

National specimen packaging and transportation guidelines: practical considerations

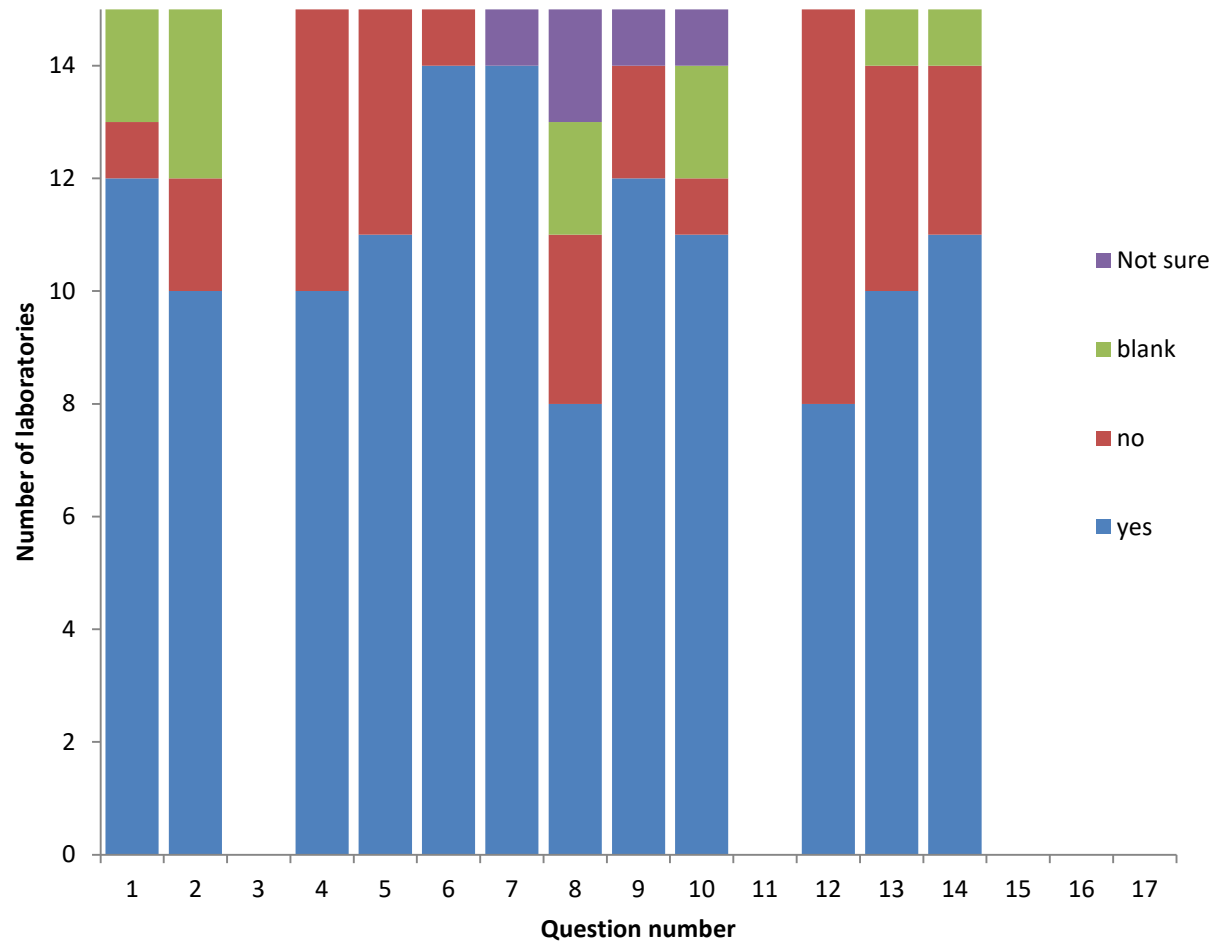
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WHO
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Kampong Cham

