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ANNUAL MEETING

NOVEMBER 30 - DECEMBER 2, 2022 | HYBRID

HOSTED BY



Folkhälsomyndigheten
PUBLIC HEALTH AGENCY OF SWEDEN

Pandemics, Conflicts, Climate Change: New
Roles and Challenges for National Public
Health Institutes

Meeting 2

Presentation of the Integrated
Disease Surveillance Project

December 1, 08h30-10h00

Scoping Review and Survey	Dr. Jean-Claude Desenclos, Santé Publique France, IANPHI
Deep-Dives Overview	Professor Andrew Lee, University of Sheffield, UKHSA
Deep-Dive Presentations:	
Mozambique	Ivalda Macicame
Malawi	Dr. Ben Chilima
Uganda	Dr. Alex Ario
Pakistan	Dr. Muhammed Khan
Sweden	Dr. Anders Tegel
Project Findings and Recommendations	Professor Andrew Lee
Open Discussion	Dr. Bjorn Iversen, Norwegian Institute for Public Health
Closing	Dr.. Quentin Sandifer

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Dr. Jean Claude Desenclos,
Former Deputy Director of
Science French Public Health
Agency and Immediate past
Secretary General IANPHI

Thursday, December 1

Scoping review and Survey

Project outline

To identify key priorities that will enable a collaborative approach across sectors for the integration of data, the role of NPHI's and key actors to analyse and interpret evidence for the purpose of early action and response to epidemics and pandemics

Comprised of three workstreams with individual reports:

Scoping Review: To use the 5 core principles of integrated disease surveillance (IDS) set out by Morgan and colleagues, and conduct a rapid scoping review to document current state of knowledge and evidence for definitions and characteristics of Integrated Disease Surveillance and assess how these have evolved over time.

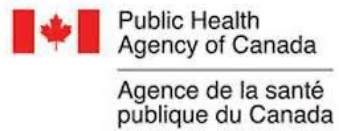
Survey IANPHI members on their understanding of IDS and the current status of IDS across the IANPHI network

Deep-Dives: A focussed study on a limited number of Lower-middle income and High-income countries on the state of IDS including challenges and barriers to implementation as well as identifying opportunities.

In addition, key reflections on the BMGF funded RKI study and Resolve to Save lives project

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Main Contributors



ROBERT KOCH INSTITUT



Questions to consider:

Based on your own experience are there any reflections or views on barriers or challenges to strengthening surveillance that you have not heard mentioned.

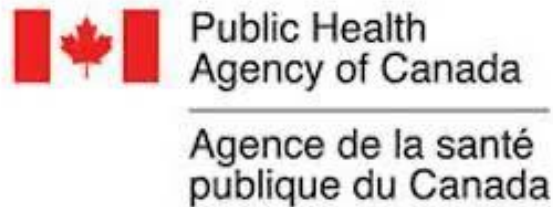
Are there other recommendations you think should be made – and who to?

From the project what tools would you find useful that IANPHI can provide.

Workstream 1: Scoping Review

Scoping review working group :

Gerd M Flodgren (Norwegian Institute of Public Health), Norah Alkanhal (Public Health Authority of Saudi Arabia), Simon Brinkwirth (Robert Koch-Institute), James Ross (US Centres for Disease Control and Prevention), Janine E Bezuidenhoudt (National Institute for Communicable Diseases, South Africa), Andrew CK Lee, University of Sheffield/Health Protection, UKHSA)



Workstream 1: Scoping Review

Systematic scoping review, a “review of reviews” (8 reviews + 5 primary studies) to understand current state of evidence and approaches to conceptualisation and operationalisation of IDS.

Findings:

- *Concept of integration varies* in terms of organizational structure, processes and/or personnel, degree of integration, stage of surveillance process when it occurs, and type of data/databases, or sectors.
- Requires: *Adequacy of core functions* (e.g., improved data quality and timeliness); *resource requirements* (incl. adequate and sustainable financing); *digitization* and electronic reporting; data from *multiple sources*, *strong coordination and communication* between sectors, two-way information flow; sufficient *flexibility*, systems integration with *good interoperability*, *semantic consistency*, *interconnectivity*, and *convergence*; good *governance/leadership* at all levels, and *government commitment*

Conclusions:

- *Fragmented, incomplete* evidence of poor quality, with little information on IDS systems (outside WHO African region), animal sector surveillance, non-communicable diseases or behavioral risk factors.
- Also limited to process outcomes, and operational aspects, and *lack of robust evaluations* of the effectiveness of IDS on cost savings and disease control.
- *Good governance, a functional system and structure*, and *adequate resourcing* needed

Survey Working Group :

Emily Carter), Janine Bezuidenhoudt, Daniel Stewart, Erin Rees, Victoria Ng, Sadaf Lynes, Jean-Claude Desenclos, Andrew Lee, Nancy Nswal, James Ross, and George Odongo



The
University
Of
Sheffield.



Public Health
Agency of Canada

Agence de la santé
publique du Canada

Université 
de Montréal

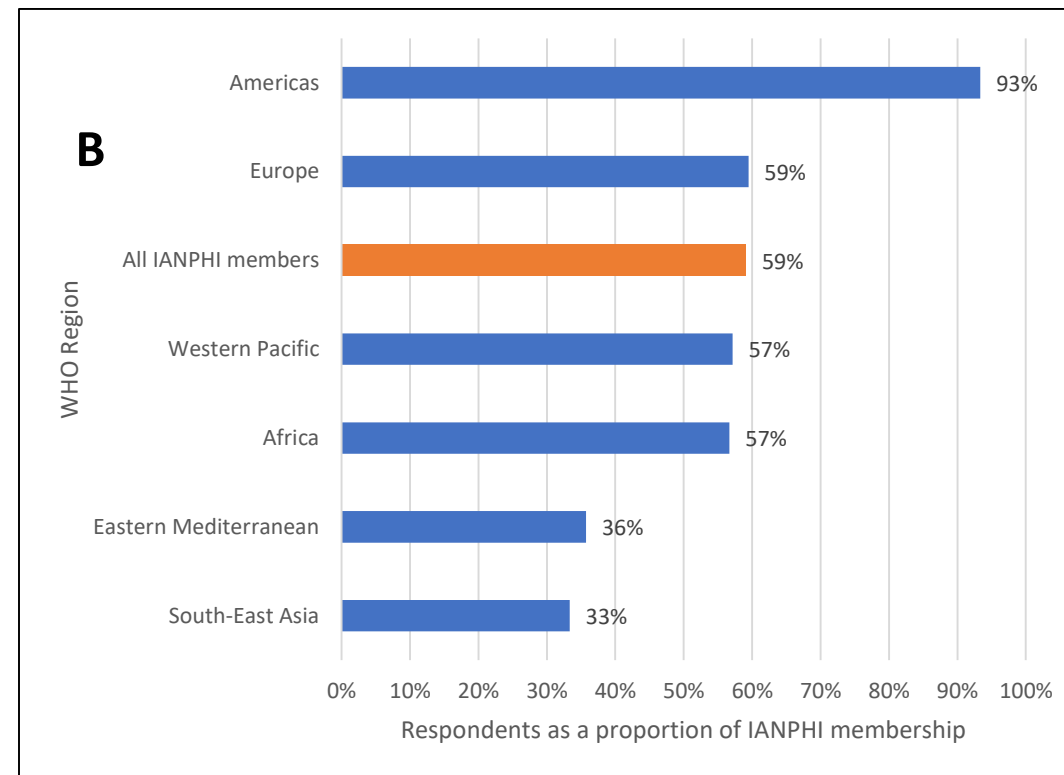
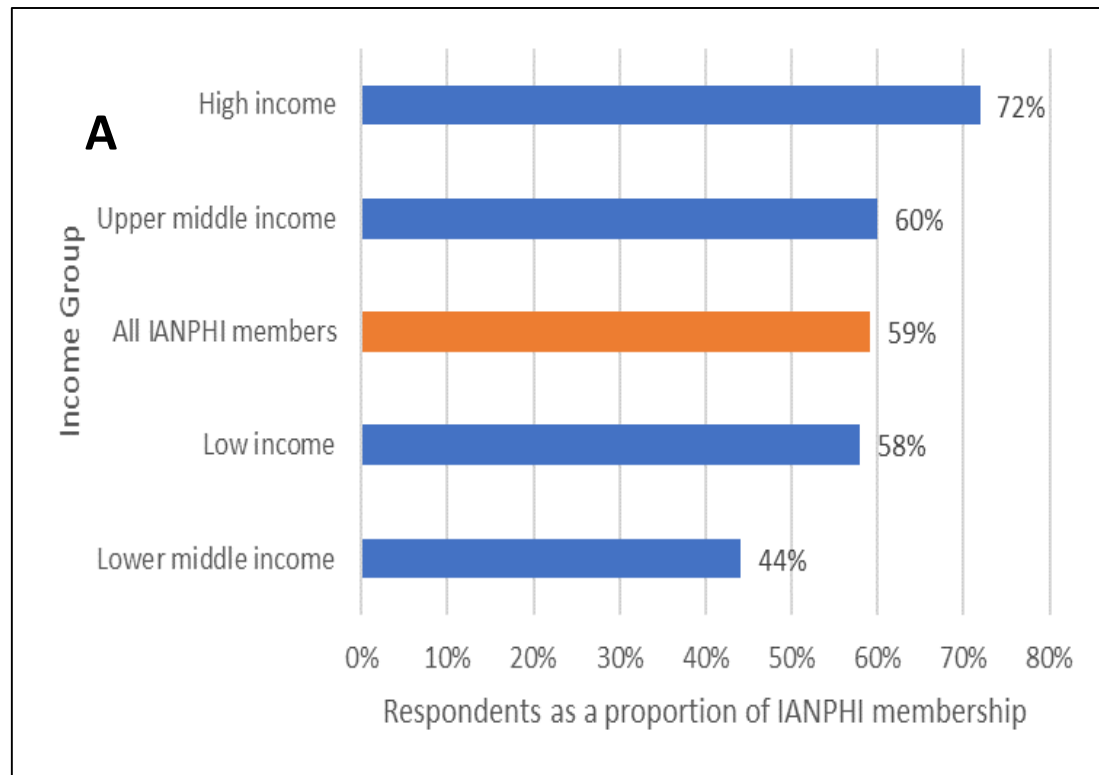
Methodology

