

Pacific Health Information Network

Strengthening Health Information Systems and Digital Health

Strengthen Health Information and Digital Health through Implementation of M&E Strategic Plan(2021- 2030) in Papua New Guinea (PNG)

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Presentation outline

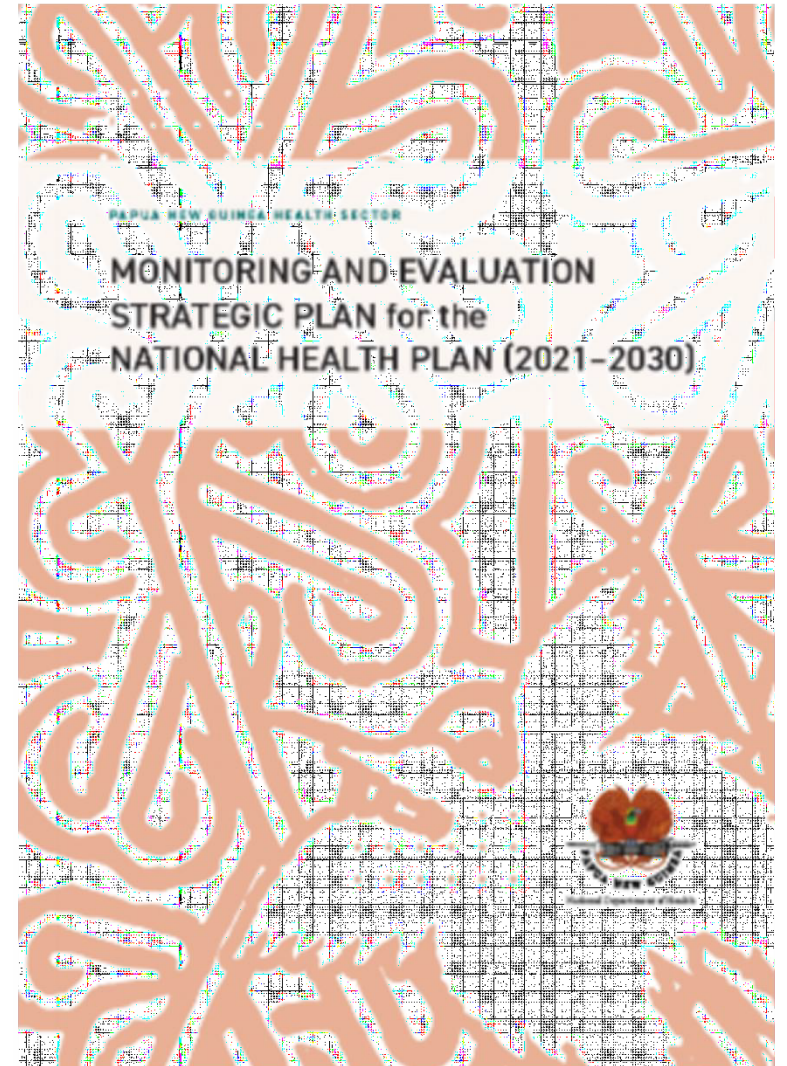
1. Status of health information systems & digital health in PNG
 - Policy context
 - Governance & coordination
 - Health information systems
 - Digital health environment
2. On-going challenges & actions outlined in the M&E Strategic Plan to address challenges
3. Progress in implementation of actions to address challenges
4. Proposed 2023-2026 to strengthen health information systems and digital health

