

Electronic Medical/Health Record

A way to realize it

Research Study

Application of *openEHR* system to Tuberculosis program in
Cambodian public health sector



Cambodian
Ministry of Health



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Research purposes

The research is seeking a better way to use state of the art Electronic Health Record technology to:

- facilitate data entry and storage of TB records,
- tackle on-demand retrieval of TB patient record, anywhere and anytime,
- allow for continual records to follow-up a TB patient, and
- integrate with other types of Electronic Record, such as Maternity and Metabolic syndrome pertaining a patient.

More broadly, the research will evaluate the possibility of introducing openEHR approach in Cambodian public health sector

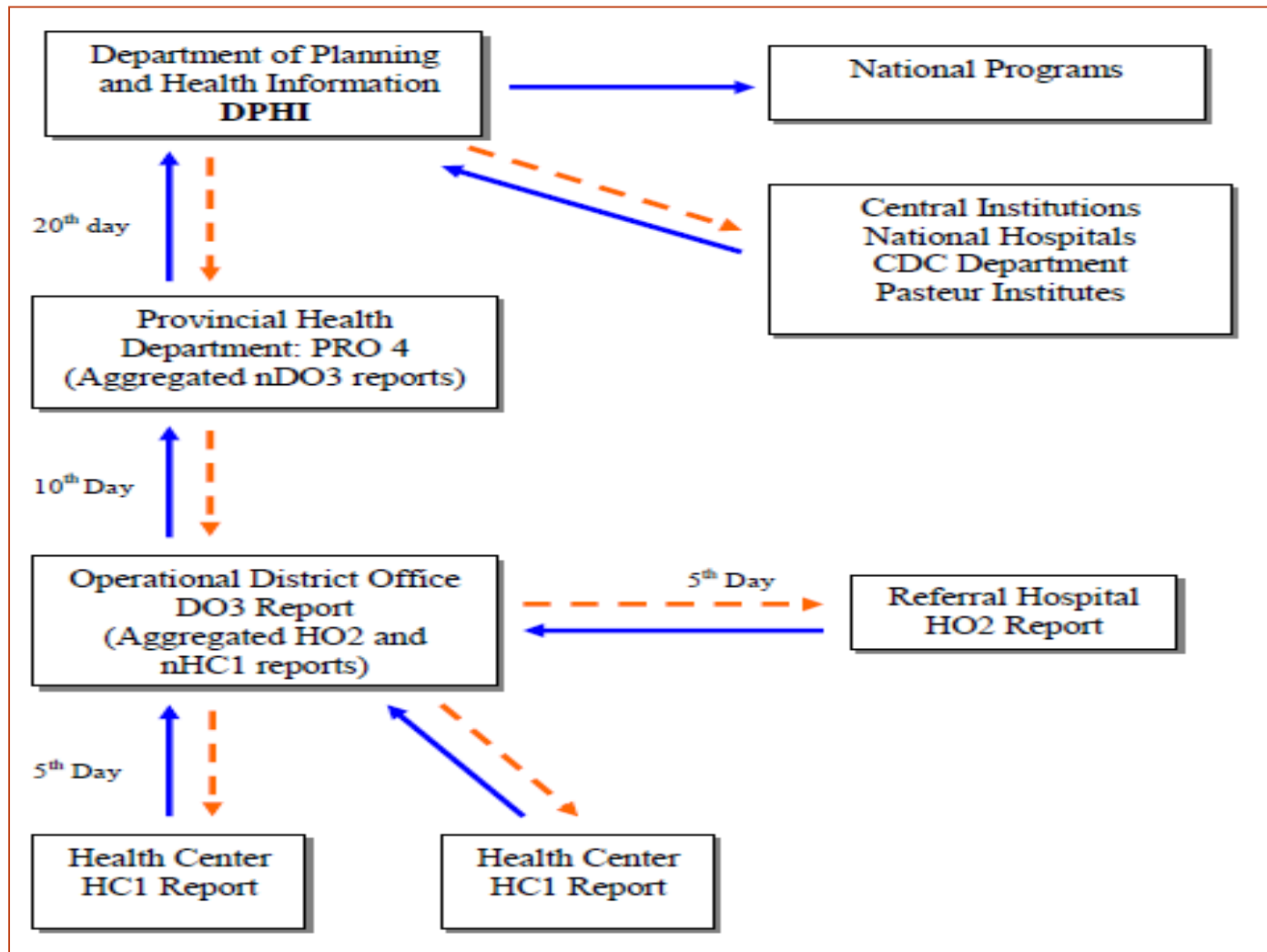
Presentation at a glance

- Current situation of Cambodian HIS
- TB Information Flow
- Feedback from health managers
- Foreseeable barriers
- Conclusion

