Vietnam EPI presentation

Electronic Immunisation Register (EIR), Indonesia Study Tour

22–25 July 2024

Linked Immunisation Action Network

Members from Vietnam

Trung, Nguyen Thanh

*VPDs surveillane &
statistic group, Leader*
EPI Staff – Researcher

I've been working in the Vietnam EPI Office for 20 years.

My main job is to compile data on vaccination results and VPDs surveillance

Besides, I support checking data on NIIS and feedback if any errors

Hoang, Nguyen Huy

Planning group
EPI staff - Researcher

I've been working in the Vietnam EPI Office for 3 years.

My job is to manage and allocate vaccines and supplies in RI system.

I am also involved in building, managing and using the NIIS.

Khang, Pham Van

VPDs surveillane & statistic group
North EPI staff - Researcher

I've been working in the Vietnam EPI Office for 12 years.

My main job is to compile data on vaccination results and VPDs surveillance

Besides, I support checking data on NIIS and feedback if any errors

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Country Coverage by Indicators from 2019 to 2023

	2019	2020	2021	2022	2023
DTP3 %	89,4%	92,8%	83,2%	90,6%	
MCV1 %	95,4%	96,9%	89%	87,7%	
Zero dose children % (definition in the footer)	3%	4%	12%	12%	Continuous analysis data
% of under-five fully immunised children	94,3%	96,9%	87,1%	87,6%	
Denominator used	1,5 milions				

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Vietnam Demographic

Population: 100 mil (2023).

Children <1 year: ~ 1.5 mil (~ PW).