Policy context for health information & digital health

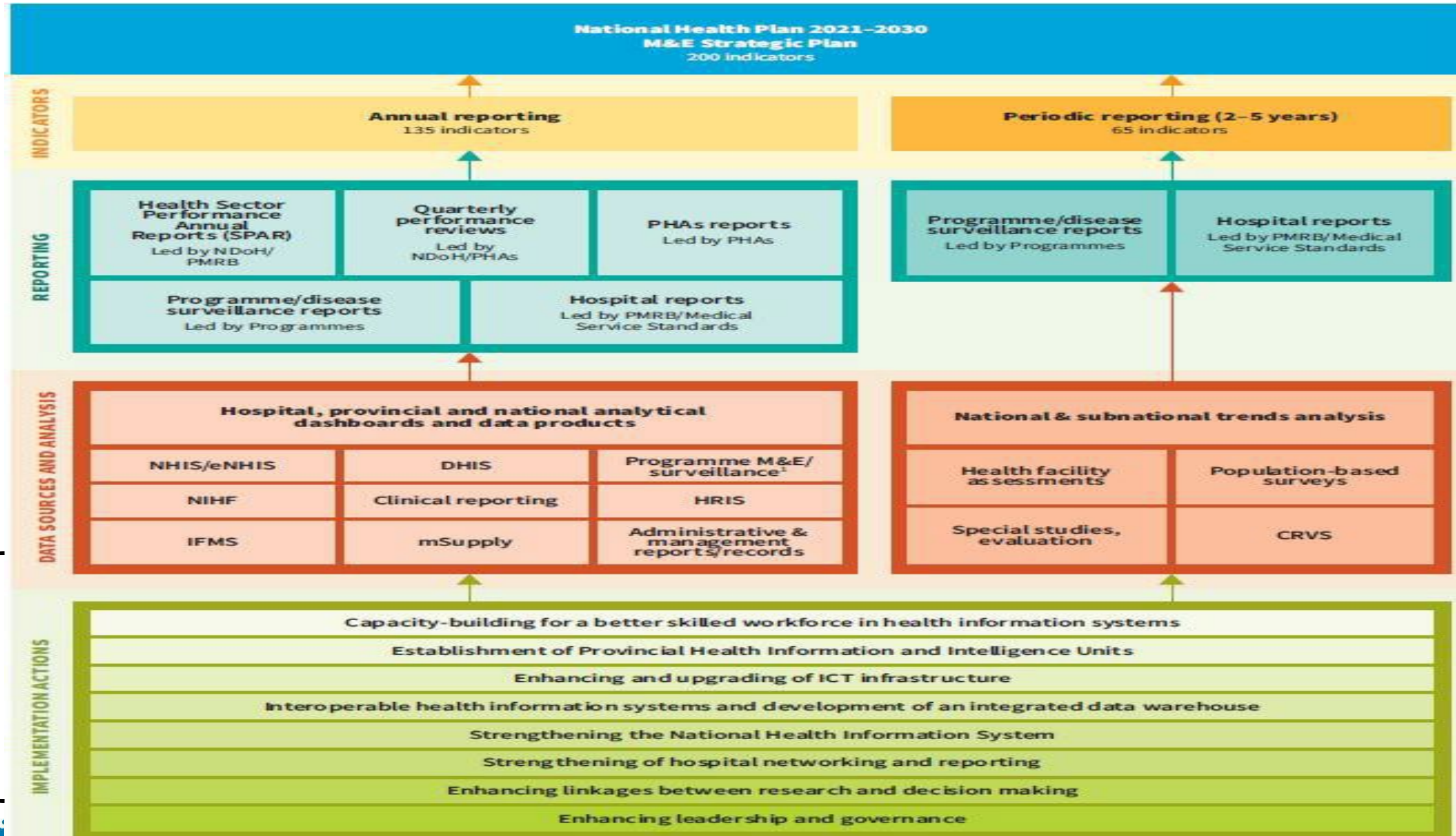


Overview of the M&E Strategic Plan (1)

- The National Health Plan 2021-2030 (NHP) has a vision and objectives with targets to be achieved
- The M&E Strategic Plan was developed to measure health sector performance over the period of the NHP for tracking progress, accountability and learning
- The M&E Strategic Plan:
 - a. Includes a M&E Framework which outlines 200 indicators to track progress across all programmes, with definitions, data sources & targets
 - b. Outlines interventions needed to strengthen monitoring and evaluation and health information systems, including actions to improve data quality
- Endorsed by National Health Board in December 2022, to be launched in March/April 2023



M&E Framework: Strategic Plan (2021-2030)



Implementation Strategy

Actions to strengthen HIS

ALIGNMENT OF INDICATORS TO NHP(2021-2030)

KRAs	Objectives	Strategies	Indicators
KRA 1	3	8	8
KRA2	2	9	7
KRA 3	4	14	8
KRA 4	7	21	127
KRA 5	7	36	50
TOTAL	23	88	200

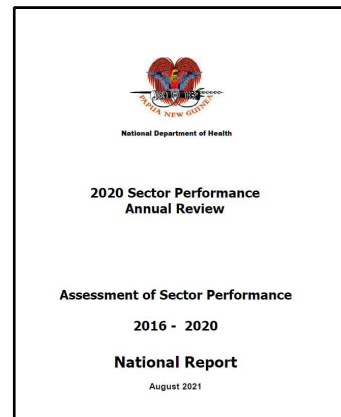
Overview of the M&E Strategic Plan (3)

ANNEX 1: MONITORING AND EVALUATION FRAMEWORK FOR THE NATIONAL HEALTH PLAN 2021-2030

Indicator	Type of indicator	Targets											KRA objective	Means of verification	Frequency	Level of data collection			
		Baseline	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030							
KRA1: More Engaged communities																			
1	PHAs that have developed annual implementation plans (AIPs) with community engagement	Output	NA	30%	50%	80%	90%	100%	100%	100%	100%	100%	100%	100%	100%	1.1	PHA/ NDoH report	Annual	NDoH/ PHA
2	Outreach clinics per 1000 population <5 years	Output	31'	40	50	60	70	75	80	80	80	80	80	80	80	1.1	NHIS	Annual	Health facility
3	Integrated outreach clinics conducted	Output	60'	65	68	72	75	80	85	90	95	95	100	100	1.1	NHIS	Annual	Health facility	
4	Village health assistants per 1000 population	Input	NA	0.2	0.4	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.0	1.2	NDoH/ PHA report	Annual	NDoH/PHA	
5	Availability of village health assistant guidelines and packages of service	Input	No					Yes						Yes	1.2	NDoH report	Annual	NDoH	
6	Availability of national strategy or policy for including local communities in stakeholder discussions on policies and planning	Input	No					Yes						Yes	1.3	NDoH report	Annual	NDoH	
7	Provinces with Health Rehabilitation and Assistive Technology Community-based Rehabilitation Outreach Programmes through clinical services	Output	32%	32%	41%	50%	59%	68%	77%	86%	95%	100%	100%			National Orthotics and Prosthetics Service (NOPS) programme data	Annual	NOPs programme	
8	Districts with a health promotion officer	Output	0%					35%						70%	1.3	NDoH /PHA report	Annual	PHA/NDoH	