- Aim: characterize the understanding and development of integrated surveillance
- Online survey of IANPHI members
 - 110 members targeted including Caribbean Public Health Agency [CARPHA]
 - 65 participated
- Both quantitative and qualitative questions
- Conceptual model for IDS: *"A combination of active and passive systems using a single infrastructure that gathers information about multiple diseases or behaviors' of interest"**
- Respondents self-reported their IDS status as *fully developed IDS*, *partial IDS* or *no IDS*
- Case studies of best practices were also reported by respondents
- Analysis according to IDS status, country World Bank income group and WHO region

*Nsubuga P, White M, Thacker SB et al. 2006. Public health surveillance: a tool for targeting and monitoring interventions. In: Jamison DT, Breman JG, Measham AR et al (eds). *Disease Control Priorities Project*. 2nd edition. Washington (DC): World Bank, <http://files.dcp2.org/pdf/DCP/DCP53.pdf>

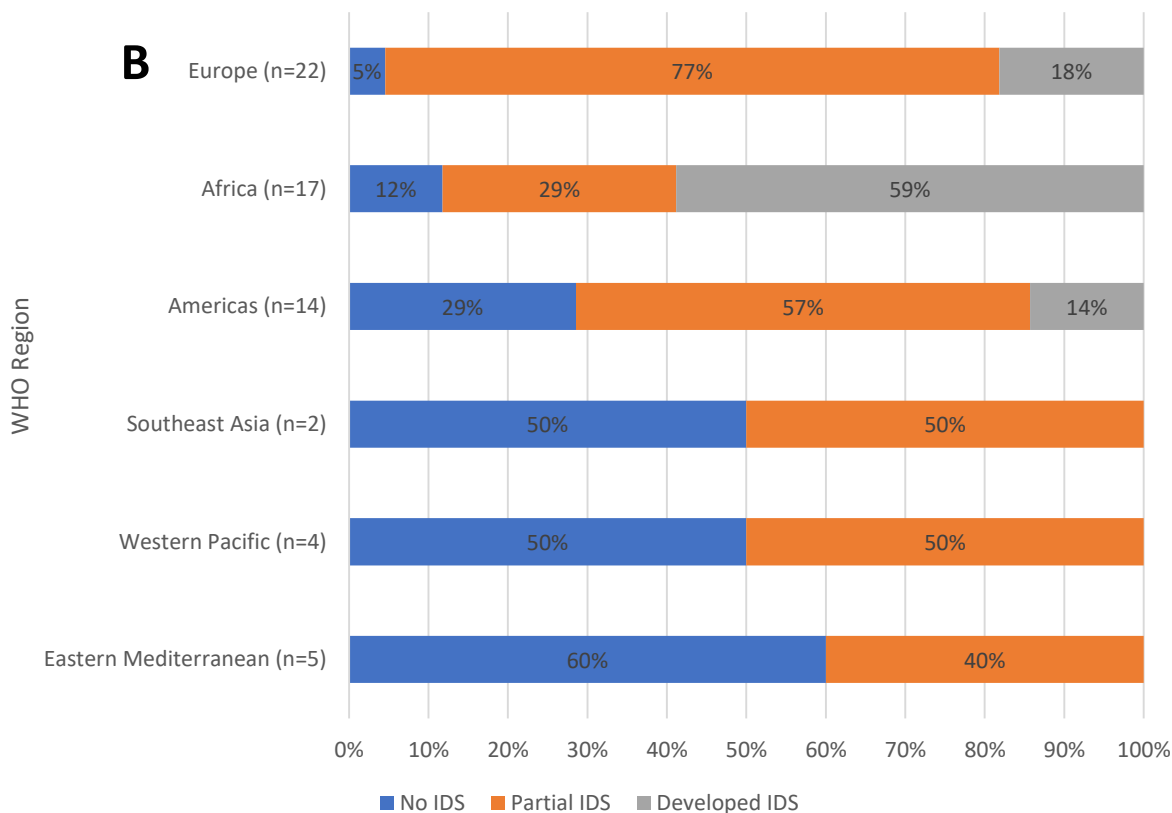
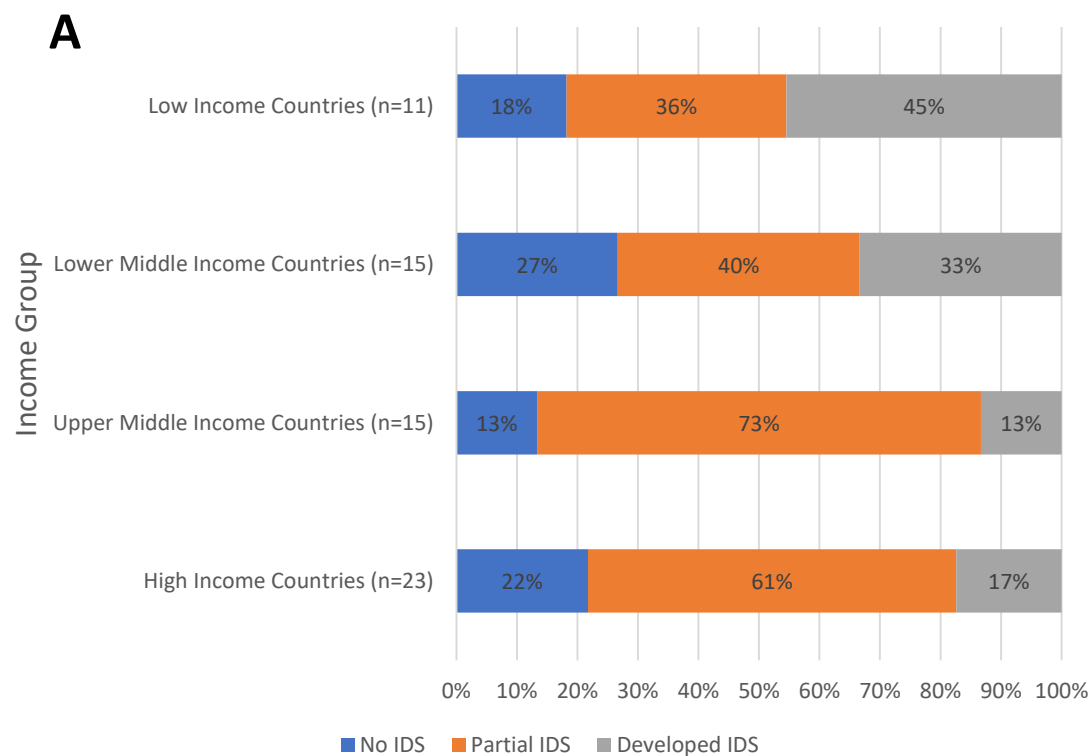
Workstream 2: IANPHI members survey

Proportion of respondents



Complete survey responses by World Bank income group (A) and WHO region (B), n=65

Developed IDS: 25%, n = 16; Partially developed IDS: 55%, n=36); No IDS: 20%; n=13



Self reports IDS status by World Bank income group (A) and WHO region (B), n=65

Key findings

- Concept of Integrated Disease Surveillance
- Role of National Public Health Institutes/Public health entities
- Data systems integration
- Workforce
- Governance
- Finance
- Key component of an effective surveillance systems (Morgon et al)

Concept of Integrated Disease Surveillance

- The understanding of integrated surveillance differs from country to country
- Lack of a definition of IDS that was universally agreed and understood.
- Integration is a complex process that involves multiple stakeholders and sectors that occurs at all levels of the health system and should include non-health sectors. Respondent tended to adopt a whole systems perspective.
- The purpose and functions of surveillance, how the system enables better decisions and response to health threats, was a key consideration, for which the system needed to be agile, responsive, and resilient.

