.2. National Laboratory Policy

The National Policy for the Medical Laboratory Services of Cambodia takes into consideration the economic and technical capacity of the country, and the need to keep abreast with advances in medical laboratory technology. The National Policy is in line with the development of health system strengthening as outlined in the Health Strategic Plan 2008 – 2015, the laboratory standards outlined in the National Guidelines on Complementary Package of Activities 2006 – 2010, and the Guidelines on the Minimum Package of Activities for Health Center Development 2008 – 2015.

The National Policy provides direction for establishing and strengthening national systems for:
- Laboratory organization and management
- Support to laboratory services at national institutes, national programs and health facilities
- Legal and regulatory issues
- Coordination of the medical laboratory services
- Laboratory human resources management and development
- Laboratory equipment care and maintenance
- Laboratory commodity supplies and distribution
- Laboratory information management
- Laboratory quality management
- Monitoring and evaluation
- Laboratory financing and sustainability
CHAPTER 2

BACKGROUND

2.1 Organization and Management of the Medical Laboratory Services

The structure of the Ministry of Health (MoH), the national institutes and centers that incorporate or support medical laboratory services, and the national hospitals, are shown in the following organizational chart:
2.1.1. Department of Hospital Services
The Department of Hospital Services (DHS) has six bureaus as follows:
- Hospital Services
- Quality Assurance
- Nursing and Midwife
- Regulation and Ethics
- Mental Health
- Medical Laboratory Services

The Bureau of Medical Laboratory Services (BMLS) has three units as follows:
- Policy Strategic Unit
- Monitoring and Evaluation Unit
- Quotation and Supply Unit

2.1.2. National Public Health Laboratory (NPHL) of the National Institute of Public Health (NIPH)
The NPHL is the national reference laboratory that provides diagnostic and reference laboratory testing, surveillance and research, and has the following units:
- Sero-immunology
- Virology
- Biochemistry
- Hematology
- Microbiology (Bacteriology, Parasitology, Mycology)
- Quality Assurance
- Outpatient Department and Public Relations

2.1.3. Institut Pasteur du Cambodge (IPC)
Institut Pasteur du Cambodge is an international public benefit institution that provides clinical and reference laboratory services in support of public health. IPC also conducts training, surveillance and research.

2.1.4. Laboratories at Health Facility Levels
National Hospitals:
- Calmatte Hospital
- Kossamak Hospital
- Khmer Soviet Friendship Hospital
- Ang Duong Hospital
- National Pediatric Hospital
- Kuntha Bopha Hospital

Referral Hospitals
There are three levels of government referral hospitals, as follows:
- Complementary Package of Activity (CPA) 3 (Provincial Hospitals) – hospitals with specialist services
- Complementary Package of Activity (CPA) 2 – hospitals with surgery
- Complementary Package of Activity (CPA) 1 - hospitals without surgery

The National Guidelines on Complementary Package of Activities (CPA) 2006 – 2010 provide standards for medical laboratory services, including staffing norms, requirements for infrastructure and equipment, and tests performed for each level.
**Health Centers and Health Posts**

Health Centers (HC) offer basic laboratory diagnostic services and a referral system for designated specimens, according to the Minimum Package of Activities for Health Center Development (MPA) 2008 – 2015. Health Posts (HP) offer no support to diagnostic services.

**2.1.5. Coordination of the Medical Laboratory Services**

The Sub-Technical Working Group for Blood Safety and Laboratory Services is a national committee formed in 2006 to coordinate laboratory activities with national institutes, national centers, and development partners. Two Working Groups: Laboratory Services and Blood Safety provide technical direction and advice on issues related to laboratory services and blood safety and report to the Sub-Technical Working Group.

**2.1.6. Laboratory Legal and Regulatory Framework**

The Association of the Medical Laboratory Profession in Cambodia was set up in July 2008. The Bureau of Regulation and Ethics provides regulation of private health institutions, including laboratories.

