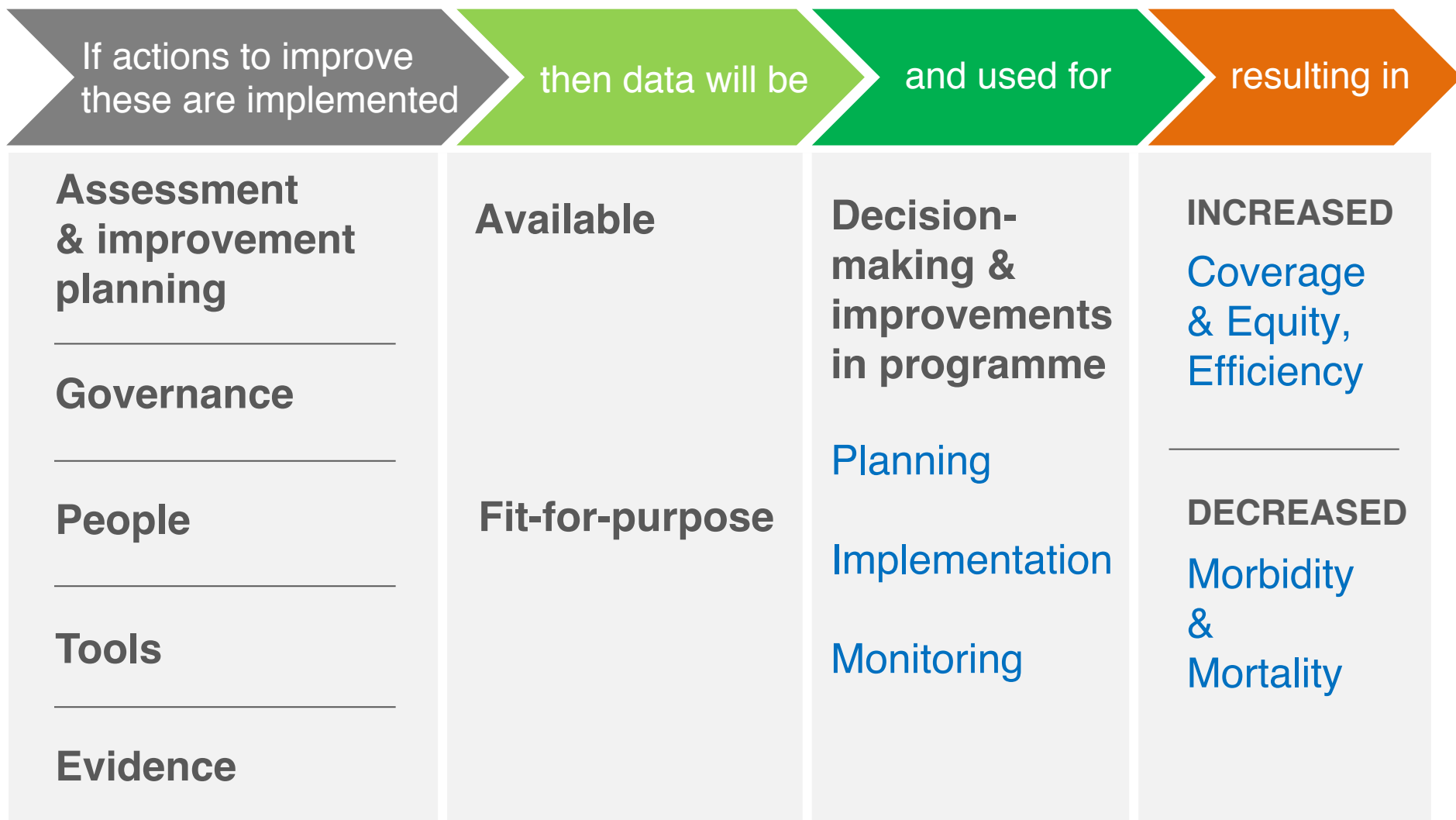


# **Quality and Use of Immunization and Surveillance Data**

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**SAGE Working Group**  
**10 October 2019**

# Simplified Theory of Change: How actions lead to improvements in programmes & health outcomes



# Key messages from WG, April 2019

- 20 years of discussing immunization data challenges
- If only focus on low-hanging fruit, won't address root causes & achieve sustainable change
  - Technology not solution to all problems
- Sustainable improvements require effort across the healthcare system
  - People, Governance...
- SDGs, Universal Health Coverage (UHC) & Primary Health Care (PHC) fundamental touchpoints for many of needed changes
  - Capacity-building, data use, continuous quality improvement
- Approaches need to be context-specific, country-owned & driven from frontline up

**Report of the SAGE Working Group on  
Quality and Use of Immunization and  
Surveillance Data**

April 2019  
[updated October 2019]

# Follow-up from April 2019

- April 2019 — SAGE requested specific, implementable recommendations
- Also abstracted key points to take forward as part of IA 2030

Table of SAGE Immunization Data Working Group recommendations by level, WHO role and time horizon<sup>1</sup>