Role of NPHIs/Public health entities

- Most surveillance systems involved the MOH
- In many countries with a NPHI, NPHIs had a major part to play either jointly with the MOH or as sole lead agency, particularly for core functions
- This was especially true for countries in higher income groups, and those with more developed IDS systems.
- MOH more involved in preparedness and response

Data systems integration

- Integration issues between organizations, local versus national levels or sectors
- Fragmentation : agriculture/animal, private, NCDs, surveys/research, env/occupational
- Integration of laboratory data mostly from national public health laboratories, followed by subnational public laboratories, than other public laboratories or private
- Genomic testing and sequencing predominantly available for developed or partial IDS systems, but the types of laboratories used varied by country income groups.
- Barriers in HICs related to data ownership, agreement and permission, lack of mandatory enforcement for reporting and lack of funding for IT systems infrastructure
- Enabling role of technology, including greater automation, electronic reporting systems, algorithms, and data platforms

Workforce

- Gaps in skills related to data science, analytics and information technology followed by epidemiology, administration/data entry, laboratory, and public health
- Respondents with no IDS more likely to report workforce capacity gaps in IT than respondents with partial or fully developed IDS.
- Respondents with a developed IDS more likely to report workforce capacity gaps in the laboratory compared to respondents with partial IDS and no IDS.
- Surveillance workforce development led by the MOH or NPHI with no difference by IDS status and country income group.
- In-country academic institutions and externally supported/funded initiatives also reported, more often in LICs compared to LMICs, UMICs and HICs.
- Major need to invest in a sustained way in workforce capacity and development

Governance

- The MOH and/or NPHI lead public health surveillance in most settings with approximately a quarter having joint leadership shared by MOH and NPHI
- Limitations in governance, with integration barriers at the interfaces between organizations, local versus national levels, or sectors
- Insufficient adherence to legal mandates
- Data protection was recognized to be an issue that needs attention to enhance public trust in public health surveillance.
- Better developed IDS systems tended to have better governance/ and protections for citizens.
- Lack of 'evaluation and feedback' of surveillance

Financing

- Gaps in resourcing requirements reported in all country income groups
- Much more critical for LICs that have less capabilities, less government financing, and are much more heavily dependent on external funding.
- The reliance on international aid is not a sustainable source of funding
- Greater investment and governmental commitment will be necessary to enable countries to develop and optimize the use of a system of integration, with the skills and tools needed to build capabilities.

key components of effective surveillance*

- Corroborates Morgan O et al.* key components for effective surveillance,
- But also identifies other critical factors for IDS
 - governance and need for adequate regulatory frameworks,
 - political engagement and appropriate control,
 - and evaluation, as well as monitoring
- Need for better data management to ensure data integrity and confidentiality, interoperability and multi-sectorality, including interdisciplinary collaboration.
- Equity and guaranteed access to surveillance outputs were also identified as key for supporting strong, well-functioning integrated surveillance systems, as well as flexibility, simplicity, and acceptability.
- Resilience and capacity building were also identified as important factors.

	Principles	Implications
1	Population-based foundation - CRVS or sample registration system	Denominators for rates and burden
2	Laboratory testing adequately scaled to the threat	Cases accurately tracked
3	All digital with unique health identifiers and core metadata	Systems interconnect and privacy protected
4	Data transparency and automated reporting to NPHI	Full visibility at NPHI and WHO if PHEIC
5	Adequate financing	Countries spend 0.01% of GDP (placeholder)

*Morgan O et al. Disease surveillance for the COVID-19 era: time for bold changes. Lancet. 2021 Jun 19;397(10292)

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Prof. Andrew Lee
University of Sheffield, UKHSA

Thursday, December 1

Deep-dives overview

Workstream 3: Deep Dives

- To understand how IDS is conceptualised and operationalised,
- Understand how context has shaped the current provision of IDS,
- Identify the perceived strengths, weaknesses and challenges to future evolution of IDS

	Deep dive country NPHI	Partner country NPHI
LMIC	Pakistan	UKHSA
	Mozambique	PHA Sweden
	Malawi	PHA Norway
	Uganda	US CDC
HIC	England	PHA Canada
	Sweden	PHA Norway
	Canada	UKHSA



30+ focus group discussions
37+ key informant interviews

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Dr. Ivalda Macicame,
National Director for Surveys
and Health Observation
National Institute of Health
Mozambique

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Integrated Disease Surveillance (IDS)

DEEP DIVE

in

MOZAMBIQUE

Overview, findings and
recommendations

Core Principles of IDS: Mozambique current scenario

Population-based

- Disease surveillance (mostly health facility-based) without a Population Denominators
- Community-based Mortality Surveillance System (COMSA/ SIS-COVE) with a strong Population Denominators

Laboratory confirmation

- Public health laboratories established in 6/10 provinces and headquarters
- Research and public health, including genome sequence

Digital data

- HIS, surveys and surveillance migrating from paper to electronic
- No unique ID

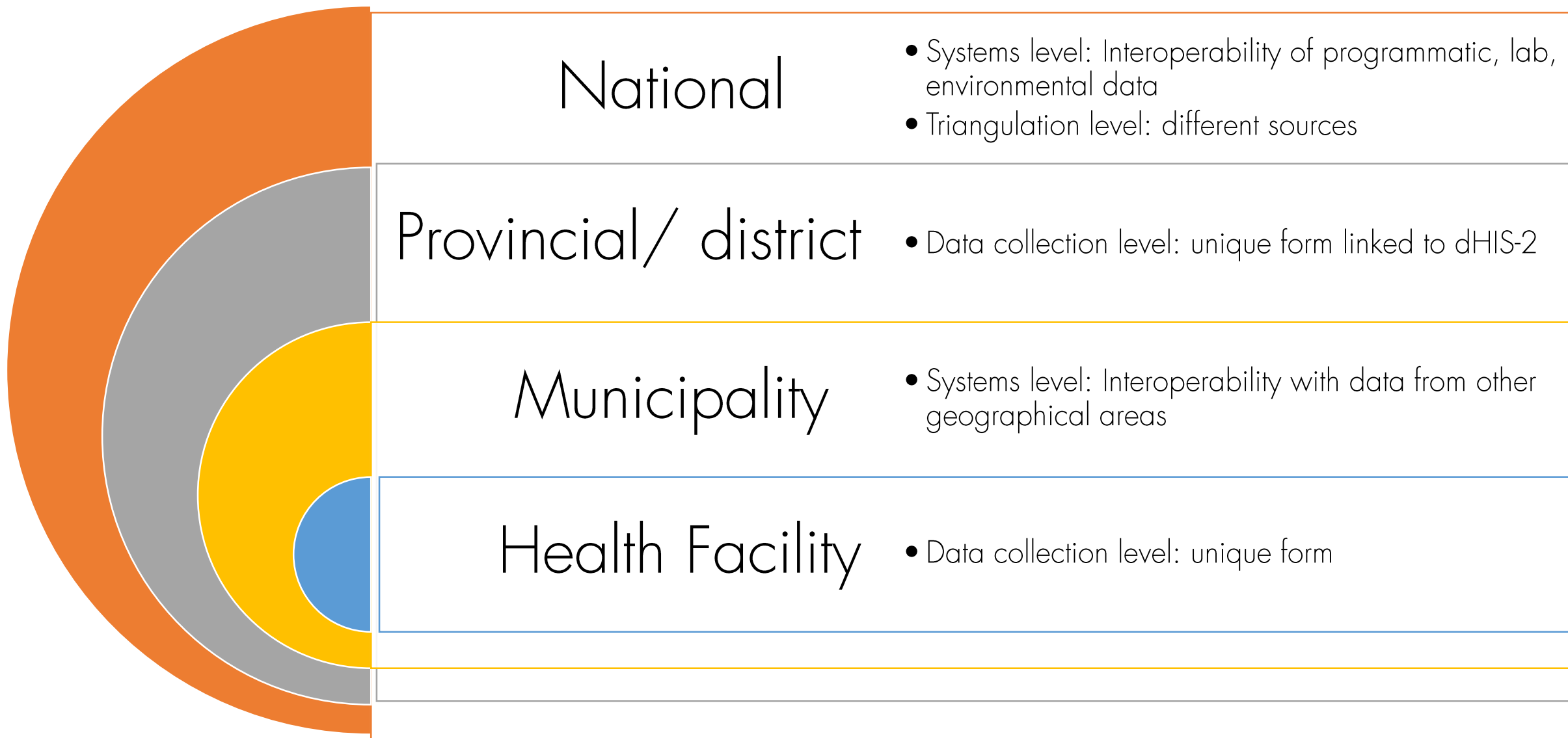
Data transparency

- Sharing of data from the private sector as a challenge
- National Health Observatory as an opportunity for data triangulation