**2.2. Medical Laboratory Services Systems**

**2.2.1. Training of Laboratory Personnel**

Five categories of laboratory staff work in medical laboratories:

- Medical Laboratory Technologists
- Pharmacists
- Biologists
- Pathologists
- Microscopists

The following institutions conduct pre-service training of laboratory personnel:

- Technical School for Medical Care (TSMC)
- University of Health Sciences (UHS)

**2.2.2. Human Resource Management and Development**

The CPA and MPA Guidelines outline minimum laboratory staffing levels for peripheral hospitals and health centers. Supervision of medical laboratory staff is conducted through several mechanisms as follows:

- Provincial Laboratory Supervision Teams
- Bureau of Medical Laboratory Services
- National Public Health Laboratory
- National Centers in support of specific disease control programs

The national institutes conduct short in-service training courses in diagnostic practices for clinicians and laboratory staff. The Department of Human Resources Development and the Department of Personnel are responsible for planning and deployment of medical laboratory personnel.

**2.2.3. Laboratory Equipment and Equipment Maintenance**

The evaluation, validation and registration of laboratory equipment is organized through the Department of Drugs, Food and Cosmetics (DDFC). The National Workshop Team (NWT) of the Ministry of Health is responsible for the management and maintenance of medical laboratory equipment.
Medical Equipment Standard Lists for levels CPA3, CPA2, CPA1 were developed in 2004. Guidelines for Medical Equipment Management and Guidelines for Medical Equipment Maintenance were published by the Ministry of Health in 2008 and have been distributed to health facilities.

2.2.4. Laboratory Commodity Supply and Distribution System
The Central Medical Stores (CMS) provides laboratory supplies, procured through the Procurement Unit of the Ministry of Health. The Bureau of Medical Laboratory Services (BMLS) compiles annual lists of laboratory requirements for the country for submission to the Director of the Department of Hospital Services (DHS). National Programs and donor agencies procure and distribute equipment and supplies to support specific disease control programs.

2.2.5. Laboratory Quality Assurance
The Quality Assurance Unit of the National Public Health Laboratory provides quality assessment for the country and currently addresses HIV, HBV, HCV and syphilis serology. A number of institutions target disease-specific quality assessment programs, such as the National Centre for Parasitology, Entomology and Malaria Control (CNM), and the National Centre for Tuberculosis and Leprosy Control (CENAT). The laboratories of the national institutes and centers participate in relevant international external quality assessment schemes.

2.2.6. Laboratory Safety
The Infection Control Team in the Department of Hospital Services has developed an Infection Control Policy and Infection Control Guidelines for the country, that partly address laboratory safety issues, including waste disposal. The Guidelines also include Injection Safety and Health Care Waste Management. The WHO Laboratory Biosafety Manual (third edition) has been translated into Khmer and distributed to all laboratories in the country. There are Infection Control Teams in the Provincial Health Departments (PHD), and at Provincial and Referral Hospital levels.

2.2.7. Laboratory Management Information System
The Bureau of Medical Laboratory Services receives quarterly reports on laboratory activities from peripheral hospitals. A central electronic data base generates reports on national laboratory activities and performance.

2.2.8. Financing and Sustainability of the Medical Laboratory Services
There are three mechanisms for financing the medical laboratory services:
  • Annual Operational Plan (AOP) budget allocation from the government
  • User fees
  • Program support from development partners

Budgetary allocations for the laboratory services are combined with budgets for drugs and other medical supplies. Budgets are managed through the Directorate General for Administration and Finance, Ministry of Health.
CHAPTER 3

NATIONAL POLICY FOR MEDICAL LABORATORY SERVICES

This national policy builds on existing structures in the country and addresses minimum service packages and essential systems to support the medical laboratory services.