M&E Framework

200 indicators reported across all programmes



SPAR annual reporting at national level: **37** core indicators



PHA quarterly/annual reporting: **35** indicators

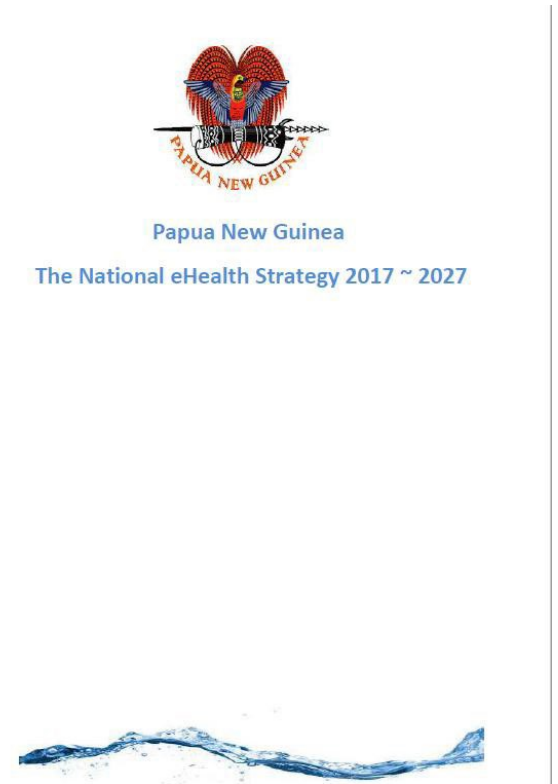
Overview of the ICT Policy

- Serves as a guideline for establishing and utilizing available and appropriate ICT technologies to improve the accessibility, quality, efficiency and effectiveness of health services in PNG
- Key areas covered under the policy include:
 - Standardizing ICT infrastructure in the health sector
 - Building a sustainable ICT and health information management workforce
 - Application of eHealth solutions to address key health issues
 - Development of a unified and integrated clinical management software application and database solution to support continuity of patient care and management
 - Development of a unified and integrated administrative management software applications and database solutions to support corporate functions and information requirements.
 - Establishing secure and robust telecommunication networks
 - Protection of data
- Draft has been finalized and endorsed by eHSC, awaiting SEM approval for NHB final approval

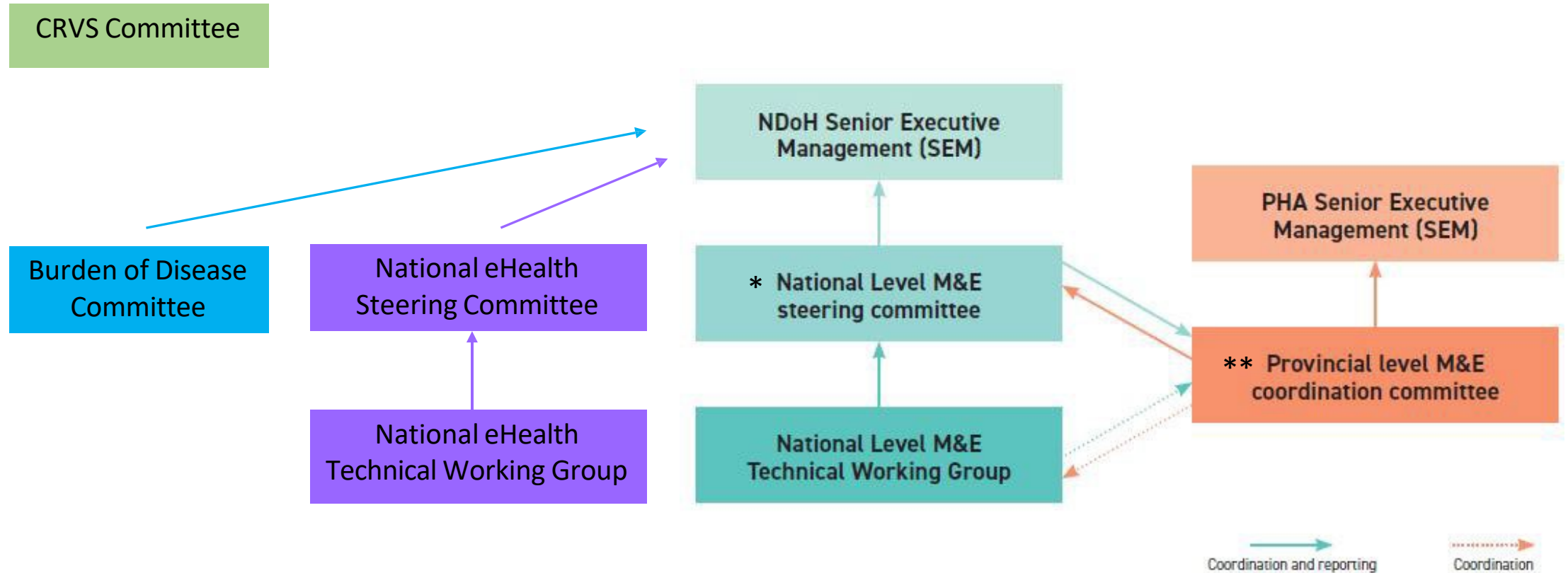
Overview of the eHealth Strategy 2017-2027

- Strategy was developed in alignment with the National Health Plan 2011-2020, but not endorsed and not implemented
- Outlines seven key focus areas:
 - Core clinical systems: electronic medical records, diagnostic solutions
 - Integrated care solutions: unique patient identifiers, secure management and e-referral, patient-provider video conferencing
 - Workforce and business management solutions
 - Data & analytics
 - Data access
 - Infrastructure, security and intelligence
 - Innovation