Questionnaire

1. Is there a focal person in your laboratory responsible for laboratory issues and interfacing with the MoH?
2. Is there a focal person at each laboratory that is responsible for the specimen referral system?
3. What types of transport are used for sample transportation from/to your laboratory? Car (private, company rental), motorbike, taxi etc? Is there a schedule- once, twice, more often a week- or as required?
4. Do you have sample transportation SOP in your laboratory?
5. Are clinical and laboratory staff trained in SOPs for sample collection, referral, packaging, transportation and reception?
6. Are couriers trained in SOPs, biosafety, biosecurity, spill clean-up, etc.?
7. Are request forms standardized for all testing and being used at all levels?
8. Are standardized transportation logs and chain of custody forms available and used by anyone transporting specimens?
9. Is triple packaging used for all national and international sample transportation?
10. Is there a system in place that allows for a sample to be tracked from the submitting laboratory to the testing laboratory? What is the system?
11. How are results of laboratory tests delivered? Paper, SMS printer, electronically, etc.?
12. If your laboratory has an electronic system, is it CamLIS or another? Please specify.
13. Does your laboratory receive referred samples? If so, list which laboratories refer which types of specimens for which tests.
14. Does your laboratory refer samples to another laboratory? If so, list which types of specimens are referred to which laboratories for which tests.
15. How many samples do you receive per week, on average, in your lab? Of these, how many, on average, are referred from other labs?
16. How many samples do you refer, per week, from your lab?
17. How do facilities and laboratories communicate about specimen quality, rejections, missing results, etc.?

Questionnaire results

- AFRIMS
- Battambang
- Calmette
- CNM
- Kampong Cham
- Kampot
- KSFH
- NAHPRI
- NCHADS
- NIPH
- NPH
- Preah Kossamak
- Takeo
- UHS
- Svay Rieng