Recommendation area	Specific recommendation	Countries	Regions	Global	WHO-specific unit & topic-area	Time horizon <sup>2</sup>
1. Embed monitoring of data quality and use into global, regional and national monitoring of immunization and vaccine-preventable disease (VPD) surveillance	WHO to develop a common definition, attributes, and indicators of data quality (i.e., small panel of indicators corresponding to the different data quality attributes), using those identified in this report as a starting point			x	EPI – see previous experience with GVAP, propose for eJRF	+
	Integrate ongoing monitoring of data quality indicators alongside other routine programme performance (e.g., coverage) and impact indicators	x	x	x	EPI – Guidance, Supporting implementation	+ / ++
	Develop and utilize data quality assessment approaches for immunization programme data other than coverage (i.e., VPD surveillance, stock data, etc.)	x	x	x	EPI – Guidance, Supporting implementation	++
	Evaluate the impact, cost and sustainability of interventions which aim to improve data quality, management, and use to inform decisions on scale-up	x	x	x	IVB, EPI – Convening, guidance, advocacy - Collaboration with HSS	++ / +++
2. Increase workforce capacity and capability for data quality & use starting at lowest level, where data collection occurs	Develop and disseminate data-related competencies guidance and capacity building tools to implement assessment of workforce at country-level	x	x	x	EPI – Guidance, advocacy (building on work on functions & competencies) - Collaboration with HSS	++ / +++
	Ensure data functions (collection, analysis, and use) are accounted for & resourced in workforce management plans, e.g., devoting adequate person-time equivalents, staff recruitment, and retention	x			- Collaborate with HSS	+++
	Build data capabilities across various levels and career stages (pre-service, refresher, supportive supervision, etc.), considering new approaches (e.g., e-Learning) potential efficiencies created by coordination across programmes	x	x	x	- Collaborate with HSS	+++

# Improving data quality & use: Focus on multi-component interventions across 5 key areas



Strengthen **governance** of data generation, use, & information systems



Build capacity & capability of the health **workforce** in data generation & use



Align information systems & **technologic innovations** with local context & program needs



Use immunization & surveillance data for **continuous quality improvement**



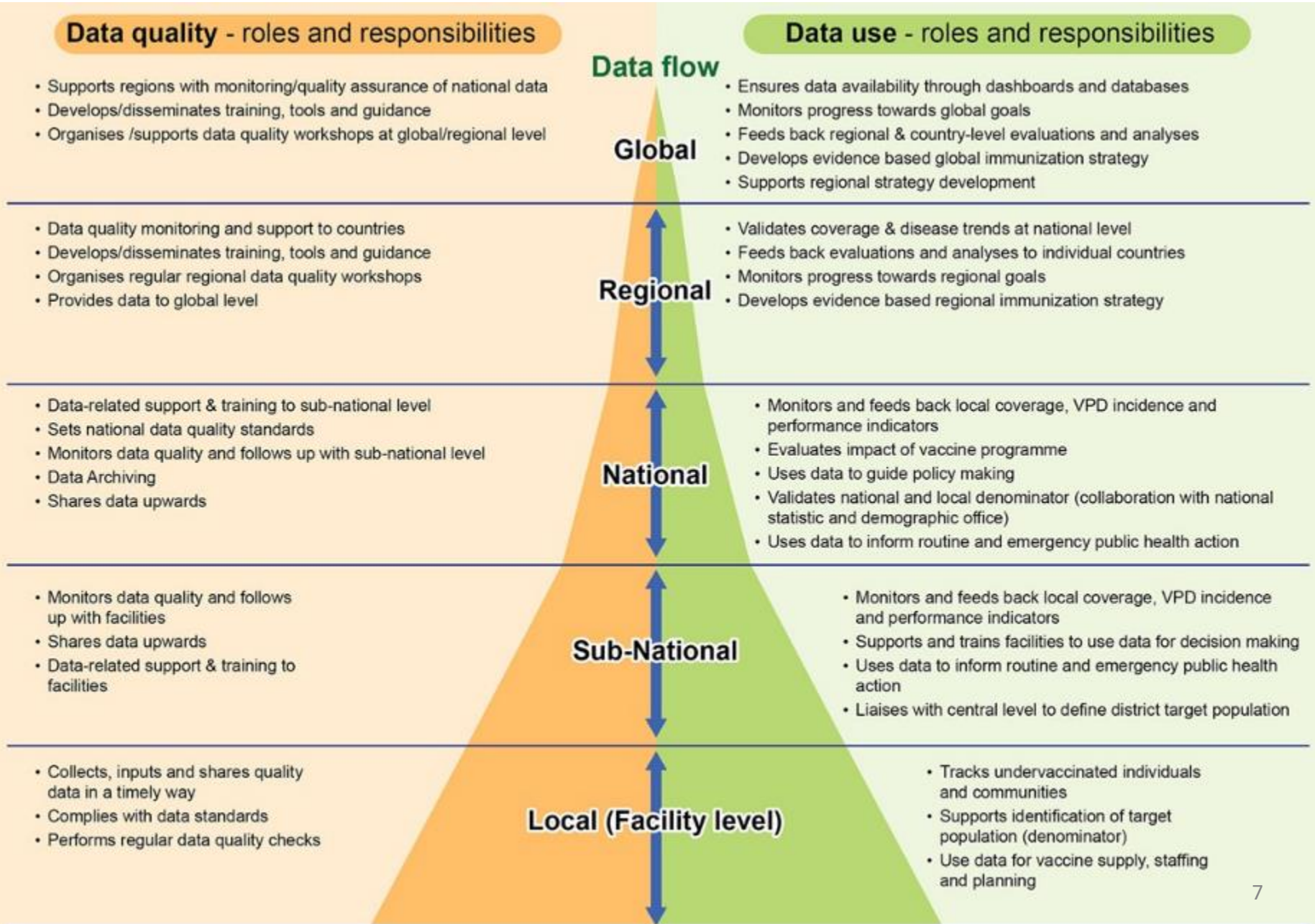
Fill gaps in **evidence** around data quality & use with robust evaluation