Current situation of Cambodian HIS

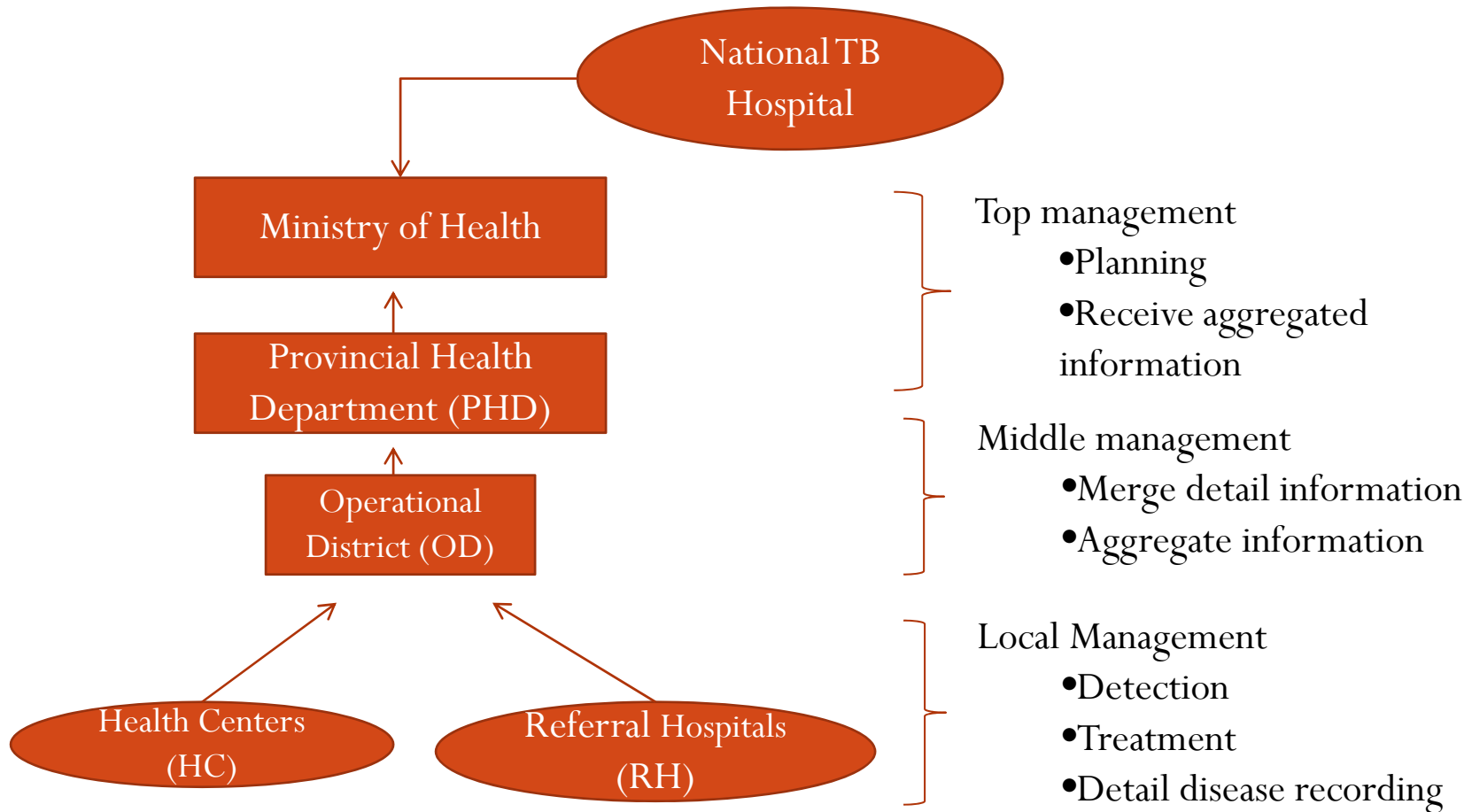
- Cambodia has been using some kinds of HIS (Health Information System) which only bases on the PAPER medical records from hospitals and health centers.
- It takes 20 days for the aggregated record of diseases to reach the ministry and other concerned institutions. Aggregated TB record is sent to the ministry every three months.
- The record is aggregated stage by stage from health centers and hospitals until the Department of Planning and Health Information (Ministry of Health).
- The final processed report is difficult to verify and determine the quality at central levels.
- TB medical history is filed in paper, which is subject to losses and difficult to manage when a patient is referred from one place to another.
- There is no prospect that all types of medical records of a patient can be integrated.