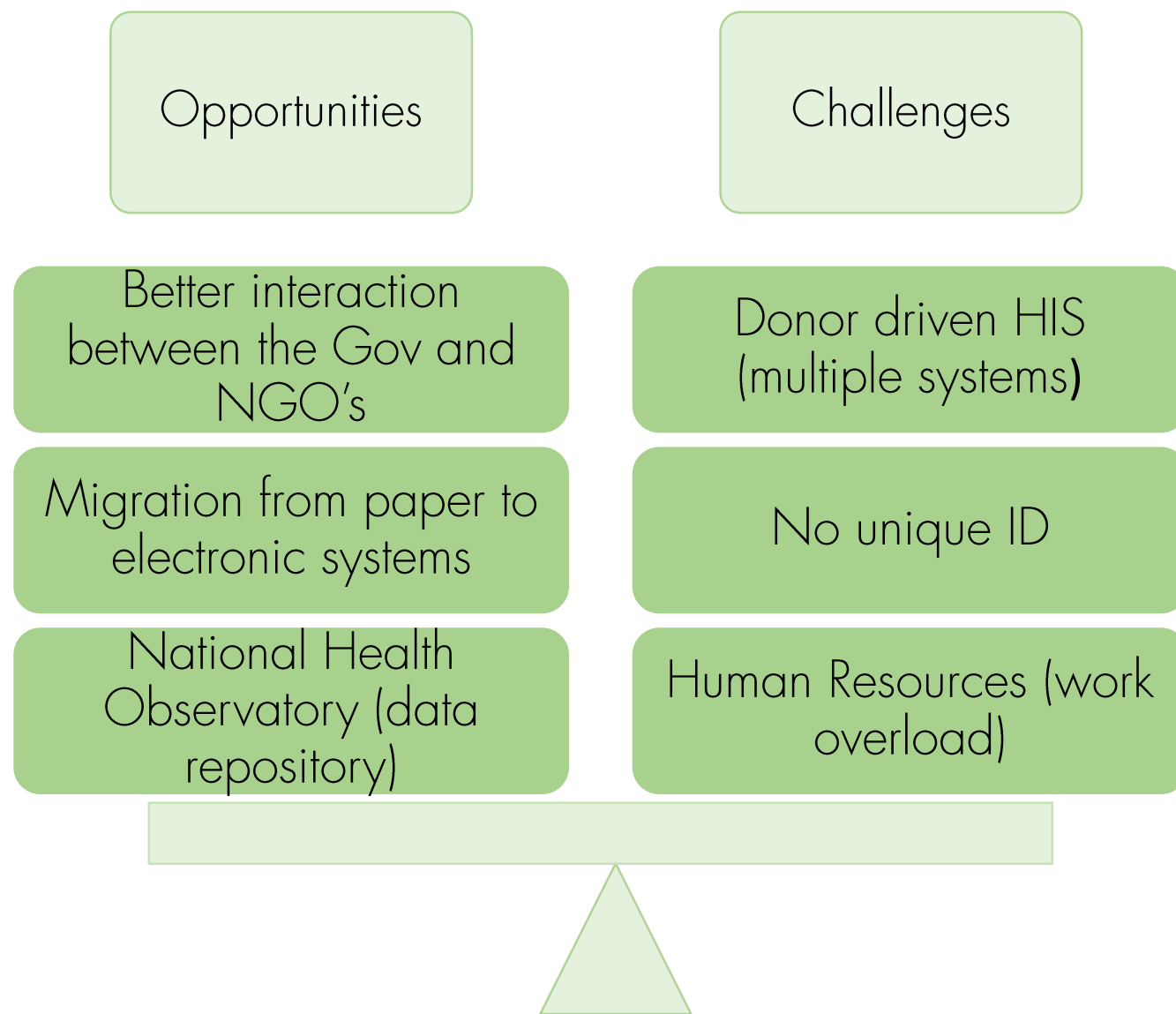
Adequate financing

- Donor driven (few interest on funding surveillance)

Preliminary findings: perceptions on levels of integration



Preliminary findings: challenges and opportunities



Integrated Disease Surveillance: preliminary framework

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Surveillance



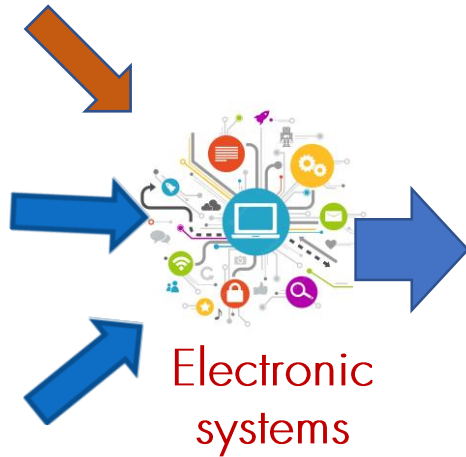
Health Facility



Laboratory



Community
(health/
animal/
environment)



Electronic
systems

National Health Observatory

Data center/ data
warehouse



Data management
Access levels
Data visualization

Products



Periodic
reports



Data triangulation
(other sources)



M&E/ indicator
based monitoring



Interventions
(outbreak
investigations, etc)

Goals



Communication

SUSTAINABLE
DEVELOPMENT GOALS



Health policies and resource
prioritization

Implementing IDS in Mozambique: Recommendations

Collaboration

- Involvement of key stakeholders

Human Resources

- Investment on health care and community workers

Sustainability

- Leveraging existing initiatives

Health information
systems

- Using of existing platforms



*Picture: National Health Observatory Advisory Committee meeting (Aug 2022):
INS, MoH, CDC, WHO, INE, Ministry of Agriculture, Ministry of Finance*

Dr. Benson Chilima,
Director,
Public Health Institute Malawi

Thursday, December 1

Integrated Disease Surveillance (IDS) DEEP DIVE in MALAWI

Country NPHI: PUBLIC HEALTH INSTITUTE OF MALAWI (PHIM)

Partner NPHI: NORWEGIAN INSTITUTE OF PUBLIC HEALTH (NIPH)

Duration: August-September 2022

Factors related to IDS. Legal mandates, governance and reporting requirements.

Life expectancy: 66yrs.
Population: 21 million.
MOH is responsible for health.

OUR STRUCTURE

STRUCTURE OF MOH

Minister of Health

Secretary for Health

Directors (includes Director of PHIM)

Deputy Directors

IDS / IDSR Focal Persons

Country Context

Every site uses multiple registers. Example:

- Patient registers
- Drugs
- Supplies, etc.

Some registers are for specific programs.

A large proportion of IDSR reporting is based on *manual* OPD registers.

Key factors related to IDS: Leadership for IDSR data collection, analysis and reporting

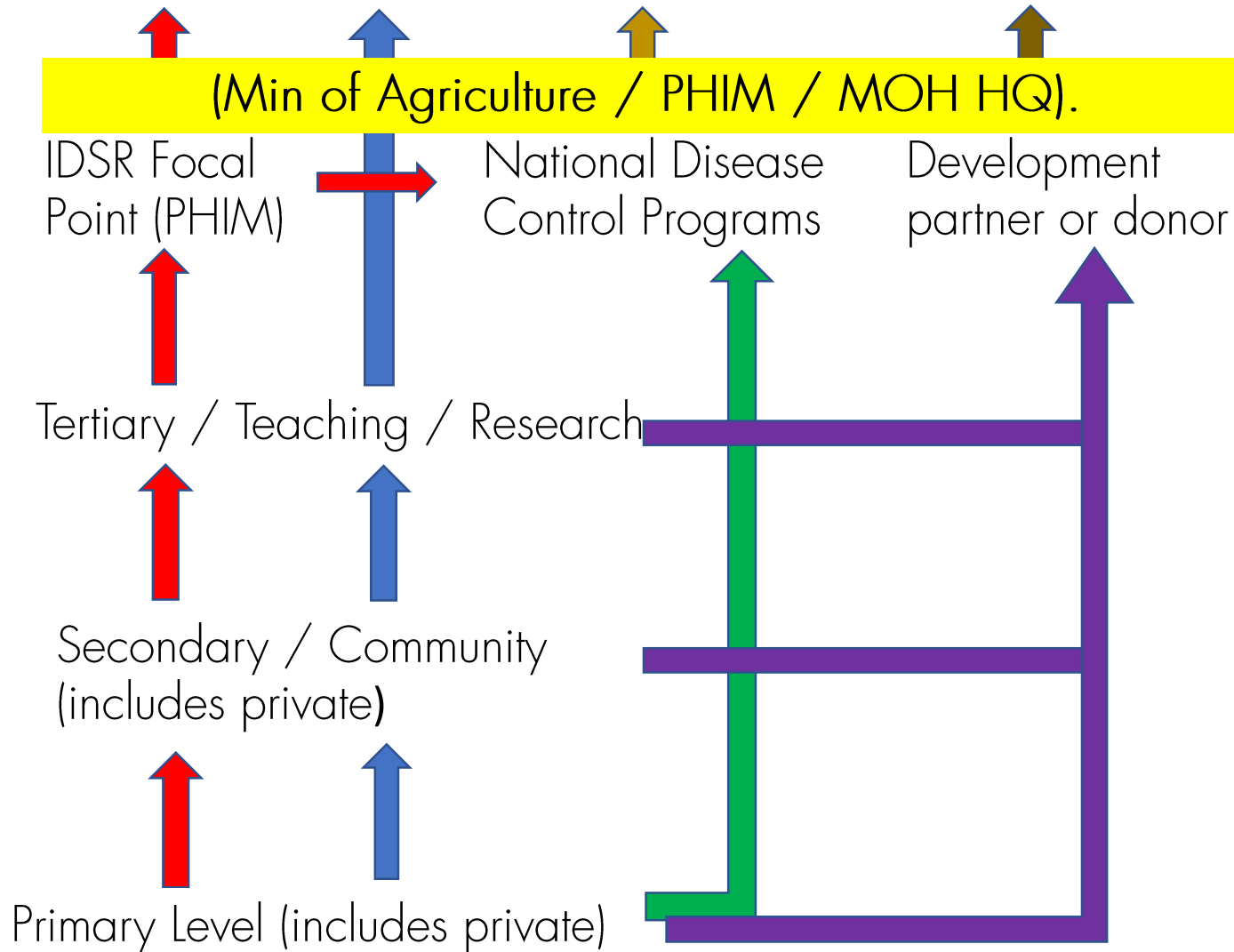
1. Primary level (Health center, Community etc.). 9,000 Community Health Workers. O Level.
Document in health passports and registers. Expect a very basic health facility IDSR report.
2. Secondary level (District hospitals). Senior nurses, clinicians etc. BSc or higher. Focal Persons for IDSR. Expect an enriched district IDSR report; data from all health facilities.
3. Tertiary level (central hospitals). Senior nurses, clinicians etc. BSc or higher. Focal Persons for IDSR (This site only). Expect an enriched central hospital IDSR report.
4. National level (Min of Agriculture / PHIM / MOH HQ). Clinicians, epidemiologists, nurses, etc.... BSc, MSc and PhD holders. Expect a rich national IDSR report.