4 regions / 63 provinces/ 713 disticts/ 10.639 communes.
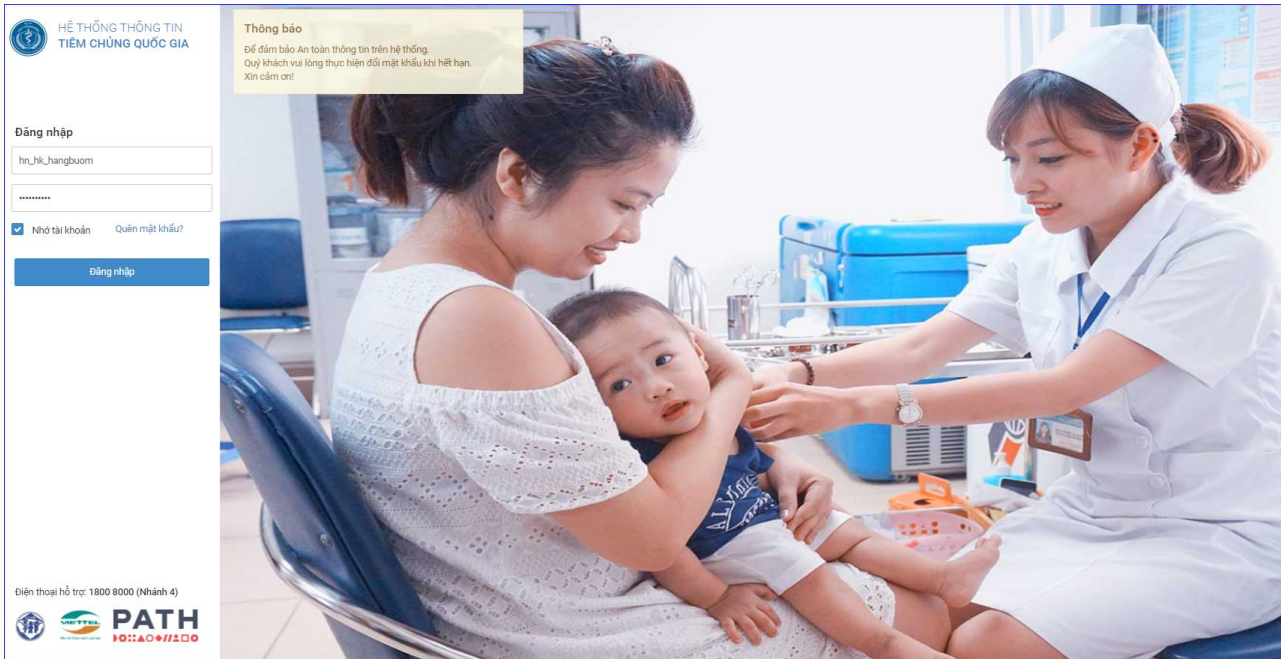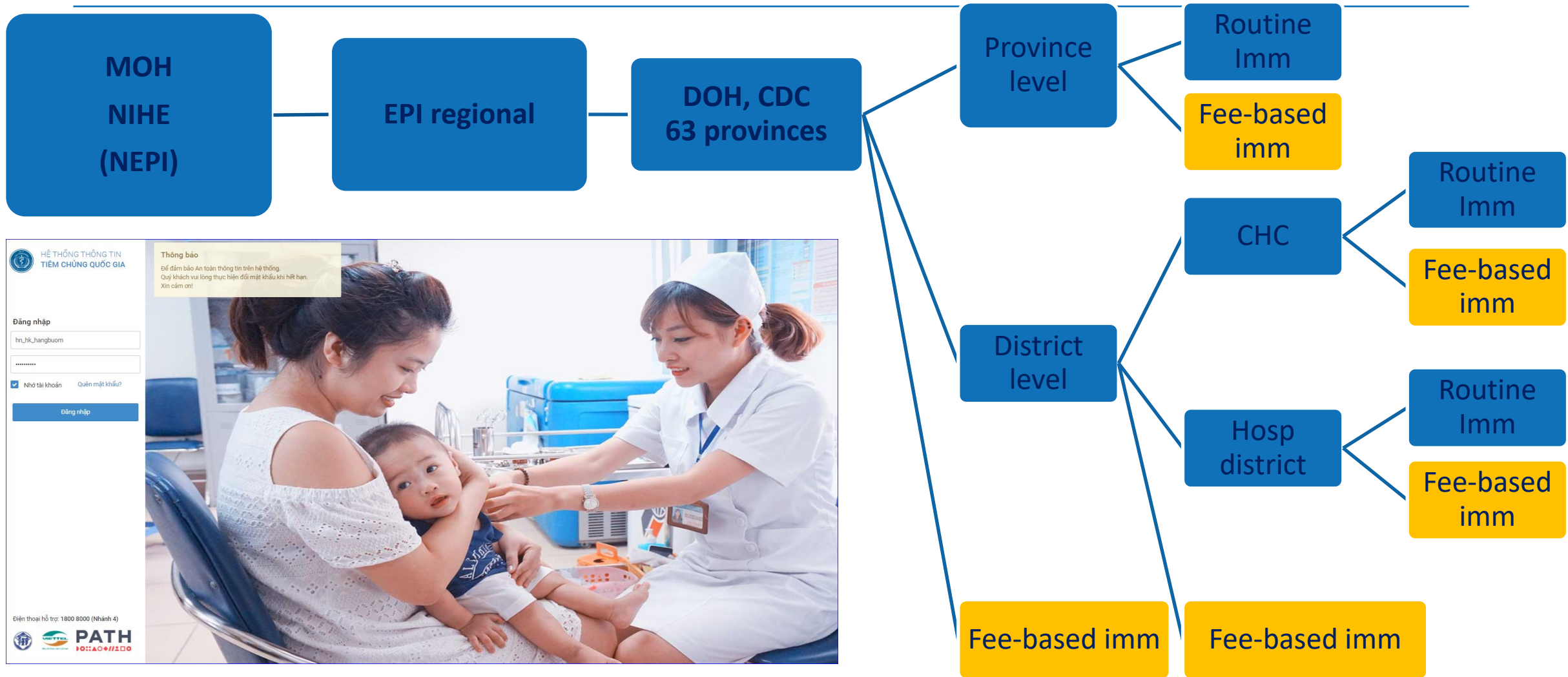
Over 14.000 Routine Immunization sites.