The Medical Laboratory Services of Cambodia will support provision of the following quality services:

- Clinical diagnostic services
- Diagnostic services in support of public health, including surveillance and monitoring of priority diseases, and response to disease outbreaks
- Reference laboratory services
- Clinical trial services
- Research services

3.1 Organization and Management of the Medical Laboratory Services

3.1.1 Bureau of Medical Laboratory Services

The Bureau of Medical Laboratory Services (BMLS) is an office within the Department of Hospital Services, Ministry of Health, which will have the following roles and functions:

- Coordinating medical laboratory services countrywide
- Developing and reviewing medical laboratory policy in consultation with other relevant institutions through the Sub-Technical Working Group for Blood Safety and Laboratory Services.
- Informing the Department of Drugs, Food and Cosmetics on specifications for laboratory equipment, reagents, consumables and test kits in consultation with the Sub-Technical Working Group for Blood Safety and Laboratory Services.
- Assisting the National Workshop Team (NWT) of the Ministry of Health in the maintenance of medical laboratory equipment.
- Collecting, compiling and analyzing data obtained from the Laboratory Management Information System (LMIS).
- Collecting, compiling and analyzing human resource data, in collaboration with the Departments of Personnel and Human Resources Development, to ensure an adequate distribution of medical laboratory staff.
- Conducting and coordinating quality assurance activities of medical laboratories in public facilities.

3.1.2. National Public Health Laboratory (NPHL) of the National Institute of Public Health (NIPH)

The NPHL is the national reference laboratory that will conduct the following activities:

- Providing reference laboratory services.
- Implementing quality management systems including national external quality assessment schemes.
- Advising the Department of Drugs, Food and Cosmetics on standards and specifications of laboratory equipment, reagents, consumables and diagnostic test kits, on request.
- Conducting supervision of medical laboratory facilities.
- Collaborating with the Department of Hospital Services on laboratory safety and bio-
security issues.
- Conducting refresher training and continuing education of laboratory personnel in
consultation with the Sub-Technical Working Group for Blood Safety and Laboratory
Services and the Department of Hospital Services.
- Developing and distributing appropriate manuals, Standard Operating Procedures (SOPs)
and other laboratory-related documents in collaboration with the Sub-Technical Working
Group for Blood Safety and Laboratory Services and relevant institutions.
- Performing and participating in research and surveillance.
- Authorizing submission of specimens for reference laboratory testing out of the country.

3.1.3. National Program Laboratories

National Program Laboratories will provide specialized reference laboratory services and
support to diagnostic services country wide as required, including refresher training, supervision
and quality assurance, in coordination with the Bureau of Medical Laboratory Services, through
the Department of Hospital Services.

3.1.4. Laboratories at Health Facility Levels

National Hospital Laboratories

The medical laboratory services in the national hospitals will provide diagnostic support to
clinical services provided in these institutions. The medical laboratory services will be
monitored and supervised by the National Public Health Laboratory in collaboration with
national program laboratories and the Bureau of Medical Laboratory Services, through the
Department of Hospital Services.

Provincial Hospital Laboratories (CPA3)

The CPA3 category medical laboratory services will provide integrated diagnostic services to
support clinical and public health activities in these hospitals. Each laboratory will conform to
the standards outlined in the CPA3. Each laboratory will have an appropriately qualified
laboratory manager and staff integrated to provide laboratory services previously delivered
under national programs. The medical laboratory services at CPA3 level will be supervised by
the National Public Health Laboratory in collaboration with the national program laboratories
and the Bureau of Medical Laboratory Services, through the Department of Hospital Services.

Referral Hospital Laboratories (CPA1, CPA2)

The medical laboratory services at CPA1 and CPA2 levels will provide integrated diagnostic
services to support clinical and public health activities in these hospitals. Each laboratory will
conform to the standards outlined in the CPA2 and CPA1. Each laboratory will have an
appropriately qualified laboratory manager and staff integrated to provide laboratory services
previously delivered under national programs. The medical laboratory services at CPA1 and
CPA2 levels will be supervised by the National Public Health Laboratory in collaboration with
the national program laboratories and/or designated trainers at provincial level, and the Bureau
of Medical Laboratory Services, through the Department of Hospital Services.