PHIM is part of MOH HQ: It is the central IDSR Lead.

Reporting structure: summary

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Country Context



Fact:

PHIM is responsible for:

- IDSR.
- One Health Surveillance Platform (red).

MOH Planning Department is responsible:

- Health Mgt Information System (HMIS)
- Collects similar as IDSR (blue).

National disease control programs are responsible for:

- Separate surveillance systems
- Collects similar to IDSR and HMIS (green).

Externally funded programs

- Collect and send reports to partners and donors (purple).

LIST OF PRIORITY DISEASES (Malawi; For illustration only)

IDSR PRIORITY DISEASE	RESPONSIBLE	EXTERNAL RESOURCES
<ul style="list-style-type: none"> • Polio & Acute flaccid paralysis. • Cholera & Dysentery. • Measles. • Bacterial meningitis. • Neonatal tetanus. • Viral hemorrhagic fever. • Plague. • Pneumonia in under 5 children. • Any emerging or re-emerging diseases (outbreak, epidemic or pandemic) • New: COVID 19 and Influenza Like Illness. 	<p>Director, PHIM</p> <p>(IDSR Focal Point; Epidemiology Division)</p>	<p>No major donors except WHO</p> <p>(New: World Bank supports on COVID 19 only)</p>
HIV & AIDS/ STI	Director, HIV & AIDS	Global Fund. PEPFAR.
Tuberculosis & Leprosy	TB Control Program Manager	Global Fund. World Bank.
Malaria	Malaria Control Program Manager	Global Fund. Others.
Schistosomiasis	Schistosomiasis Control Program Manager	NTD (WHO)

Quality of the surveillance data matches with the level of financial support.

PHIM has low funding support for IDSR and to facilitate integration human vs animal vs environmental health. Data is often **poor quality**.

VS

National disease programmes (Schistosomiasis HIV; TB; Malaria;) which have dedicated funding from donors. Data is often of **good quality**.

The differences are due to these factors etc.

1. Dedicated staff (data clerks) stationed at health facility.
2. Updated data collection tools
3. Regular supervision with updated tools
4. Dedicated reporting structure (Disease control programs prefer to collect and use their own data).

Higher funding should be fed into IDSR and support national systems
= **Good quality surveillance data**.

Example

Recent improvement in feedback to sites in form of regular epidemiology bulletin has resulted in immediate improvement in quality of reports: Timeliness and quality of data. (WHO supported)

Key factors related to IDS: Leadership for IDSR data collection, analysis and reporting

1. **Primary level (Health center, Community etc.).** Expect a very basic health facility IDSR report: Immediate, weekly.
2. **Secondary level (District hospitals).** Expect an enriched district IDSR report: Immediate, weekly, monthly and quarterly.
3. **Tertiary level IDS Work (central hospitals).** Expect an enriched central hospital IDSR report: Immediate, weekly, monthly and quarterly.
4. **National level IDS Work (MOA HQ / PHIM / MOH HQ).** Expect enhanced national IDSR report: Immediate, weekly, monthly, quarterly and annual.

PHIM is part of MOH HQ: It is the central IDSR Lead.

Challenges:

- ✓ No proper case definitions
- ✓ No guidance: what to report
- ✓ No red flag system
- ✓ No revised forms
- ✓ No resources to guide national implementation
- ✓ Insufficient analytical capacity

Some outbreaks are missed; or discovered only during data cleaning exercises.

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CHALLENGES

1. Lack of collaboration between vertical systems:
 - IDSR
 - HMIS
 - Disease specific programs
2. IDSR 3rd Edition is large and complex (500 pages?); needs proper adaptation.
3. Use of paper based vs electronic reporting.
4. Data collection tools not adapted to level of service or numbers / skills of providers.
5. Shortage of collection tools leads to improvisation (or no reporting at all).

Opportunities

1. Core infrastructure is in place in Malawi.
2. Main surveillance systems are with two ministries; Animal health vs Human Health.
3. A veterinarian school; Public health schools; Environmental science curriculums.
4. Large network of committed local and international partners, including NGOs & Civil Society.
5. Foreign support through BMJF, WHO, USAID, Africa CDC, East, Central and Southern Africa Health Project (ECSA), NIPH etc.
6. All major stakeholders are open to cooperate better, share data and improve surveillance.

OFFER FROM MALAWI

We have the infrastructure, the experienced personnel at PHIM and, with support from NIPH, BMJF and other partners, we have the drive to do beyond the Deep Dive herein reported.

We need the technical and financial support to do more.

Thank you!

ACKNOWLEDGEMENT

- Malawi Government
- Norwegian Institute of Public Health
- Bill and Melinda Gates Foundation
- IANPHI
- Many others

Dr. Alex Riolexus Ario,
Director,
Uganda National Institute of
Public Health

Thursday, December 1

Integrated Disease Surveillance (IDS) DEEP DIVE in Uganda

KEY FINDINGS

- Established structures in place for IDS at national and district levels
- Limited integration of surveillance systems across and within sectors
- Minimal integration of special programs (HIV, Malaria, TB) and outbreaks
- The country has laboratory capacity to confirm priority diseases in human health but limited in other one health sectors (animal health, water and environment)

KEY FINDINGS

- Relatively well developed human resource capacities for IDS at the national level but inadequate at the regional and district levels across sectors
- Robust surveillance systems within MoH sector, largely paper based at Ministry of Water and Environment and a combination of systems at the Ministry of Agriculture, Animal Industry and Fisheries
- Limited national government financing for surveillance activities across sectors – over 80% of surveillance & response funding is from external development assistance

RECOMMENDATIONS

- Strengthen IDS data integration across and within One Health sectors
- Accelerate digitization, interconnectivity, and interoperability of surveillance systems
- Focus resources at building resilient sub-national capacities for IDS
- Build laboratory capacity for other One Health sectors
- Advocate for increased national government funding for IDS

Dr. Muhammad Khan,
Chief information Officer,
National Institute of Health
Pakistan