→ An updated national eHealth/digital health strategy is needed

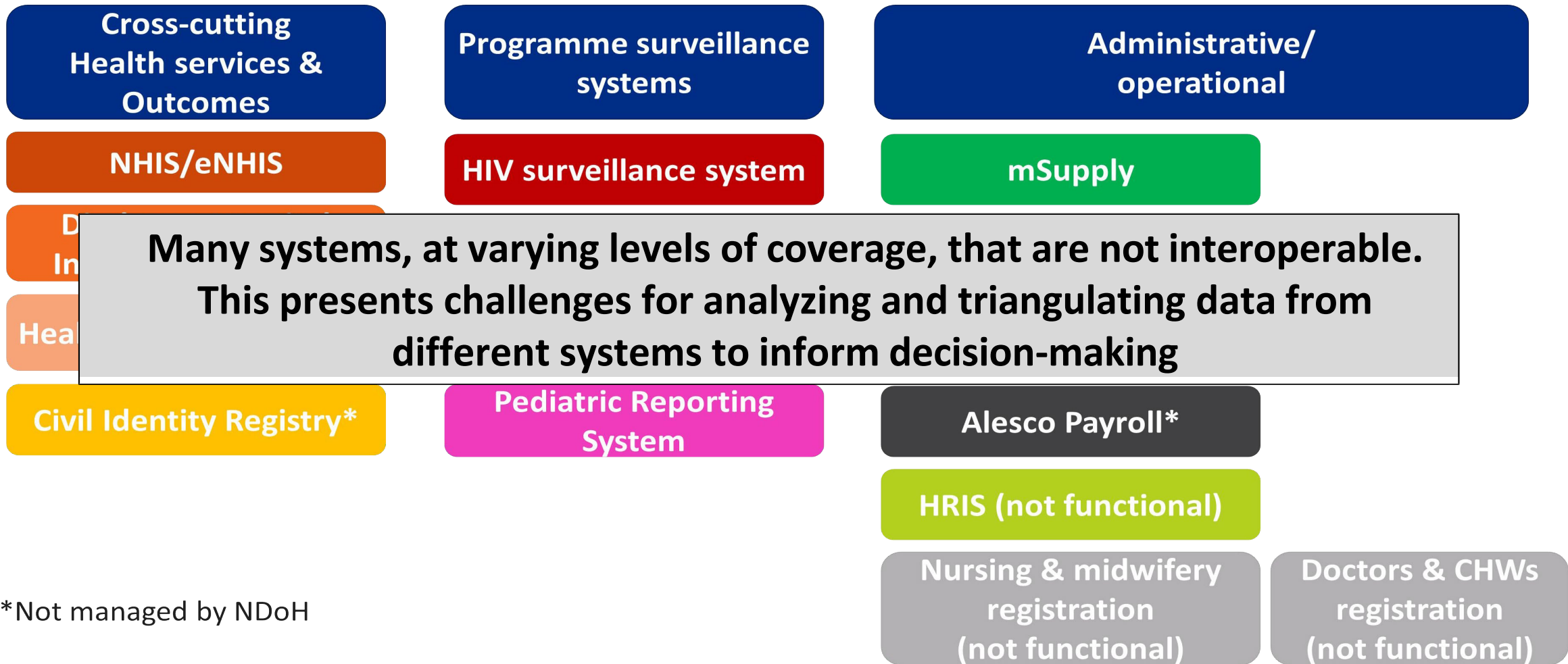


Coordination & governance for health information & digital health



* Yet to be established, ** Currently established in selected provinces

Snapshot of information systems used in the health sector



*Not managed by NDoH

Digital/eHealth environment in PNG

- PNG is in the initial stages of eHealth development
- The national eHealth Strategy needs to be updated and then endorsed and implemented
- Legal and regulatory frameworks need to be developed address cybercrime and ensure data privacy and security
- Strides have been made in eHealth, for example the eNHIS has now been rolled out to all provinces. However, there is fragmentation in electronic information systems
- Limited electronic medical records functionality in two hospitals
- The growth of the mobile network has been leveraged to successfully trial mHealth interventions. However, use of data collected in these interventions to inform policy formulation and planning remains unclear
- Whilst coverage of wireless access has improved, telecommunications networks and infrastructure need to be enhanced, particularly in rural and remote areas
- Human resource capability in ICT needs to be strengthened

On-going challenges with health information systems and digital health

Insufficient human resources with required skills

Limited ICT infrastructure & capacity

Fragmented information systems

Data quality and limited data use

Lack of skilled health information staff at national and sub-national levels. Ex: 1 PHIO in provinces

Limited ICT hardware and software and telecommunications coverage. Insufficient capacity & resources to maintain infrastructure.

Several information systems on different platforms that are not interoperable

Incomplete data of variable accuracy in the different systems. A lot of data generated, however timely analysis and use is limited