Health Centers and Health Posts

Laboratory services at Health Centers will provide a package of basic diagnostic tests to support
essential clinical curative and preventive services, including maternal and child health and
communicable and non-communicable diseases. The laboratory services at Health Centers and
Health Posts will be developed in line with the clinical services at these sites. Health Centers and
Health Posts will be supervised from Provincial and Operational District (OD) levels.
3.1.5. Coordination of the Medical Laboratory Services
The authority overseeing all medical laboratory activities in public health facilities in the country, including those operated by national centers, will be the Bureau of Medical Laboratory Services through the Department of Hospital Services. The national body for coordinating national laboratory activities will be the Sub-Technical Working Group for Blood Safety and Laboratory Services, that will comprise technical experts from the Ministry of Health, national centers, and development partners. The Sub-Technical Working Group may appoint Technical Advisory Committees to address specific issues, as required.

The authority overseeing laboratory activities in private institutions and health facilities is the Bureau of Regulation and Ethics.

3.1.6. Laboratory Legal and Regulatory Framework
The Association of Medical Laboratory Technologists will promote and develop the standards of the profession through various activities including annual scientific meetings. The Bureau of Regulation and Ethics will provide regulation of private health institutions, including laboratories.

3.2. Medical Laboratory Services Systems

3.2.1. Laboratory Physical Infrastructure
Laboratory physical infrastructure and facilities at each health facility level will be of appropriate size, location and standards to provide safety to workers, patients and visitors, and to ensure the production of quality results. A floor plan has been approved by the Ministry of Health for Provincial (CPA3) level laboratories (Annex One).

3.2.2. Laboratory Tests, Techniques and Equipment
Essential laboratory tests, techniques and equipment required at each health facility level will follow the standards provided in the National Guidelines on Complementary Package of Activities (CPA1 – 3) and the Guidelines on Minimum Package of Activities for Health Center Development (MPA). The CPA1 – 3 and MPA will be revised every 5 years. The Deputy Director General for Health, in cooperation with the Department of Hospital Services, is responsible for revision of the CPA and MPA guidelines.

Standard Operating Procedures (SOPs) for equipment and tests must be available in every laboratory to address the range of tests performed.

3.2.3 Human Resource Management and Development

Human Resource Management
There will be regular reviews of human resource requirements in terms of skills and numbers to support manpower development for the medical laboratory services at each level of health care delivery in the country. The recommendations for laboratory staffing levels will be based on services offered by health facilities, as well as workload.

Job Descriptions will be developed for all laboratory staff working at different levels in the public health system, including Laboratory Managers. A laboratory personnel appraisal system will be established to provide support to staff and identify capacity development needs.
Only staff with recognized qualifications will be allowed to provide medical laboratory services. The Bureau of Medical Laboratory Services through the Department of Hospital Services will develop a scheme of service for professional career progression for medical laboratory personnel.

**Human Resource Development**

The Bureau of Medical Laboratory Services will be responsible for planning and coordinating in-service training and Continuing Professional Development (CPD) of laboratory personnel. Refresher training courses and other activities will be developed according to the requirements of laboratory personnel in the country, and will be reviewed by the Sub-Technical Working Group for Blood Safety and Laboratory Services. Refresher training courses will be followed up by on-site support supervision and evaluated by performance reviews.

Laboratory Managers will be provided with training courses in laboratory management and administration. Tutors in medical laboratory science will be provided with appropriate CPD programs. Refresher training in improved laboratory diagnostic practices will include courses for clinical staff to improve laboratory utilization and interpretation of laboratory results.

Participation in Continuing Professional Development will form part of the appraisal system of laboratory personnel.

**Laboratory support supervision**

Supervisory visits will be coordinated through the Provincial Laboratory Supervision Teams (PLST). Supervisory visits will be organized according to pre-planned schedules, and be used as opportunities to provide ongoing training and support, and to address issues such as shortages of supplies, equipment repair and regular reporting. Supervisory Checklists will be used on every visit, to ensure laboratory issues are addressed comprehensively and to promote continuity of visits. Laboratory competency testing will be included in supervisory activities. Reports of supervisory visits will be submitted to the Bureau of Medical Laboratory Services. Checklists will be regularly reviewed to ensure new technologies and issues are addressed.

Laboratory supervisors will receive refresher training addressing procedures for supervision and mentorship.