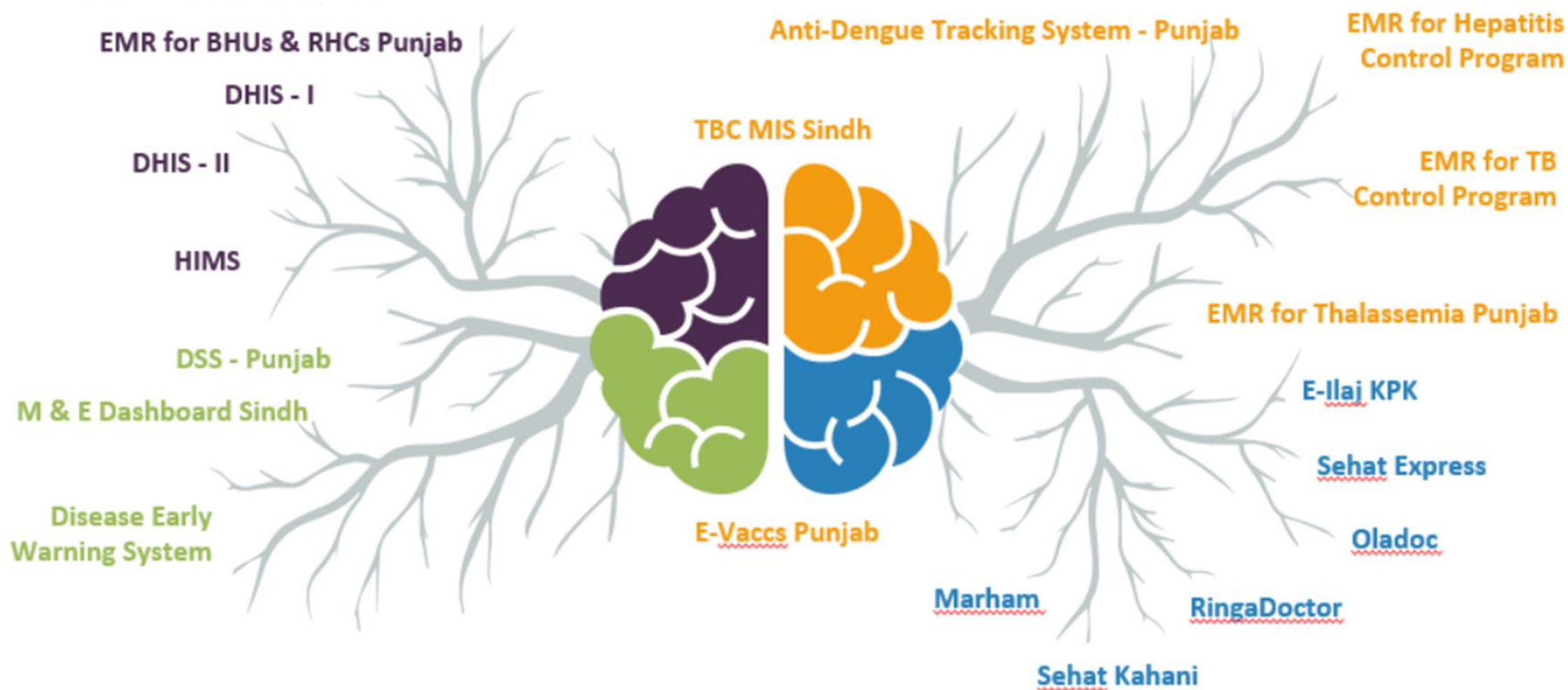
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Integrated Disease Surveillance (IDS) DEEP DIVE in Pakistan

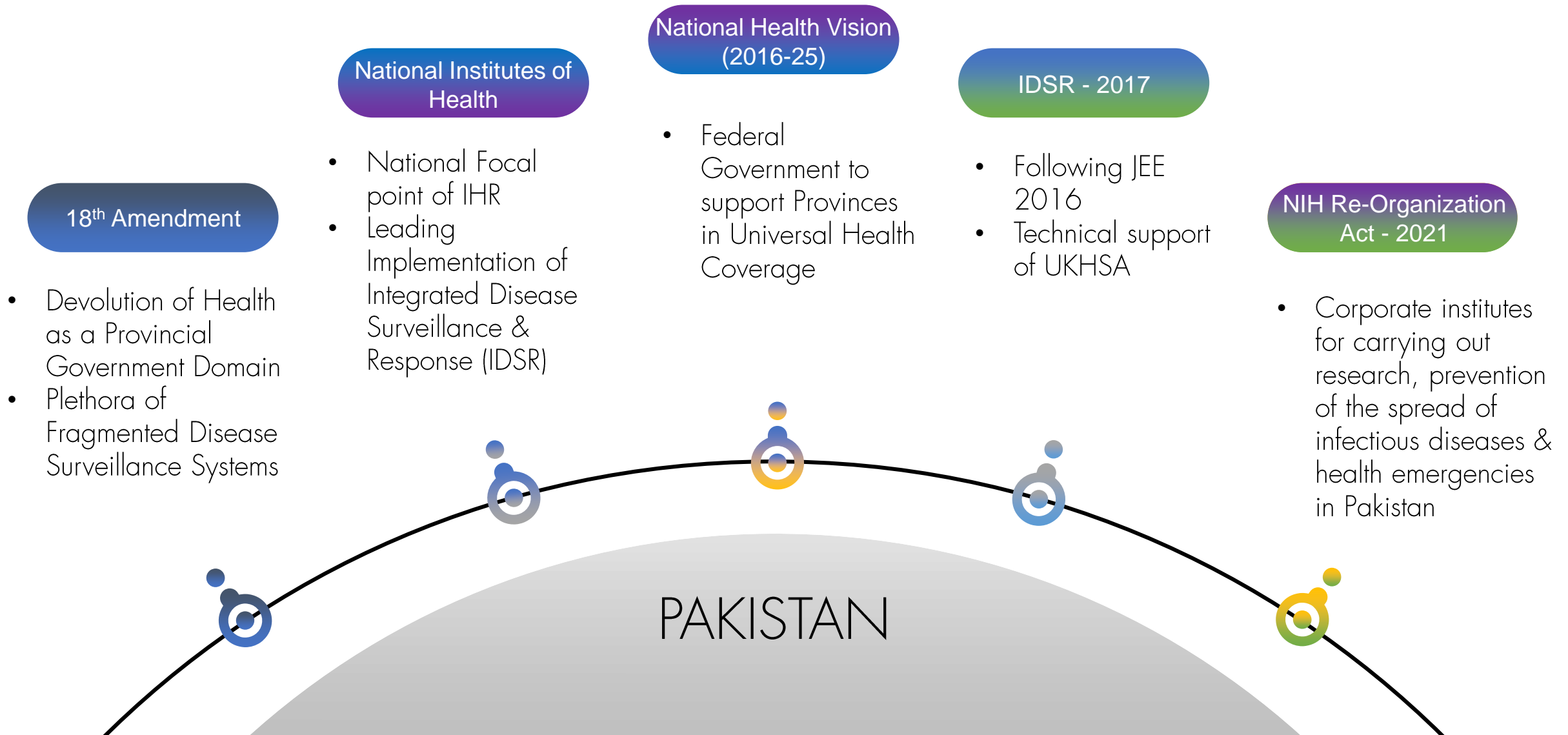
Country NPHI: National Institutes of Health Pakistan

Partner NPHI: UKHSA

Fragmented Disease Surveillance Systems In Pakistan



Country Context



Legal Mandate

NIH – RE-ORGANIZATION ACT 2021

CDC

- Advisory on epidemics, disease outbreaks, prevention, control, surveillance and response to an outbreak
- Declaration of Health Emergency
- Surveillance and monitoring of emerging infections
- Promotive, preventive and therapeutic aspects for infectious diseases of public health importance in Pakistan

National Health Laboratory

- Establish and operate state of the art Core laboratories
- Serve as a reference laboratory for uncommonly available tests including new research tests and collaborate with research investigators to provide tests and analyses

National Health Data Center

- Establish a central repository for all aspects of health information and data
- Access from relevant authorities' information and data and house, collate and analyze all health information and epidemiologic data nationally
- Provide appropriate data analytics
- Maintain and update MNCH, Communicable Diseases, and NCDs, demographics, health accounts, health services, and health systems data

LEGAL MANDATE

PROVINCIAL ACTS

KPK Health (Surveillance And Response) Act, 2017

- Implementation and enforcement of the measures to prevent and control of diseases in the Province
- Ensure the reporting, notification, and verification of the events within stipulated time
- Ensure availability of all necessary resources to assist in surveillance, prevention and control of spread of notifiable diseases
- Established an effective Disease Surveillance System, Provincial Disease Surveillance Centers and District Disease Surveillance Centers
- Take appropriate measures to deal with such a health emergency in the province in case of declaration of national health emergency

The Public Health (Emergency Provisions) Ordinance, 1944 (Punjab)

- Power to Require Local Authorities to take Health Measures
- Power to Appoint Additional Health Staff
- Power to Supersede Local Authorities, Make and Modify rules, bye-laws
- Power to give Directions & take over Administration of Services