Proposed actions in the M&E Strategic Plan

Current challenges & gaps

Insufficient human resources with required skills

Limited ICT infrastructure

Fragmented information systems

Data quality and limited data use

Proposed actions

Strengthening leadership & governance

Strengthening human resources for health information

Establishing Provincial Health Information Centers

Enhancing ICT infrastructure

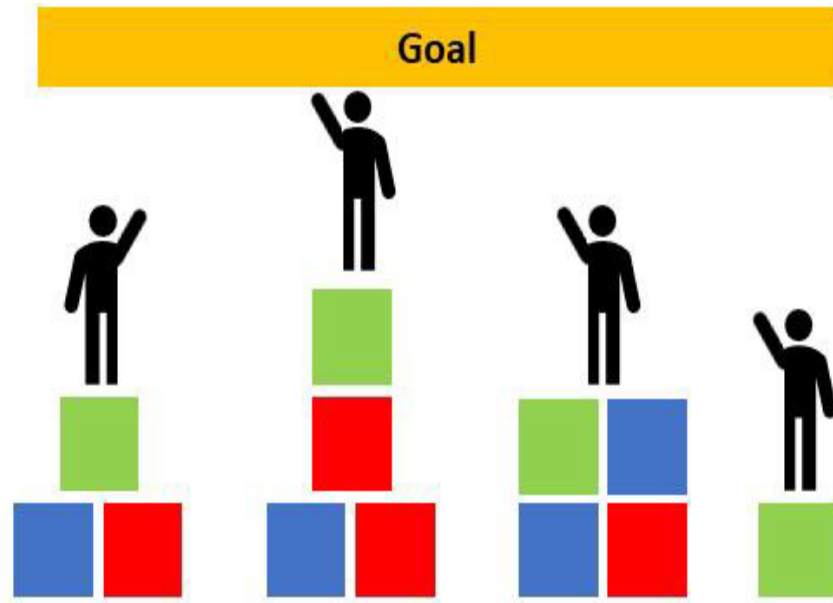
Development of an integrated data warehouse

Strengthening hospital reporting and networks

Data quality improvement and development of tools/approaches for data review and use

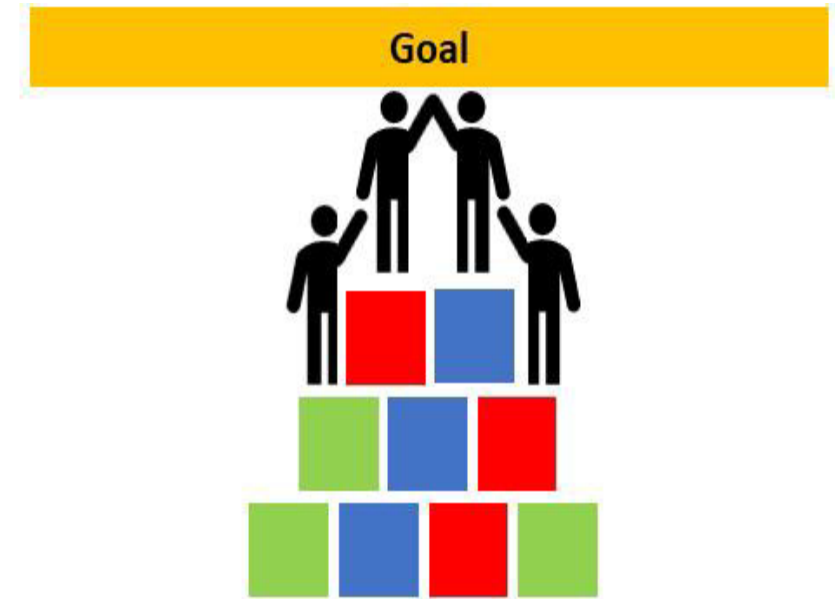
Strengthened information systems and better quality data

Sustainably building capacity of the health information workforce (1)



Traditional approach

Focused on specific programmes or priorities, sometimes ad-hoc



Sustainable approach

Focused on strengthening the health information workforce for the long-term through a competency-based approach

Sustainably building capacity of the health information workforce

- A competency-based approach, which is focused on the ability to combine knowledge, skills and attitudes in practice, is an effective way of systematically and sustainably building capacity
- NDoH worked with WHO in 2022 to define data management competencies required in national and provincial health information roles
- Involved analysis of job descriptions, interviews with staff, and stakeholder consultations
- Competency profiles for Provincial Health Information Officers and Medical Records Officers adopted in October 2022
- Profiles will form the basis for development of capacity building plans and design of trainings



Competency profiles

Outcome: draft competency profile for MROs

Competence Domain	Learner - Beginner	Novice Practitioner	Independent Practitioner	Master Practitioner
Data Generation				
Data management planning		X		
Data creation		X		
Data collection			X	
Data maintenance				
Data Processing				
Data entry				
Data cleaning				
Data validation				
Data verification				
Data transformation	X			
Data Analysis				
Descriptive analytics		X		
Diagnostic analytics	X			
Predictive analytics				
Prescriptive analytics				
Data Usage				
Data interpretation		X		
Data synthesis				
Data reporting			X	
Transfer to action recommendations				

Outcome: draft competency profile for PHIOs

Competence Domain	Learner - Beginner	Novice Practitioner	Independent Practitioner	Master Practitioner
Data Generation				
Data management planning	X			
Data creation		X		
Data collection			X	
Data transformation	X			
Data Analysis				
Descriptive analytics			X	
Diagnostic analytics		X		
Predictive analytics	X			
Prescriptive analytics				
Data Usage				
Data interpretation			X	
Data synthesis	X			
Data reporting			X	
Transfer to action recommendations		X		

Competency profiles to be published and disseminated in March/April 2023
 Capacity building plans to be developed in 2023 using profiles as a basis