**3.2.4. Laboratory Equipment and Equipment Maintenance**

**Laboratory Equipment Standardization and Selection**

The Sub-Technical Working Group for Blood Safety and Laboratory Services will provide technical information regarding specifications for laboratory equipment to the Department of Drugs, Food and Cosmetics, through the Bureau of Medical Laboratory Services (BMLS) and the Department of Hospital Services.

Referral and national hospitals will plan for needed equipment according to standard lists and make requests through the Annual Operational Plan (AOP) to the Department of Planning. The BMLS, as well as other competent departments, may contribute to updating the standard lists. Donations of medical laboratory equipment will be coordinated by the National Workshop Team, in collaboration with the BMLS through the Department of Hospital Services, as needed, to ensure equipment meets required standards and is appropriate for each level of laboratory.

Evaluation and validation of laboratory equipment will be conducted by qualified, competent laboratories, using standard guidelines. Equipment that does not meet required standards will not
be procured. Registered equipment will be subject to regular checks to ensure quality is maintained.

**Care and Maintenance of Laboratory Equipment**

The National Workshop Team will be consulted during procurement of laboratory equipment to ensure equipment is supplied with appropriate service and operation manuals, spare parts and service tools. All operation manuals should be translated into the Khmer language. These requirements will also apply to donated equipment. Service contracts will be mandatory for all analytical equipment, whether purchased or donated.

The National Workshop Team will be strengthened to provide comprehensive equipment maintenance and repair services for national and peripheral hospitals. When new equipment is procured or donated, the National Workshop Team will undergo orientation by the manufacturer or agent on the maintenance and operation of the equipment.

Training curricula for laboratory technologists will include safe and correct handling of equipment and preventive maintenance. Training will be conducted by staff from the National Workshop Team. Care and maintenance of laboratory equipment will be included in relevant laboratory refresher training workshops.

Standard Operating Procedures will be developed by the National Institute of Public Health and the Bureau of Medical Laboratory Services through the Sub-Technical Working Group for Blood Safety and Laboratory Services. SOPs will be based on the existing Guidelines for Medical Equipment Management and Guidelines for Medical Equipment Maintenance and will be distributed to all laboratories. Mechanisms for disposal of obsolete or unserviceable equipment will be established. Transfer of equipment between different laboratories will be done by the National Workshop Team based on the existing medical equipment management system.

A national data base for equipment will be established including information on instrument type, operational status and service contract providers.

**3.2.5. Laboratory Commodity Supply and Distribution**

The Sub-Technical Working Group for Blood Safety and Laboratory Services will provide technical information regarding specifications for laboratory supplies, consumables and reagents to the Department of Drugs, Food and Cosmetics, through the Bureau of Medical Laboratory Services (BMLS) and the Department of Hospital Services.

Laboratory managers of referral and national hospitals will plan for needed supplies according to standard lists and will make requests to the Director of the Department of Hospital Services (DHS) through the Bureau of Medical Laboratory Services (BMLS). The BMLS will compile individual requests into a national list before submitting to the Director of the DHS. The compiled list will then be submitted to the Minister of Health for approval and procurement.

Laboratory supplies will be managed and stored by the laboratory. The Directors and Laboratory Managers of Referral Hospitals will be trained in supplies management and logistics, including planning, costing, budgeting, storage, stock keeping and rational use of supplies. Each laboratory will have a standardized data base for inventory control.

Evaluation and validation of laboratory commodities and reagents will be conducted by qualified, competent laboratories, using standard guidelines. Commodities and reagents that do not meet required standards will not be procured. Registered commodities and reagents will be subject to regular checks to ensure quality is maintained.
3.2.6. Laboratory Quality Management System (QMS)

The Quality Assurance Bureau of the Department of Hospital Services is responsible for quality review of laboratory management, infrastructure and equipment, as part of the overall quality assessment of hospitals.

The Bureau of Medical Laboratory Services (BMLS) through the Department of Hospital Services, in collaboration with the National Public Health Laboratory (NPHL), national program laboratories and development partners, will be responsible for addressing laboratory quality issues including internal quality control, external quality assessment, laboratory procedures, pre-service training and refresher training courses.