Sindh Healthcare Commission Act, 2013

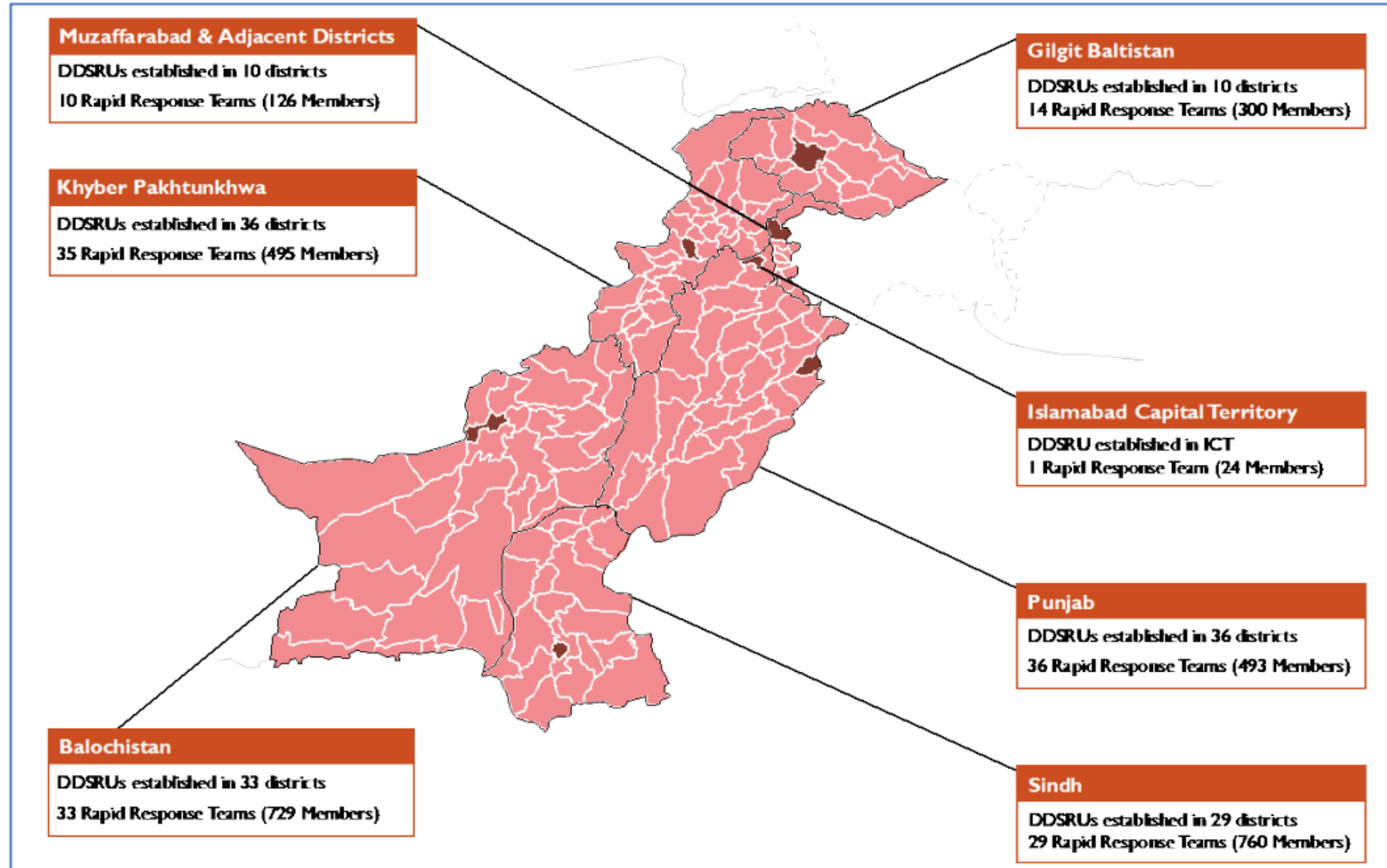
- Improve the quality of Healthcare Services
- Registration and Licensing of Healthcare Service Providers
- Implement the standards developed and approved by Government
- The Commission may make regulations for:
 - The records of patients treated in a healthcare establishment are provided

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Governance & Reporting



Challenges

1

Governance

- Political Instability
- 18th Amendment vs. National Health Vision 2016-25
- Lesser accountability at Provincial Level

2

Integration

- Fragmented Disease Surveillance Systems are being supported by Vertical Programs
- 18th Amendment allowing provinces to take their own initiatives

3

Human Resource

- Sanctioned posts remain unfilled
- HR is being bound to enter similar nature of data into multiple systems – Leading to duplication of efforts
- Technical Capacity

4

Coordination

- Low coordination among essential stakeholders
- Minimal coordination with Healthcare Commissions – No or minimal Data Reporting from Private Facilities (few facilities report data in case of National Health Emergency)

5

Public Health Labs

- PHLD network is established yet it is quite small to cater future threats
- Private Facilities are not part of network – Patients' footfall in Private sector is greater than Public

6

IT

- Duplication of efforts
- IT Infrastructure
- Networking Facility
- Too much reliance on Vendors

7

Finance

- Sustainable funding
- Financial Activities are leading to duplication – Various Disease Surveillance Systems have been funded in past with similar objectives in different territories
- Essential Data Reporting Systems like IDSR are not approved as regular schemes
- The funds haven't been released for approved PC-1 in multiple provinces

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ENABLERS

1

Governance

- Existence of Strategies and Policies at National as well as Provincial Level
- Policies may be adapted as provisioned
- Existence of NCOC – Learning from Covid Model

2

Integration

- National Health Data Center (NHDC) has been established with the Mandate of; Collection, Consolidation, Analysis, and Dissemination of Healthcare Data & Information
- National Health Decision Support Framework is being devised by NHDC for Integration

3

Human Resource

- Existence of strong structure
- HR posts are sanctioned
- Donor Funded Technical Support

4

Coordination

- National Health Decision Support Framework Technical Working Group has been functionalized
- The IT team from NHDC is same which managed Data Flow operations & Analytics of NCOC for COVID
- Established channels of communication (NCOC, PDSRUs, DDSRUs)

5

Public Health Labs

- Introduction of Quality Assurance
- Lab Information Management System is operational in Public Health Reference Labs
- Significant Capacity Improvement with COVID

6

IT

- NHDC mandate
- Dedicated staff at NHDC (TECH)
- Own Servers and Hosting Mechanism at NHDC
- Digital Strategy & Innovation

7

Finance

- Donors Support
- Provincial PC-1s

Key findings

Fragmentation of
Systems

01

Lack of IT
infrastructure at
Provincial Level
(Hardware &
Networking)

02

Delayed Technical
Support from Vendors
/ Partners in Past

03

Sanctioned Posts are
required to be filled at
Health Facilities &
District Level

04

Legislative Framework
is available but needs
to be strengthened at
both levels (National,
Provincial)

05

Public Health Labs
Network needs
strengthening

06

Reporting from Private
Facilities can't be
ignored

07

Standard IT systems
should be used to
avoid duplication of
efforts

08

National Health Data
Center has taken the
lead on IT component
of IDSR

09

Emergency
Preparedness
Strengthening is
required

10

COVID management model at National Level while Dengue Management Model at Provincial Level have been appreciated and may be used to strengthen IDSR

Considerations / Opportunities Related To Public Health Intelligence

01

Integration of DHIS-2 with Lab Information Management System

06

Adoption of Machine Learning Algorithms and Artificial Intelligence

02

Integration of Common Management Unit's data with DHIS-2 system

07

GIS Tagging

03

Development of National Health Decision Support System (Important KPIs from Various Data Streams) under NHDSF

08

Certifications for staff involved in data; Reporting, Quality Assurance, and Analysis

04

Access to Central Dashboard of NHDSS at different levels

09

Involvement of District Administration in Strengthening IDSR

05

Usage of Business Intelligence, Artificial Intelligence Techniques for further Data Analysis

10

Shift of Point of Entries to Health Facility Level

Areas Of Priority & Recommendations For Action

1 Governance

- Strengthening of Strategies and Policies at National as well as Provincial Level
- Adoption of NCOC Model (COVID)
- Adoption of Dengue Model (Involvement of District Administration)
- Strengthening of PDSRUs, DDSRUs

2 Integration

- Strengthening of National Health Decision Support Framework by NHDC
- Development of National Health Decision Support System

3 Human Resource

- Sanctioned posts at Facility & District Level should be filled
- NHDC Staff should be shifted to sustainable model
- Capacity building of staff involved in Data: Reporting, Quality Assurance and Analysis

4 Coordination

- National Health Decision Support Framework Technical Working Group should be strengthened to play role in Devising / Modifying National Health Action Plan

5 Public Health Labs

- Private Labs should be made part of reporting network through Healthcare Commissions
- LIMS should be integrated with DHIS and made part of NHDSS

6 IT

- NHDC strengthening (Hardware & Staff)
- Data Quality Assurance exercises
- Usage of BI, AI & ML
- Single Dashboard (National Health Decision Support System)
- Health Information Exchange at NHDC
- Health Data Lake at NHDC

7 Finance

- Donors Support needs to be aligned to avoid duplication (NHDSF-TWG)
- IDSR should be made part of regular budget at Government level (National & Provincial)

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NIH Recognition : NCOC For Covid-19 Response



Dr. Anders Tegnell
Senior Expert
Public Health Agency Sweden

Thursday, December 1

Integrated Disease Surveillance (IDS) DEEP DIVE in SWEDEN

Country NPHI: Public Health Agency. Sweden

Partner NPHI: FHI, Norway

Municipal authorities

- The municipalities runs social services and care of the elderly
- Responsible for environmental investigations

Regional level

- The regions runs independent health care systems
- County Medical Offices: Responsible for contact tracing and outbreak investigations

National authorities

- The Public Health Agency: National coordination of communicable disease control
- Epidemiological and molecular surveillance
- International focal point
- Statistic Sweden etc



Folkhälsomyndigheten



GLOBALA MÅLEN
för hållbar utveckling

Folkhälsomyndigheten bidrar till globala målen för hållbar utveckling.