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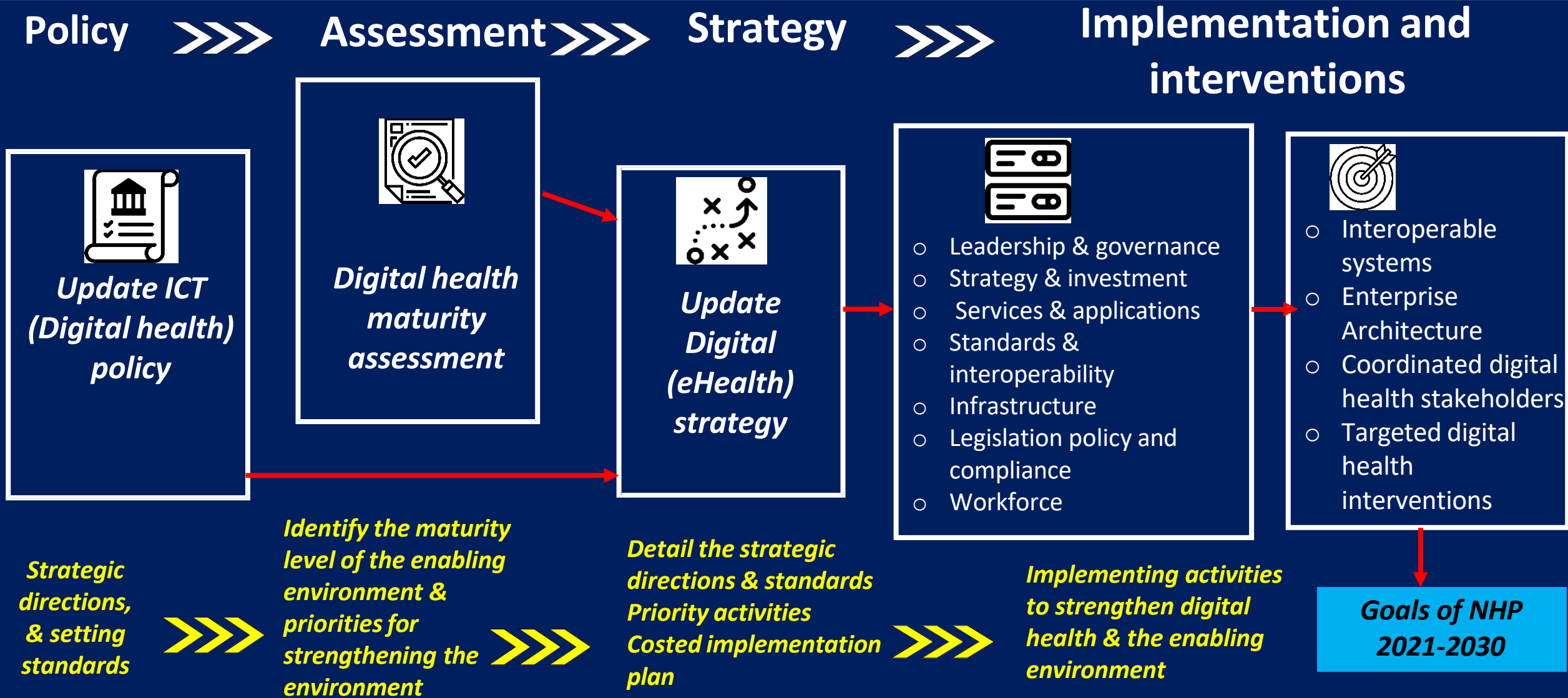
Data quality improvement and development of tools/approaches for data review and use

Strengthened information systems
and better quality data

Establishing a data warehouse within a strengthened digital health environment

- The M&E Strategic Plan outlines plans for establishment of a data warehouse that would pull together data from different health information systems to facilitate multi-source data analysis and decision making
- Putting into place the data warehouse will require an understanding of the different information platforms used and defining data standards across health information systems
- To ensure sustainability of the data warehouse a strengthened digital health environment is required
- NDoH will be undertaking a digital health maturity assessment in Q1 & Q2 2023
- This will also inform development of an updated national digital health strategy

The pathway to a strengthened digital health environment



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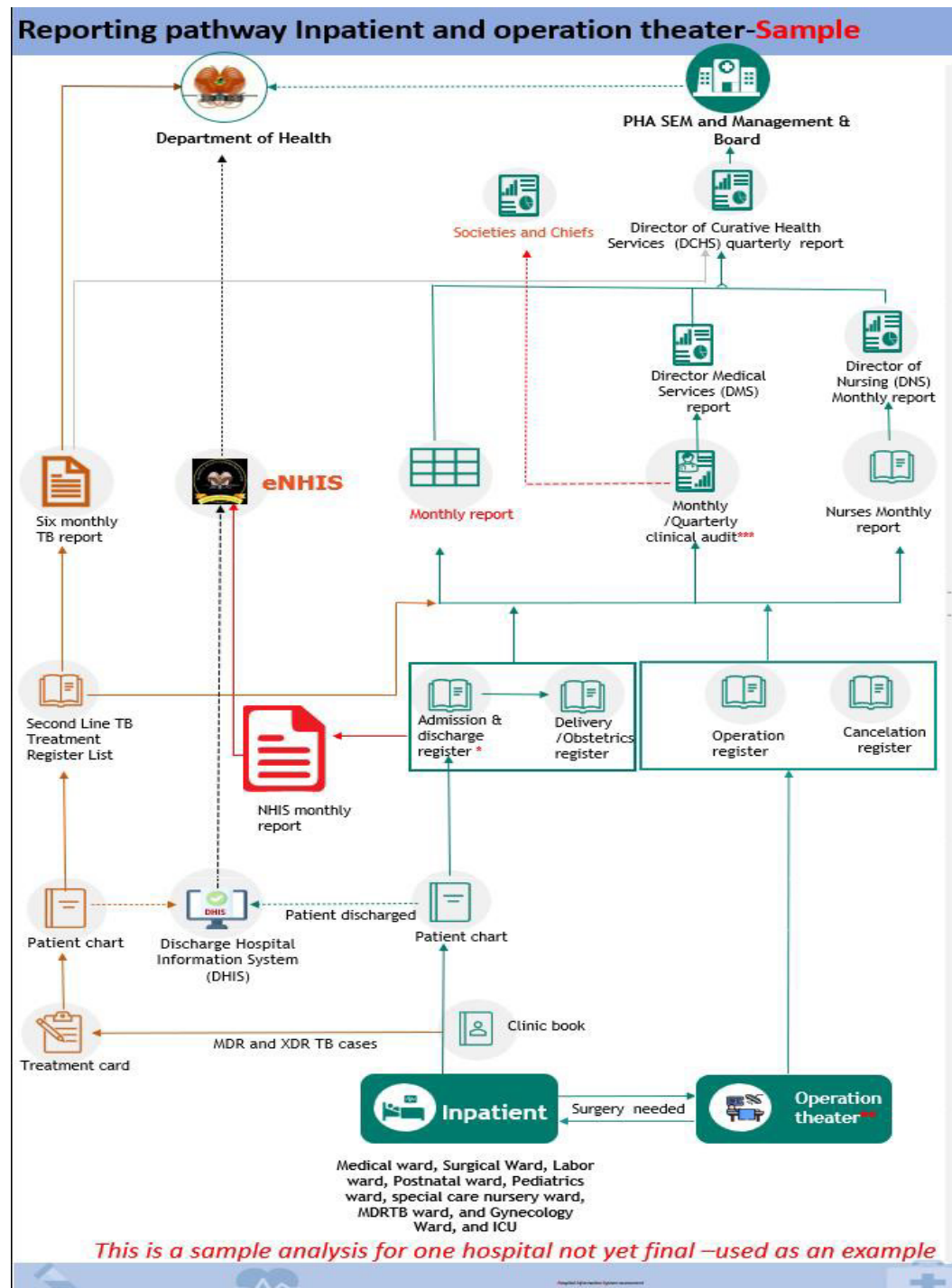
Assessment of hospital information systems