**Internal Quality Control**

Each laboratory will establish an internal quality control system including testing new batches of reagents and use of standards and controls. The Bureau of Medical Laboratory Services will ensure that adequate resources are made available to all laboratories to ensure Internal Quality Control procedures are included in laboratory activities, countrywide.

**External Quality Assessment Schemes**

The Quality Assurance Unit of the National Public Health Laboratory will be mandated to coordinate an integrated national external quality assessment scheme (NEQAS) for public laboratories, in collaboration with the national program laboratories. This will include preparation and distribution of proficiency panels, analysis of results and provision of feedback to participating laboratories. Laboratory performance will be used to identify gaps in quality laboratory provision, and to develop appropriate remedial action including refresher training, supervision, and equipment maintenance. Participation in the NEQAS will be mandatory. The Quality Assurance Unit of the National Public Health Laboratory will be adequately funded and supported to undertake this role. The National Public Health Laboratory will provide regular reports to the BMLS on performance of laboratories country wide. In future the NEQAS will be expanded to include private laboratories.

Competency testing will be conducted as part of regular supportive supervision.

**Laboratory Safety**

All laboratories will be required to conform to the national Infection Control Policy and Infection Control Guidelines. Laboratory Managers will establish appropriate safety procedures in laboratories and will collaborate with the Infection Control Teams in the hospitals. Laboratory safety manuals will be reviewed on a regular basis and revised as required.

3.2.7. Laboratory Management Information System (LMIS)

The Bureau of Medical Laboratory Services, through the Department of Hospital Services, will utilize the national Laboratory Management Information System data base to generate relevant information, and provide data for evaluating and planning quality medical laboratory services.

The Bureau of Medical Laboratory Services will receive and analyze quarterly reports from each Provincial Health Department and will prepare summary national quarterly reports for submission to the Department of Hospital Services. Data from national disease control programs will be included in the quarterly reports. The Department of Planning and Health Information (DPHI) will coordinate laboratory information into national health information from other sources. Appropriate data will be shared with relevant departments and national centers for the purposes of surveillance and disease control.
Monthly and quarterly reporting formats will be developed for hospital laboratories to include tests performed, positive results, state of equipment, supplies, staffing, and quality assurance reports. Monthly hospital reports will be used internally for planning, informing procurement and supplies, and human and financial and other resource mobilization.

Quarterly reports received by the Department of Hospital Services will be used for national planning for equipment, equipment repair, supplies procurement and human resource distribution. The Provincial Health Departments will be linked electronically to the Bureau of Medical Laboratory Services for ease of submitting reports.

3.2.8. Monitoring and Evaluation of the Medical Laboratory Services
A strengthened monitoring and evaluation system will be established to provide targets and measurable indicators to ensure the delivery of quality medical laboratory services countrywide. The BMLS will develop monitoring and evaluation tools to assess laboratory activities and performance.

3.2.9. Financing and Sustainability of the Medical Laboratory Services
Financial resources will be sought to sustain quality laboratory services and personnel. Financial management will be strengthened for effective utilization of available funds.

Budgeting will reflect cost effectiveness and sustainability. Laboratory budgets should preferably be separated from pharmacy budgets. Budgets will start at hospital, national center level and will be developed in consultation with Laboratory Managers.

The Bureau of Medical Laboratory Services, in collaboration with Department of Planning, will provide training for laboratory managers on how to contribute to the development of Annual Operational Plans (AOP).

The laboratory services will be funded through several mechanisms including government budgetary provision, donations and grants from development partners, and income generating activities.

Laboratory budgetary line items will be streamlined to improve efficiency.
Approved floor plan for Provincial (CPA3) level laboratory


10-Membership of Working Groups under Sub-Technical Working Group for Blood Safety and Laboratory Services

11-Cambodia Country Profile. SEARO-WPRO/CSR.

12-Technical Team at Laboratory. Draft Obligations and Responsibilities of Coordinator Team in Provincial Laboratories. Ministry of Health.


18-Guideline on Medical Equipment Management for National and Referral Hospitals CPA3(2008), Ministry of Health.


20-Medical Equipment Standard list for CPA1,CPA2,CPA3 Referral Hospital(2004), Ministry of Health.
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