2 big cities:

- Hanoi capital: 8mil peoples, population density 2,480 peoples/km2

- Ho Chi Minh city: 9mil peoples, population density 4.375 peoples/km2

Rapidly growing urbanization in nearby provinces.

Vietnam has ¾ (75%) of its territory consisting of mountains and hills, with many hard-to-reach areas and low population density. According to 2022 data, the urban population is 37.09 million people, accounting for 37.3%; The rural population is 62.37 million people, accounting for 62.7%. GDP per capita is about 3,800 USD.

Vietnam

Northern

National Institute of Hygiene and Epidemiology, Hanoi

Central

Highland

Institute of Hygiene and Epidemiology, Highland

Pasteur Institute, Nha Trang

Southern

Pasteur Institute, Ho Chi Minh city
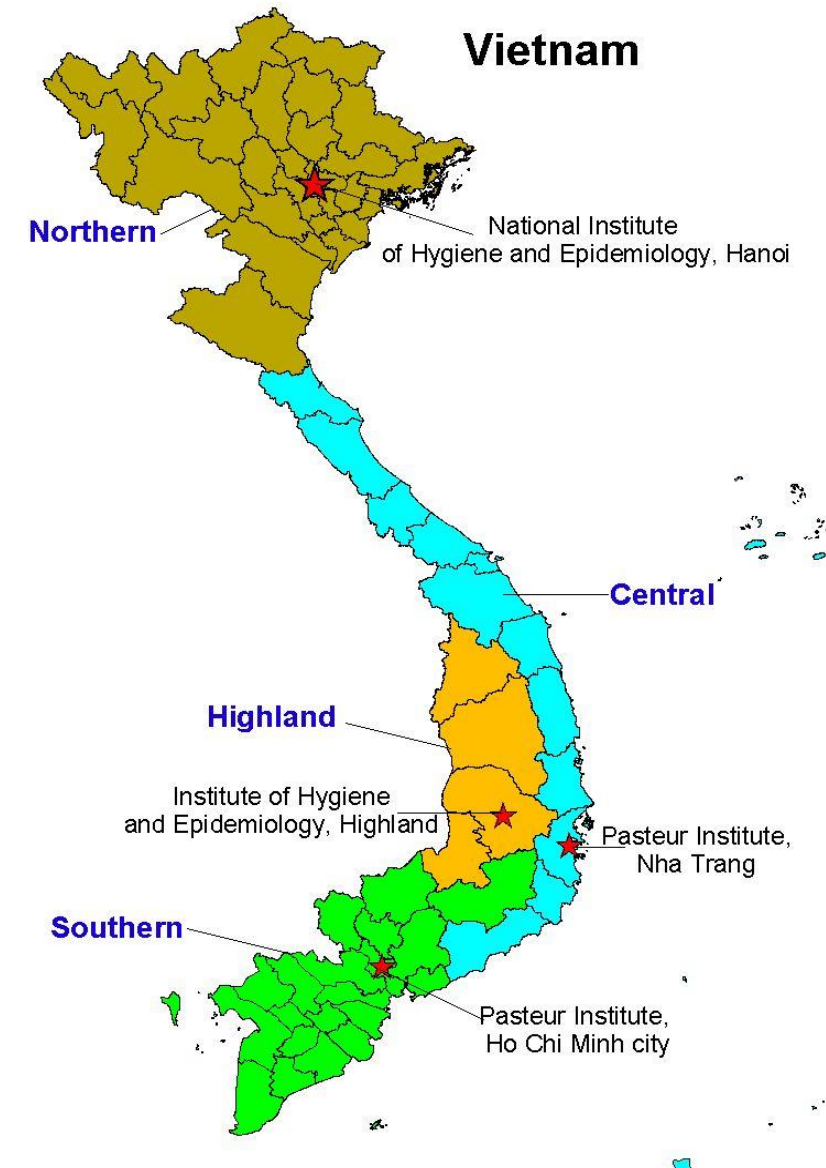
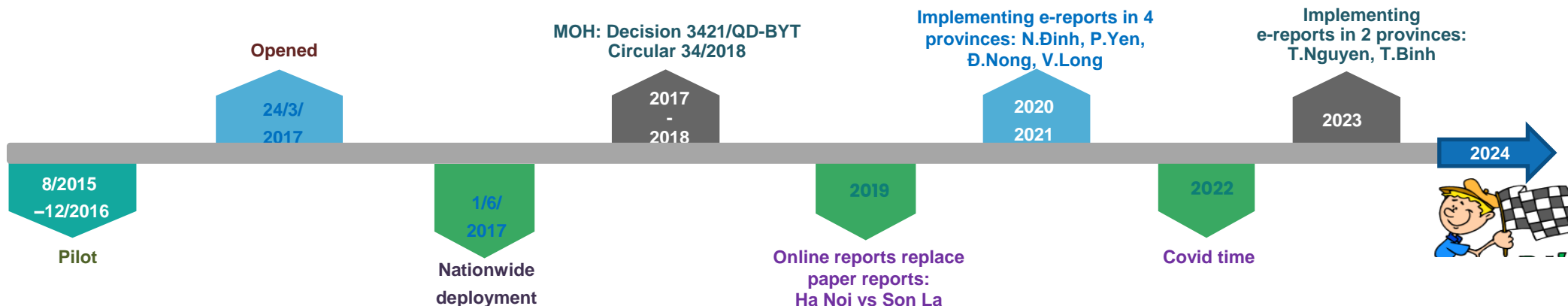# National Immunization Information System