Levels of responsibilities

KEY FINDINGS

- A network among responsible agencies with
 - well trained and committed staff and
 - a high level of trust and willingness to work together
- Unique identifiers that make integration of data from different sources possible
- Trust and personal knowledge of key persons gives agility to the system
- Automated collection of data from registers can compensate for the problems with low participation in questionnaires

PIN

- With the PIN, data from different sources can be linked to the very same person.
- PIN enables disaggregation of data into groups – gender, age, country/municipality, income, educational level, country of birth – for further analysis



Folkhälsomyndigheten



GLOBALA MÅLEN
för hållbar utveckling

Folkhälsomyndigheten bidrar till globala målen för hållbar utveckling.

Data Sources

- **National health registers** administered by governmental agencies: causes of death, in-patient and specialised out-patient care, vaccinations, amongst others (mandatory reporting)
- Statistics Sweden administers **population-based registers** on education, housing, etc. (mandatory reporting)
- **National health care quality registries** administered by health care regions, covering 110 disease-specific areas (reporting not mandatory)



Folkhälsomyndigheten



GLOBALA MÅLEN
för hållbar utveckling

Folkhälsomyndigheten bidrar till globala målen för hållbar utveckling.

KEY FINDINGS

- A high level of dependence on the legal structure
 - Gives strong mandate to collect data
 - Makes quick adaption difficult
- Extensive use of modelling puts new demands on data collection
- A number of new data sources has been identified during the pandemic
- The pandemic has created new partnerships but also exposed weaknesses in the system

RECOMMENDATIONS

- Include a system for common evaluation and development among the network of actors
- Evaluation of the legal structure to make it more agile
- Evaluate the usefulness of the new data sources found
- Identifiers can compensate for the data residing in different structures
- Data from the health system needs to be made more easily available at national level
 - Clinic
 - laboratory

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HOSTED BY



Prof. Andrew Lee
University of Sheffield, UKHSA

Thursday, December 1

Deep-dives overview

- **COMMON UNDERSTANDING OF INTEGRATION:**

- Varied understanding of IDS & also different aspects of integration
- Agreed definitions, better standardisation, SOPs, etc may be helpful
- Framework ("*building blocks*") developed for understanding IDS system in different countries is useful
- But, there is **no single model** of IDS that can be universally applied.

- **GOVERNANCE**

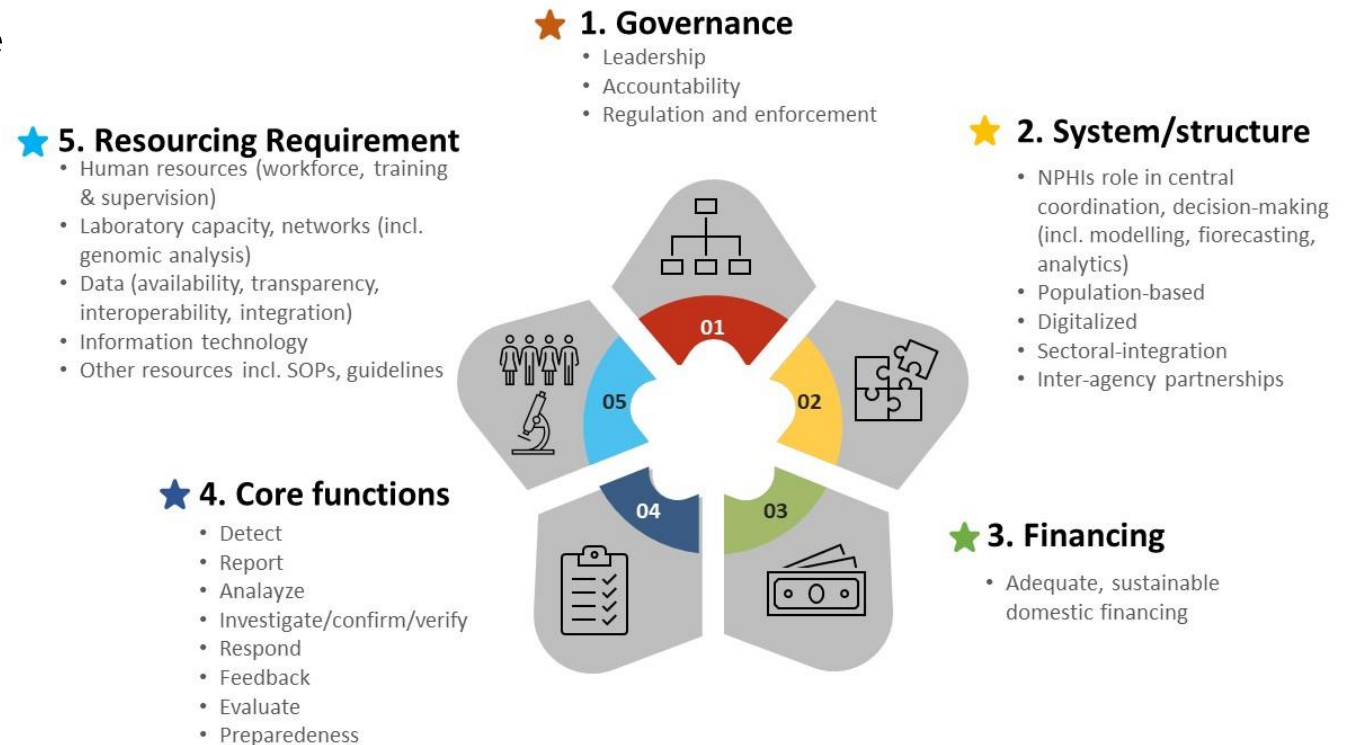
- Governance issues frequently reported.
- Need supportive governance, leadership, commitment ("all of government approach), and accountability
- Key role of NPHI

- **OUTCOMES**

- The link with response / outcomes not prioritised enough.
- Focus should therefore be on *purpose-driven integration*.
- Targeted investment and integration in different elements of the surveillance system may be more likely to achieve greater impact.

INFRASTRUCTURE & RESOURCE

- Affirms the building blocks required
- Complexity of implementing IDS must not be underestimated, especially infrastructure needed
- Context, needs, challenges, and systems differ. Hence, need for *context specific design*. Not starting from scratch but improving what is there.
- Consider developing '*Maturity Models*' of IDS
- *Are multiple collaborative structures that communicate well better and more feasible choice than the use of a single infrastructure?*



Strong professional relationships, networks & trust enhance effectiveness of systems.

- SKILLS/WORKFORCE:
 - *Significant workforce resourcing with technical skills required* at all levels
- POLICYMAKERS:
 - Need **advocacy & policy support**; Ownership; Accountability; Leadership
- STAKEHOLDERS:
 - Greater **public participation**; Consider **diversity of users** and **differing needs**
- COMMUNITIES OF PRACTICE:
 - Value of **relationships, networks, Communities of Practice**
 - **Interprofessional practice linkages**
 - **Cross-disciplinary & cross-sectoral** approaches
 - Invest in good **partnerships** & building **trust**

- RESEARCH:
 - More research & evaluation is valuable – to know what works, what is the utility of IDS, cost-benefit of measures, Context-Mechanism-Outcomes, etc...
 - Need to foster multi-sectoral collaborative research and innovation
- EVALUATION & LEARNING:
 - International **peer-peer learning** – *learning & developing together*
 - Create common **evaluation** & development system
 - **Knowledge exchange** with other countries for best practices
 - Interprofessional & intersectoral learning
- QUALITY IMPROVEMENT
 - **Data quality**
 - **Resilience & preparedness**

KEY RECOMMENDATIONS

- Recommendation 1: Clarify the definition, scope and purpose of IDS
- Recommendation 2: Adopt a strategic planning approach to the implementation of IDS
- Recommendation 3: Implementation plans should factor in key enablers

Other opportunities

- Bridge gaps in evidence for the areas of **governance** in IDS and **evaluation** of IDS systems.
- Embed a **health economics** approach to decision making should be considered to build into processes regarding support for building and sustaining IDS.
- Generate evidence for the effects of IDS on costs and lives saved, gains in efficiencies in decision making and **sharing of best practice**
- **Develop evidence** and clarity to understand the multi-sectoral workforce needed to optimize the design, development, and implementation of IDS

Next challenge then is “how” to realize this vision → CALL FOR ACTION

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PHIM | PUBLIC HEALTH INSTITUTE
of MALAWI



INSTITUTO NACIONAL DE SAÚDE
MOÇAMBIQUE



NATIONAL INSTITUTES OF HEALTH
ISLAMIC REPUBLIC OF PAKISTAN



Folkhälsomyndigheten
PUBLIC HEALTH AGENCY OF SWEDEN



**UK Health
Security
Agency**



Norwegian Institute of Public Health



Public Health
Agency of Canada

Agence de la santé
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IDS Project involvement Executive and Technical Committee's



Questions to consider:

Based on your own experience are there any reflections or views on barriers or challenges to strengthening surveillance that you have not heard mentioned.

Are there other recommendations you think should be made – and who to?

From the project what tools would you find useful that IANPHI can provide.