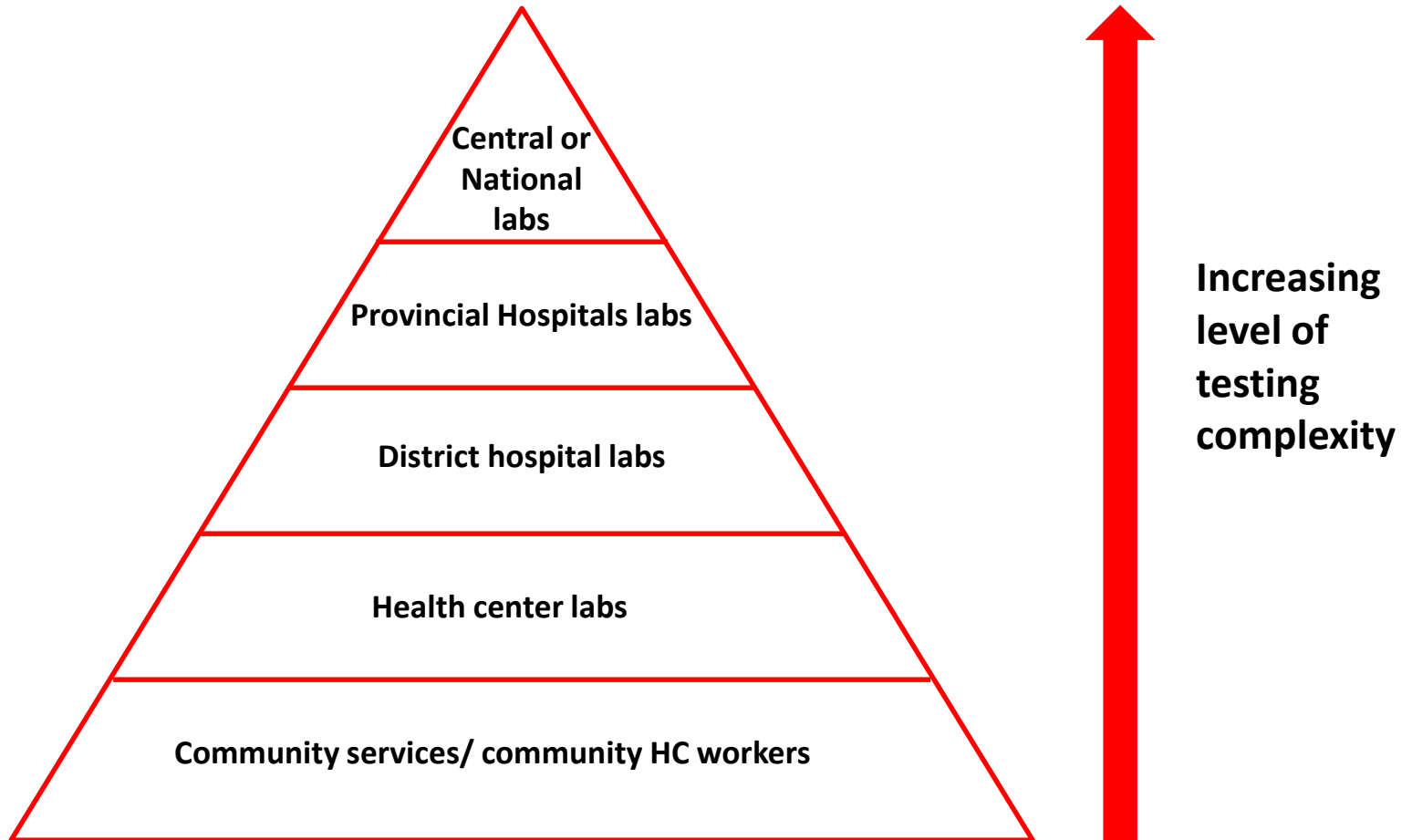


National specimen packaging guidelines

Contents

1. Introduction
 2. Definitions : Infectious substances, Diagnostic specimens, Cultures, Biological products, Genetically modified organisms, Medical or clinical wastes, Exemptions
 3. Preparations for shipment: Standard precautions, Transport planning (shipper, carrier and receiver considerations), Specimen storage, Other considerations
 4. Packaging, labelling and documentation: General triple package system, Category A shipping, Category B shipping
 5. Refrigerants
 6. Overpacks
 7. Reuse of packaging materials
 8. Training
 9. Transportation of specimens
 10. Specimen rejection
 11. Spill clean-up procedure
- Annexes: List of UN category A pathogens, Specimen storage conditions, Packing Instruction P620, Packing Instruction P650, Packing Instruction P904, Flowchart for classification of infectious substances and diagnostic specimens, Specimen request form

Specimen referral system set-up



Practical considerations

- 1) Planning
- 2) Human resources
- 3) Training
- 4) Supply chain
- 5) System for transport
- 6) Monitoring and evaluation
- 7) Partnership
- 8) Communication

Planning

- Strong leadership from MoH
- Operational cost
- Mapping of referral sites to testing labs (CamLIS)
- Flexibility for integration, adaptation to innovative technologies and unforeseen outbreaks
- Development and dissemination of tools (guidelines and SOPs, prakas?)

Human resources

Identify who involved with packaging, transportation, and reception of specimens: clinicians/nurses, lab staff, hospital drivers, RRTs, community healthcare workers,.....

Training

- Target audience: all relevant staff handling specimens
- Training curricula, guidelines, SOPs, ...
- Documentation of requisition forms and transport logs

BIOSAFETY!!!

Supply chain

- Procurement of standard transportation containers, packaging materials, and storage materials
- PPE
- Spill kits
- CamLIS with tracking system?

System for transport

Identify reliable transport system: hospital drivers, transportation company?