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Medical data collection process in the Ministry of Health

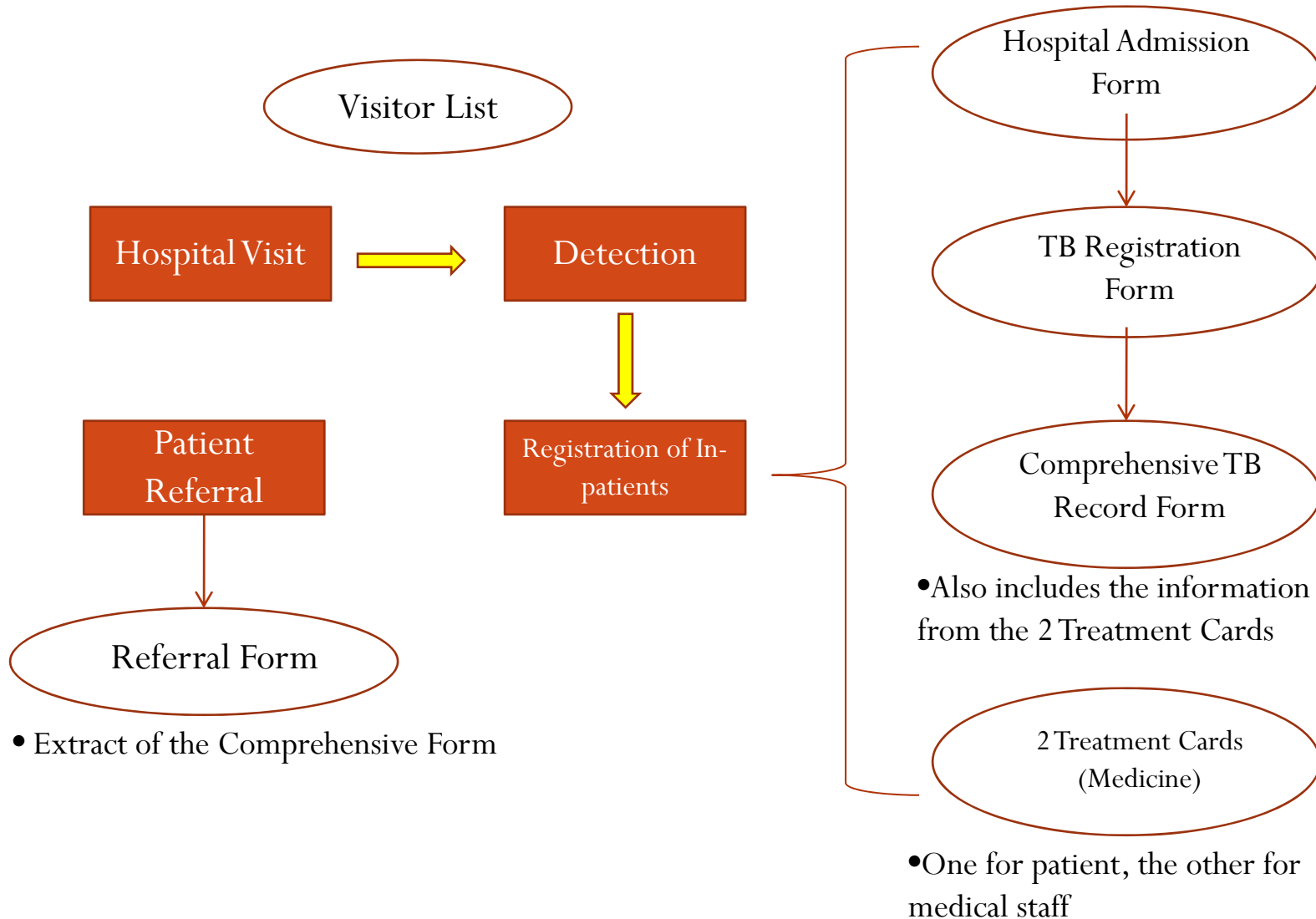
National TB Information Flow



At OD level

- Some kind of EMR system used by OD staff for keeping merged TB registration records
- It can generate enough aggregated statistic reports
- Stand-alone and TB information cannot be integrated with other types of diseases