Perform vaccinations

- **Routines Immunization** (Commune Health Centers conduct fixed and mobile immunization sessions): **~ 10.600** sites.

- **Hospital-based immunization facility: ~ 2.000** sites

- **SIAs, campaign**: school, mobile vaccination stations/outreach

- **Paid vaccines** (Private Vaccination facilities): **~ 2.000** sites.

Manpower requirements at vaccination sites: At each fixed vaccination site, we require at least 03 health workers, one of whom has a medical doctor assistant's degree; mobile vaccination or vaccination sites in remote areas or disadvantaged areas must have at least 02 health workers who have associate degrees in medicine or above, one of whom has a medical doctor assistant's degree.

Health workers participating in vaccination must be trained on vaccination before their participation

EIR context in Vietnam - NIIS

- Vietnam EIR named the National Immunization Information System (NIIS at *https://tiemchung.vncdc.gov.vn*)

- After the pilot phase, NIIS has been rapidly scaled up nationwide since 2017 (with nearly 15,000 facilities). Currently, there are over 36M peoples (records) were registered and personal immunization information managed on the NIIS.

- NIIS is mandatory at all public immunization facilities, hospitals and private vaccination sectors (Decree 104/2016/ND-CP dated 01/7/2016 by Prime Minister).

- After 7 years of implementation, NIIS is used in the daily work across levels in EPI and private sectors, saving time and reducing HWs' workload of reporting system and EPI management.

Timeline:

- **Opened** — 24/3/2017
- **MOH: Decision 3421/QD-BYT Circular 34/2018** — 2017 - 2018
- **Implementing e-reports in 4 provinces: N.Đinh, P.Yen, Đ.Nong, V.Long** — 2020 2021
- **Implementing e-reports in 2 provinces: T.Nguyen, T.Binh** — 2023
- 8/2015 –12/2016 — **Pilot**
- 1/6/2017 — **Nationwide deployment**
- 2019 — **Online reports replace paper reports: Ha Noi vs Son La**
- 2022 — **Covid time**
- 2024

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Vietnam NIIS

Some features the NIIS provides:

A real-time Immunization registration and tracking
- ✓ Registration of individuals, including demographic Information, and all vaccine doses administered for a lifetime update and use
- ✓ API (Application Programming Interface) connection with databases of the private sectors
- ✓ Registration of vaccination events
- ✓ Immunization Tracker & Planning
- ✓ SMS reminder for clients, E-immunization card, Barcode scan
- ✓ Generation of aggregate reports to monitor vaccine coverage
- ✓ Monitoring the NIIS deployment