Monitoring and evaluation

- Establish indicators for monitoring specimens (transport time, specimen rejection rate, number of patients seen, etc)
- Assess impact on capacity building and sustainability

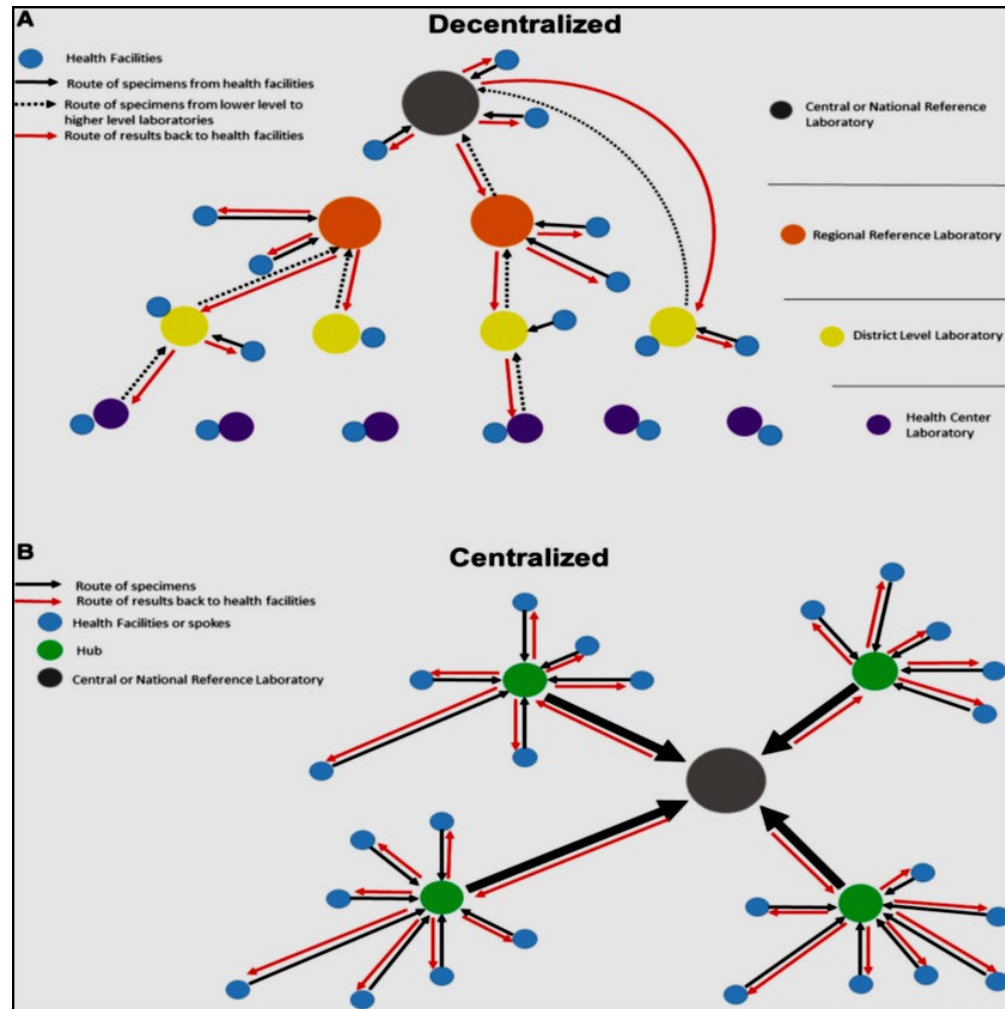
Partnership

Engage stakeholders for increased uptake, coverage, implementation, and monitoring and evaluation (include private partnerships at a later stage?)

Communication

- Maintain communication between referring sites and testing site(s) to resolve any problems that are identified
- Maintain communication strategies for sharing best practices, opportunities, and challenges

Decentralized versus Centralized



Centralized systems

Advantages	Disadvantages
<ul style="list-style-type: none">• Easy to manage samples to referral lab• No sample loss or stealing• Arriving within schedule	<ul style="list-style-type: none">• Need space/place• Need staff on duty• May be more expensive• Double work• Limitation of coverage, lack of participation from sites

Decentralized systems

Advantages	Disadvantages
<ul style="list-style-type: none">• No double work• Faster• More affordable• No need for extra staff• Participation from sites• No need for intrainstitutional specimen transfer!	<ul style="list-style-type: none">• Limitation of quality data management