- Whilst hospital data is critical for understanding morbidity and mortality burden, reporting coverage in the eNHIS and Discharge Hospital Information System and quality of data are important issues
- NDoH, with support of WHO, conducted an assessment of hospital information systems in 2022
- The assessment involved an inventory of all national and provincial hospital information systems, a review of hospital reporting pathways, and a review of hospital information management systems in PMGH and Mount Hagen Hospital
- Consultation held in January 2023 to review findings and recommend actions to strengthen hospital reporting



Data reporting pathway for inpatient wards and the operating theatre of one hospital

Multiple data collection and reporting lines, duplications in data collected, and a mix of paper-based and electronic data reporting



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Insufficient human resources with required skills

Limited ICT infrastructure

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Institutionalizing data quality reviews

- PMRB conducts annual NHIS supervisory visits to health facilities in provinces, in collaboration with PHAs and Provincial Health Information Officers
- Since 2021, PMRB has introduced data quality reviews as part of the supervisory visits using standard tools and methodologies developed by WHO
- PHIOs can use the same tool to conduct data quality reviews during their supervisory visits
- The tool includes action planning to improve data quality based on issues identified
- The tool will be published shortly for use by programmes

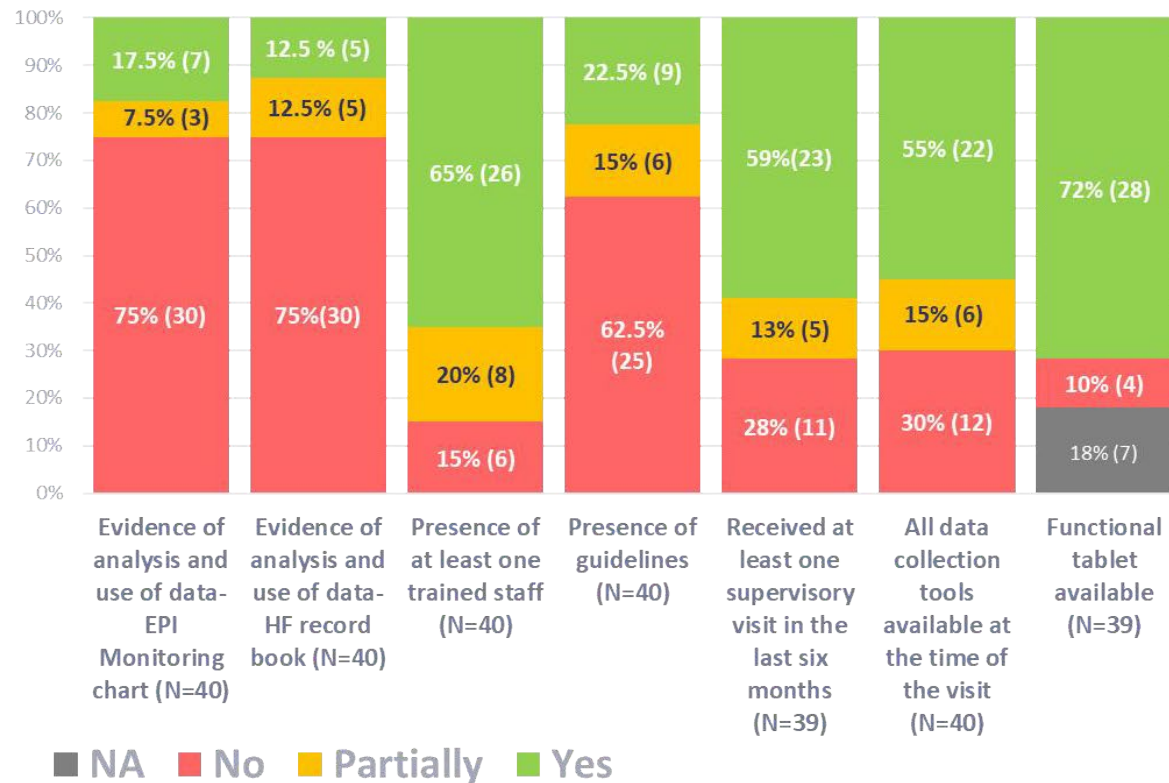


Data quality review findings in 2021 (1)