Information Flow in the National TB Hospital



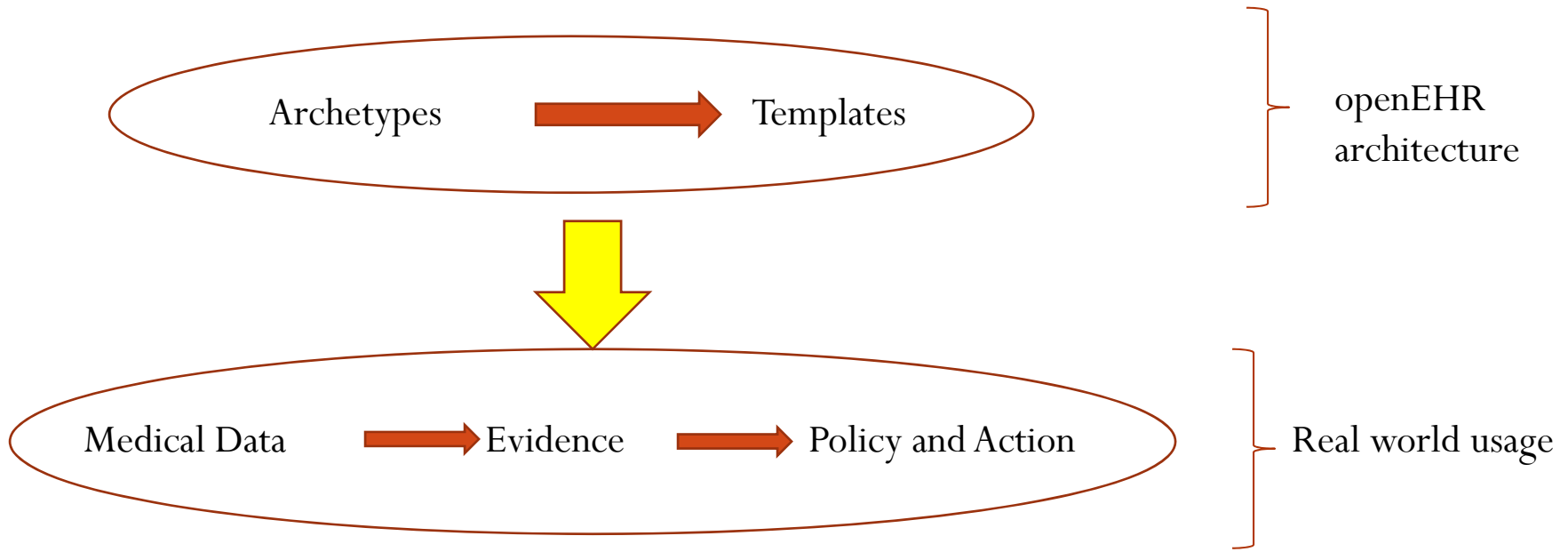
Some Rationales for the Research

- Ministry of Health has standardized:
 - Directly Observed Treatment (DOT) ,
 - The information flow and,
 - The record management

This means TB template forms can also be standardized and used across the country.

- Based on the national TB information flow (see the slides), a better approach is needed for:
 - Some level of health data security
 - Integrated health information at care points (if possible web-based)
 - Reduction of paper-based record at care points (health centers and hospital)

What we want...



- Data

quality and sharing can be accomplished
accurate, timely, and complete

Integration

Standardization

Simplicity

Reliability and

Computerization

Foreseeable barriers

- Lack of IT infrastructure
 - internet and its speed, service price, electricity shortage, etc.
- Certain level of human resources, though not substantial, is needed.
- Staff motivation issues.
- Institutional willingness to share their keyboard work

Demo

Preliminary feedback from Health Managers

Feedback from the Director of DPHI (Department of Planning and Health Information) and the vice chief of health information office:

- EHR system is the basis of HIS
- Archetype/template-based approach of openEHR is believed to be viable in terms of flexibility and economic aspects
- A committee should be set up for discussing and composing templates for various diseases
- There should be one sample hospital that adopts the openEHR system before moving further to the whole public health sector implementation
- There should be a good way to solve the ID number issue because currently all health facilities maintain the number separately
- Patient privacy and data security is one of the most important aspects to look at if patient data is to be shared

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Different perspectives...

- User friendliness
 - Despite being auto-generated, the UI look fine and easy to understand and use
- Meeting the local need
 - The TB templates currently set up in the Tool is not yet enough, more templates needs to be created for better following up a patient
- Policy
 - openEHR approach is in line with the Ministry intention to set up the national EHR system, which is the backbone of the HIS
- Management
 - It is agreed that archetype/template makes openEHR flexible and the standard mechanism will facilitate record management of diseases
- Economic
 - There are questions on the infrastructure as mentioned earlier

Conclusion

- openEHR is estimated to be feasible and viable for its implementation in Cambodian public health sector.
- The implementation plan should start from two hospitals to prove the awesome power of openEHR.
- Tuberculosis is the first step prior to implementing the openEHR approach to other diseases. And we still have to break through the aforementioned barriers

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THANK YOU!

Questions, comments welcome...