Centralized models

Country/ Programme	Interventions	Outcomes
Uganda HIV, TB, malaria, West Nile virus, Zika virus, Crimean- Congo hemorrhagic fever virus	<ul style="list-style-type: none">• Mapping of hub-and-spoke transport system• Training of bike riders	<ul style="list-style-type: none">• Increased access to EID testing with increased volumes by 36.4% and 51.7% per month in Jinja and Kampala, respectively• Turnaround time (TAT) reduced from 1–2 mo to 5–10 d for EID results• TAT reduced from 21 d to 3 d for TB results• Overall operational cost reduced by 62% (from US\$6460 to US\$2428) and projected to save US\$1.2 million over 4 y• Flexible for integrated specimens: EID, CD4, chemistry, hematology, TB, and malaria smear referral
Caribbean HIV, H1N1 influenza	<ul style="list-style-type: none">• Planning linking of Caribbean countries to regional reference laboratory in Barbados• Development of SOPs and provision of standard materials for packaging and transportation	<ul style="list-style-type: none">• Enabled initiation of HIV patients on ART treatment• Ability to test for H1N1

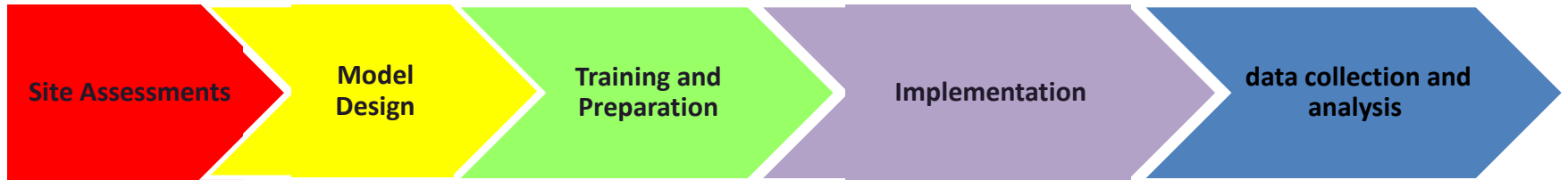
Decentralized models

Country/ Programme	Interventions	Outcomes
Vietnam TB	<ul style="list-style-type: none"> • Development of SOPs for safe packaging of specimens • Training of facility staff on use of SOPs • Identification and hiring of courier service and transition to postal service • Provision of standard packaging materials for specimens 	<ul style="list-style-type: none"> • Number of TB specimens examined increased by 30% (from 21 870 to 28 413) and 46% (from 17 160 to 25 097) in Hanoi and Ho Chi Minh city, respectively • Number of new patients starting MDR-TB treatment increased by 19% (from 578 to 713) • Specimen delivery time from 3 wk to 1 wk • Improved safety of referral system
Haiti HIV	<ul style="list-style-type: none"> • Establishment of logistic and coordination committee • Mapping of hub-and-spoke transport system for facilities • Improvement of infrastructure at hub and laboratory • Training different cadres (laboratory technicians, drivers) • Development of SOPs and provision of standard packaging materials 	<ul style="list-style-type: none"> • Increased access to quality CD4 testing from 27 sites to 113 sites (315%) • Testing volumes for CD4 increased by 76% • Number of patients enrolled on ART for new sites joining the specimen referral network increased by 182% within 6 mo

Evaluation of performance of specimen referral system

- What is the proportion of specimen collection sites participating in the current specimen referral system?
- What is average turnaround time from collection to pick-up?
- What is average turnaround time from pick-up to delivery to the testing laboratory?
- What is average turnaround time from obtaining a result to delivery of the results to the referring laboratory or clinician?

Pilot timeline



Group activity: setting up a pilot specimen transportation system

- 1) ILI/SARI
- 2) Outbreak (most affected provinces?)
- 3) Other surveillance systems? Japanese encephalitis, dengue, malaria...

Points to consider: how many sites are involved? How do they usually transport specimens? Are the transporters trained?

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Thank you!!