Vaccine management
- ✓ Vaccine and immunization material allocation
- ✓ Vaccine lot tracking
- ✓ Vaccine receipt and …

Integrated with Nutrition Program: Growth monitoring data

Commune Health Center

Fee-based Immunization Facility

Hospital

Barcode Scan

Vaccine Tracking

SMS Reminder

Reporting

Immunization Tracker & Planning

E-Immunization Card

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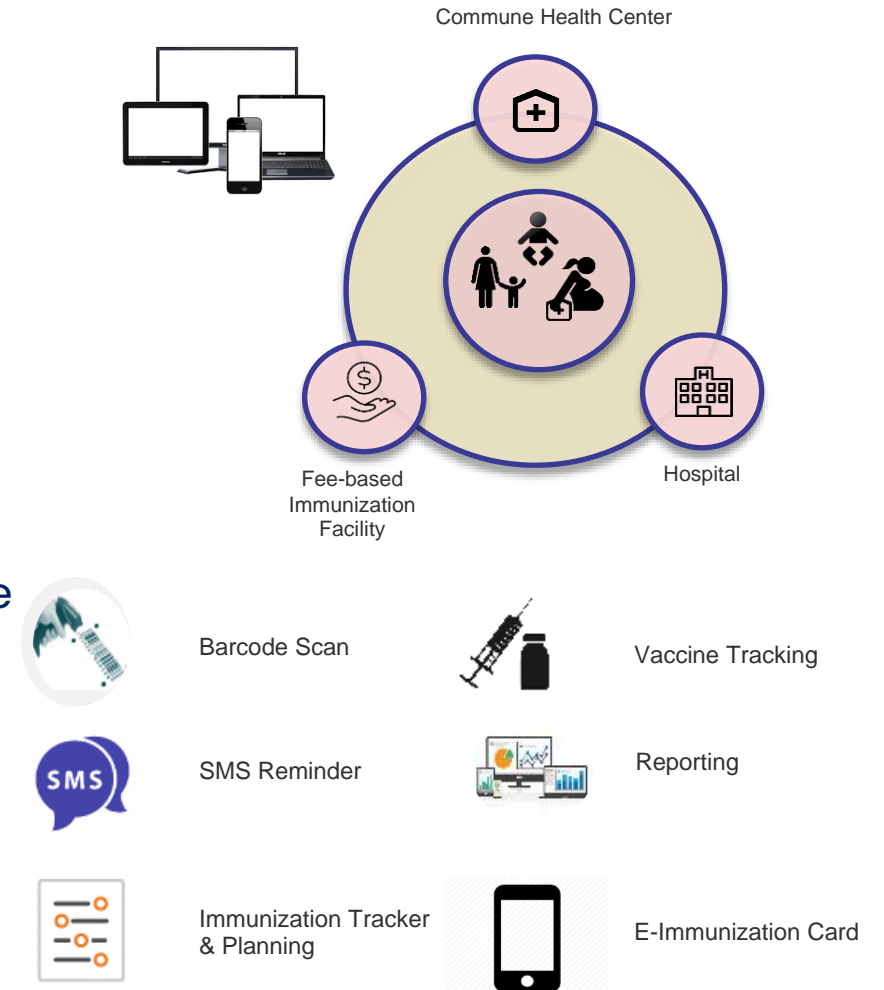
Personal Immunization Records

Before NIIS was implemented:

○ Parents

Immunization Book
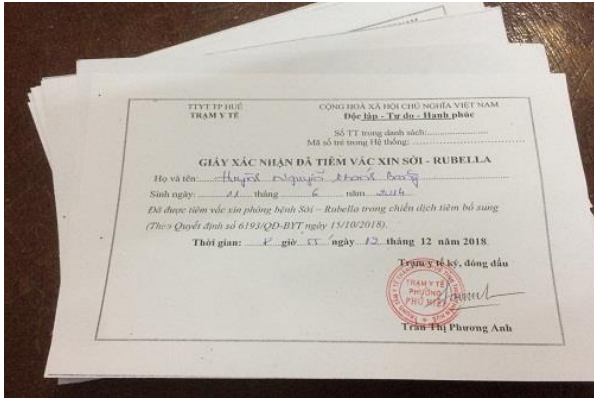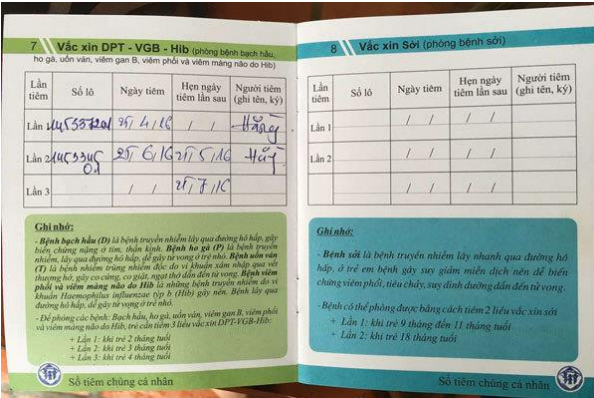
Immunization Card

○ Health care worker:

Personal Immunization Records

After NIIS was implemented:

Individual is managed on NIIS with a generated Immunization ID. However, paper immunization book with printed/written immunization ID is still widely used.
- A mobile application linked to NIIS for (E-immunization book) for parents.
- A mobile application specifically for HWs is being developed.

Health care worker can search for individuals (by ID, name or other information) and enter injection data on NIIS.

Personal identification numbers created by NIIS
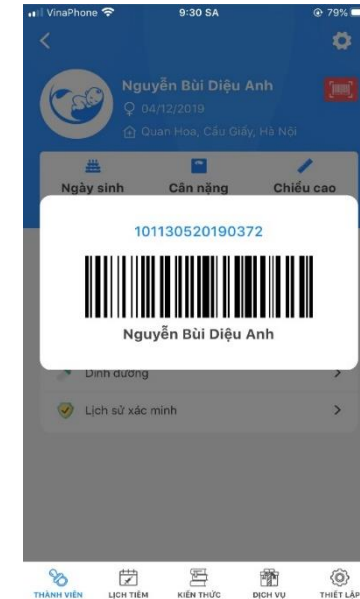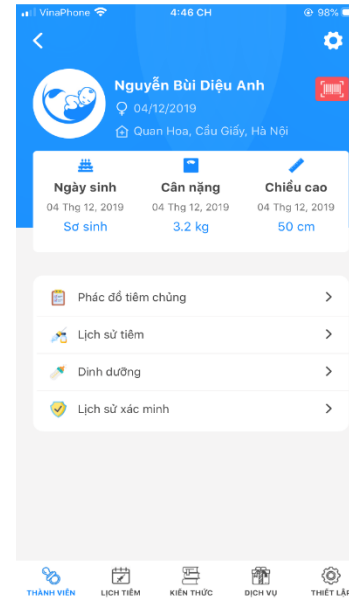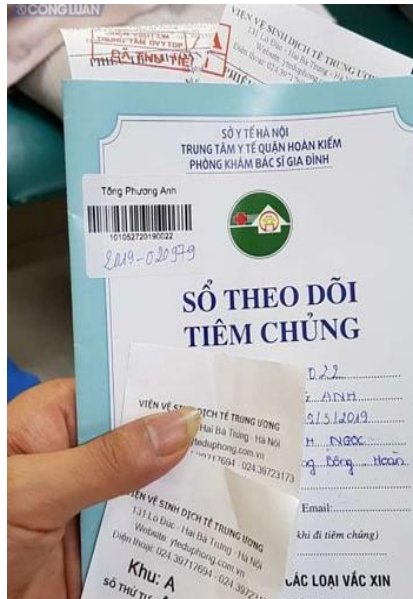
Mobile app for parents with 200,000 installations