Province	ANC-1	HF deliveries	Penta3	Pneumonia cases all ages	Malaria cases	Total n/N (%)
Morobe	Over-reporting	Accurate	Over-reporting	Accurate	Accurate	3/5 (60.0)
Central	Over-reporting	Under-reporting	Accurate	Accurate	Over-reporting	2/5 (40.0)
ENB	Accurate	Accurate	Under-reporting	Accurate	Accurate	4/5 (80.0)
Manus	Accurate	Accurate	Over-reporting	Over-reporting	Over-reporting	2/5 (40.0)
Madang	Accurate	Accurate	Over-reporting	Over-reporting	Under-reporting	2/5 (40.0)
NIP	Accurate	Accurate	Accurate	Over-reporting	Over-reporting	3/5 (60.0)
Gulf	Under-reporting	Under-reporting	Over-reporting	Accurate	Accurate	2/5 (40.0)
Oro	Over-reporting	Under-reporting	Over-reporting	Accurate	Over-reporting	1/5 (20.0)
ARoB	Over-reporting	Under-reporting	Over-reporting	Under-reporting	Over-reporting	0/5 (0.0)
Jiwaka	Under-reporting	Accurate	Accurate	Over-reporting	Over-reporting	2/5 (40.0)
Total accurate n/N (%)	4/10 (40.0)	6/10 (60.0)	3/10 (30.0)	5/10 (50.0)	3/10 (30.0)	

Data quality review findings in 2021 (2)

Proportion of systems supports available across health facilities visited



Proportion of systems supports available by level of health facility

Indicator	Type of health facility					Total
	District / Rural hospital	Health center	Provincial hospital	Sub center	Urban clinic	
Number of HF	4	20	4	7	5	40
% analyzing and using data - EPI monitoring chart	25	10	25	14	40	17.5
% analyzing and using data - HF record book	0	15	0	14	20	12.5
% with trained staff	50	65	50	100	40	65
% with guidelines	25	30	0	28	0	22.5
% receiving supervision*	66	68	66	75	33	59
% no stock out of forms	75	50	50	57	60	55
% with functional tablet*	66	65	75	85	60	72

Note: Assessment of systems supports was done in 40 of 41 health facilities visited. For % with functional tablet analysis, health facilities where tablet reporting is not applicable or with no data are excluded from the denominator

* One district hospital information was missing on supportive supervision and functional tablet

Tools to support monitoring and decision-making

- Development of a PHA dashboard, with support of World Bank, to facilitate review and use of data
- The PHA dashboard will include the 35 PHA indicators from the M&E Strategic Plan
- Development of a SEM dashboard, with support of Vital Strategies, including indicators from the M&E Strategic Plan



2023 Activity Plans

Priority Activities for 2023	Timeline	Collaborations	Funding Source
Launch of M&E Strategic Plan, SOPs for Management of Data from Routine Health Information Systems, Competency Profiles	April	PMRB/WHO	WHO
Development of capacity building plans for the health information workforce	April	PMRB/WHO	WHO
Implementation of recommendations from the assessment of hospital information systems	April	MSD/PMRB/WHO	WHO
Digital Health Maturity Assessment	April	ICT/PMRB/WHO	WHO
Finalizing PHA and SEM dashboards	June	VS//PHA/WB/PMRB	WB/VS
Revising NHIS data reporting forms in line with the M&E Strategic Plan and piloting new forms	March-June		???
NHIS Supervisory Visits	Sept/Oct		???
National Health Information Workshop	Nov		PMRB/WHPHA/????
CRVS Stakeholders Meeting	Sept		WHO/partners???

2024-2026 Activities (1)

(from M&E Strategic Plan, funds not committed yet)

M&E Strategic Plan Objective 2:

To strengthen and institutionalize systems for building capacities for human resources and improving infrastructure for health information systems

Capacity building for national, provincial, district and health facility staff in health information based on competency profiles and capacity building plans

Procurement of necessary ICT hardware/software at the national and provincial levels

M&E Strategic Plan Objective 3:

To strengthen and institutionalize systems for building capacities for human resources and improving infrastructure for health information systems

Development of the updated national digital health strategy

Implementation of follow-up actions/recommendations from the digital health maturity assessment and actions outlined in digital health strategy Ex: defining data standards, identifying components of digital health

2024-2026 Activities (2)

(from M&E Strategic Plan, funds not committed yet)

M&E Strategic Plan Objective 4:

To enhance the quality and capacity of routine health information systems (HIS), including improving reporting from private health facilities and those run by nongovernmental organizations (NGOs) and other partners

Revisions in eNHIS to align with new NHIS reporting forms and revisions to dashboards, also to include data quality module

NHIS supervisory visits including data quality reviews

Conceptualization and consultations on PHA Information and Intelligence Hubs

ICD and MCCoD training, strengthening birth and death notifications in the eNHIS

ACKNOWLEDGEMENT



National Department of Health



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