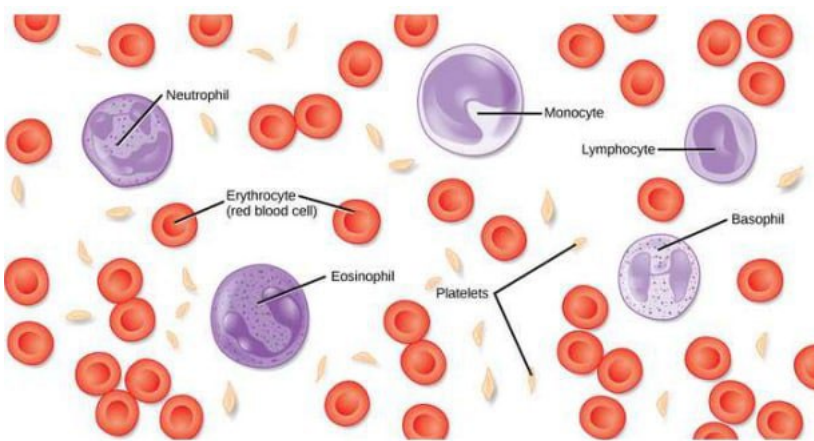


KINGDOM OF CAMBODIA

National Religion King



Hematology Guide

In-services Training for Medical Laboratory



Ministry of Health

**Department of
Hospital Services**

Version 1

Preface

The National Laboratory Strategy (NLS) 2015-2020 provides a framework for officials, laboratory personnel, relevant agencies and development partners to effectively coordinate activities in order to strengthen laboratory diagnostics in Cambodia. The planned activities of the NLS include establishing and enforcing stronger regulatory mechanisms (NLS 1.3.1.) and expanding the implementation of Laboratory Quality Management Systems (NLS 9.) with activities of Strengthen laboratory support for disease surveillance, preparedness, prevention and outbreak response (NLS 3.3.1.) Strengthen laboratory diagnostics support to clinical services (NLS 4.3.2.) Monitor laboratory staff qualification and quantity at all health facility levels (NLS 5.3.2.) Strengthen in-service training for medical laboratory staff (NLS 5.3.3.) Develop a system for coordinating equipment management (NLS 6.3.1.) Improve preventive and curative maintenance of laboratory equipment (NLS 6.3.2.) and Strengthen human resource capacity to maintain laboratory equipment (NLS 6.3.3.).

Accuracy, reliability, and timeliness of laboratory results are essential. The National Medical Laboratory Quality Standards were endorsed in 2011. Achieving and maintaining quality is arguably one of the most critical tasks in clinical laboratories. Without a proper quality, clinical laboratories are essentially unsafe for patients. Poor quality results can cause mistrust between laboratories and end users, and therefore, endangers the practice of evidence-based medicine. Furthermore, poor quality clinical laboratories can hinder global efforts to fight infectious diseases and outbreaks

The Department of Hospital Services (DHS) is the focal unit for laboratory operations and development in Cambodia. The collaboration of national lab professionals with external experts had made possible to develop a guide to train lab technicians on latest lab theory and practice, thanks to the support of SEALAB project funded by the Center for Health Security of the Australian Government and coordinated by Fondation Merieux. More effective in-service curriculum has been achieved by including training modules tailored to trainees' specific needs and background. This manual will reinforce the knowledge of lab professionals and managers in order to improve the skills of all involved with clinical lab testing.

The Ministry of Health hereby endorses the adoption of hematology guide for medical laboratory manual for in services training manual in laboratory by all public and private laboratories in Cambodia.

Phnom Penh,

, 2022

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Acknowledgements

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Abbreviations

ADP	Adenosine diphosphate
AIDS	Acquired immunodeficiency syndrome
Anti-A	Anti-A antibody
Anti-B	Anti-B antibody
Anti-D	Anti-D antibody
APC	Antigen-presenting cell
ATP	Adenosine triphosphate
Baso	Basophil
BFU	Burst Forming Unit
CBC	Complete blood count
CD40	Cluster of differentiation 40
CFU	Colony Forming Unit
CML	Chronic myelogenous leukemia
DC	Direct Count
DHS	Department of Hospital Service
DIC	Disseminated intravascular coagulation
DNA	Deoxyribonucleic acid
EDTA	Ethylenediaminetetraacetic acid
Eo	Eosinophil
EPO	Erythropoietin
Ftl-L	Flt ligand
FUO	Fever of unknown origin
G6PD	Glucose-6-phosphate dehydrogenase
G-CSF	Granulocyte colony stimulating factor
GEMM	Granulocyte, erythrocyte, monocyte, macrophage
GM-CSF	Granulocyte/macrophage colony stimulating factor
HCT	Hematocrit
HES	Hyper eosinophilic syndromes
HGB	Hemoglobin
HIV	Human immunodeficiency
HLA	Human leukocyte antigen
IgA	Immunoglobulin A

IgD	Immunoglobulin D
IgE	Immunoglobulin E
IgG	Immunoglobulin G
IgM	Immunoglobulin M
IL-1	Interleukin-1
IL-3	Interleukin-3
IL-6	Interleukin-6
IR	Immune Response
LD	Lower discriminator
LED	Light Emitting Diode
LQMS	Laboratory Quality Management System
Lym	Lymphocyte
MCH	Mean corpuscular hemoglobin
MCHC	Mean corpuscular hemoglobin concentration
M-CSF	Macrophage colony stimulating factor
MCV	Mean corpuscular volume
MDS	Myelodysplastic syndrome
MHC	major histocompatibility complex
Mono	Monocyte
MPV	Mean platelet volume
MXD	Monocytes–basophils–eosinophils mixed
NADPH	Nicotinamide adenine dinucleotide phosphate
Neut	Neutrophil
NK cell	Natural killer cell
NLS	National Laboratory Strategy
NRBC	Nucleated red blood cell
PDGF	Platelet-derived growth factor
PDW	Platelet Distribution Width
PF	Platelet factor
P-LCR	Platelet-large cell ratio
P-MFV	Platelet mean-frequent volume
PTL	Platelet
RBC	Red blood cell
RDW-CV	Red Cell Distribution Width-Coefficient of Variation

RhD	Rhesus D
RNA	Ribonucleic acid
SCF	Stem cell factor
TNF	Tissue necrosis factor
UD	Upper discriminator
vWF	von Willebrand factor
WBC	White blood cell