NIIS manages the following information

- **Demographic information:** Full name, DoB, gender, unique immunization ID, address, mother, father, phone number…
- **Immunization records:** Injection, antigen, vaccine type, vaccine lot, vaccination date, health facility, AEFIs. All vaccine doses provided by either public or private facilities will be recorded into the system.
- **Nutrition** (under implementation)
- **Log file** to track any changes or update

Registration process and data management

- Hospitals, commune health centers registers newborn and PWs to the NIIS. Most of infants is recoded in the system before discharge. Other population maybe registered by the private facilities
- The system will send an automatic alert to the commune health center where the child will live
- CHC enters data of each vaccine dose once it is given
- Data is stored at the Viettel data warehouse (Vietnam's largest telecom group). The system is operated and secured by the Viettel
- National EPI office oversees and provides technical support and focal points for technical areas including formulating, modifying reporting templates and data entry as well as monitoring implementation at all levels.
- The Ministry of Health develops policies and approves APIs to connect and synchronize data between private facility data sets and the NIIS.

NIIS support the HWs

○ Manage vaccination subjects of their area on NIIS: lifelong immunization data, system notification of newcomers

○ Plan a vaccination session: make a list of eligible children for each antigen and dose, estimation of vaccine need, number of immunization sessions

○ Notify parents date and vaccine that children should take if they pay for SMS service

○ Export immunization logbooks for children, PWs…

○ Generate reports on NIIS.

    ○ Progress of immunization performance

    ○ Vaccine coverage rate with age group and areas, antigen

    ○ Report on vaccine and materials.

    ○ Report VPDs prevalence.

- Reduce workload.
- Reduce paperwork.
- Increase data accuracy and completeness of data
- Supports many different purposes.

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Vaccination coverage calculated and reported

- Vaccination coverage calculated:
    - Manually calculated from CHC's vaccination logbooks.
    - View reports generated by NIIS

- Population denominator:
    - Based on the number of similar target age groups of the previous year: To calculate vaccination progress.
    - Based on the number of children registered on NIIS with target age groups. NIIS can count the number of children registered by age as a denominator in formulas for calculating antigen immune coverage rates.

- Reported:
    - Report online on NIIS. (Higher levels can view lower-level reports, we have plans to integrate digital signatures into NIIS)
    - Hard copy reports (signed and stamped) are still required.

Challenges with reporting coverage data

1. Data quality: related to numerator and denominator.-
   - There are individuals who are registered multiple times on NIIS (when they go to a new vaccination facility, they are not searched on NIIS and create a new ID).
   - Individuals change their residence to another area. (when the change is not detected and adjusted on NIIS, the object is still recorded in the denominator of the old area, not yet managed by the new CHC).
   - There are injections that do not have data entered into NIIS (a few private sectors: have their own software, have not used NIIS, laziness or delay of staff, connecting via API with missing data).
2. The database is large while the capacity of the data warehouse is not enough (server, internet quality), leading to NIIS needing a lot of time to create reports for large areas.
3. Calculate basic immunity: For 1 antigen, there can be many different types of vaccines (different in vaccination schedule, number of basic shots needed, number of combined antigens)

Learning priorities

1) How the EIR system is designed, operated and managed across levels in Indonesia:

   - Main functions, how the system operates (data entry, data management, reporting,…)?
   - How does HW register a newborn on the EIR?
   - Which is information collected and entered the EIR?
   - How does the system identify and remove duplication?
   - Are you rolling out E-card for immunization or mobile apps for parents?

2) How to coordinate between levels (feedback, technical support, training, supervision)?

3) Private sector participation in EIR implementation (Is this mandatory for all facilities stated in the law or any legal document, is there a separate system, is there monitoring?)

4) Share Indonesia's experiences on implementing vaccination history checks for children entering school.

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Thank you so much!