# Governance: Fundamental enabling factor for data generation & use

## *Needs strengthening*



# Data quality & use roles and responsibilities by level



# Importance of health workforce



**Data quality** = quality data collection at **local level**



**Yet, many interventions:**

- Focus on national/district level, rather than health facility
- Focus on technology (new tools), rather than people that drive information systems



**Workforce capacity — limitation in >80% of references in review of barriers of data quality & use<sup>1</sup>**

- **Capacity** — staff shortages, person-time equivalents
- **Capability** — skill shortages, especially for data use
- **Motivation** — competing priorities, lack of feedback

<sup>1</sup> Elmousaad, Donadel, Scobie. *Barriers limiting quality, access & use of VPD surveillance data*. (2019, SAGE WG Report Annex)



# Potential workforce solutions & examples



## Tools for **workforce planning & management**<sup>1</sup>

- Immunization Workforce Competencies Framework (guidelines in development)



## **Pre-service** training on data monitoring<sup>2</sup>

- AFR Medical & Nursing Immunization Curricula (2015)



## More effective **in-service** training (adult-learning theory)

- WHO Immunization Monitoring Academy — distance-learning, group discussions, project mentoring



## **Supportive supervision** (with financial & logistic support)

- Uganda Data Improvement Teams (~1% of program budget)

<sup>1</sup> SAGE recommendation, April 2017

<sup>2</sup> Links to SAGE recommendation, Nov. 2008

# Multi-faceted interventions



**Multicomponent interventions** most prevalent & often **more effective** for improving performance<sup>1,2</sup>

- No impact from technological interventions alone, without capacity building
- Training combined with supervision or group problem solving — more effective than single strategies



**Health systems approach** more likely to succeed and be **sustained** over long-term

- Data review meetings + creating national guidelines & protocols for data + hiring data managers at all levels

<sup>1</sup> IDEA realist review 2018

<sup>2</sup> Rowe et al. 2018

# Data quality & use intervention = tech solution?



Immunization  
info systems



Logistics  
management  
info systems



Decision  
support  
(dashboards)



mHealth



Media based  
approaches



Digitization of  
paper records



GIS based  
technologies



Predictive  
analytics



Other?

# Tools: not a magic bullet



## **Proliferation of tools — most never go beyond pilot**

- Developed solutions not always aligned with public health problems, user requirements, local context
- Lack of sustained funding, plan to take scale



## **Some tools improve data quality and/or use**

- E.g. health information systems, dashboards



## **Success depends on:**

- Addressing a well-defined problem
- Infrastructure (e.g., electricity, internet), integration, governance, financing, trained workforce<sup>1</sup>



## **Need:**

- Impact & economic evaluations
- Guidance needed on when to take to scale

<sup>1</sup> See PAHO & WHO [\*Guide to Planning Electronic Immunization Registry\*](#)

# Continuous quality improvement (CQI)



**Ask:** *How are we doing?*  
*How can we do better?*

**Increase data ownership & use of data for action**

- Data improvement plans
- Addressing root causes

**Guidance exists for CQI of vaccine management**

- Translate broadly to EPI

**Health systems approach — similar data needs throughout**

# Routine monitoring of data quality



**Shift from exclusive focus on targets to relative improvements in performance & data quality**

- Perverse incentives linked to performance-based financing



**Move from periodic to routine data quality monitoring**

- Part of comprehensive monitoring — coverage, stock, surveillance



**Opportunities to perform automated data validation checks & analyses to improve data quality & use**

- Dashboards, eJRF, WHO Immunization Information System



**Framework for monitoring data quality lacking**

- Data quality attributes & measures not standardized

# Strengthening data-use



IDEA review\*: **improving data use** — potential entry point for improving data quality



Challenge — **health system strengthening** from frontline up (governance, tools, people, processes)

— And changing aspects of a particular culture



**Data Triangulation** should be default for public health analyses

— Global & regional (EURO) guidance under development

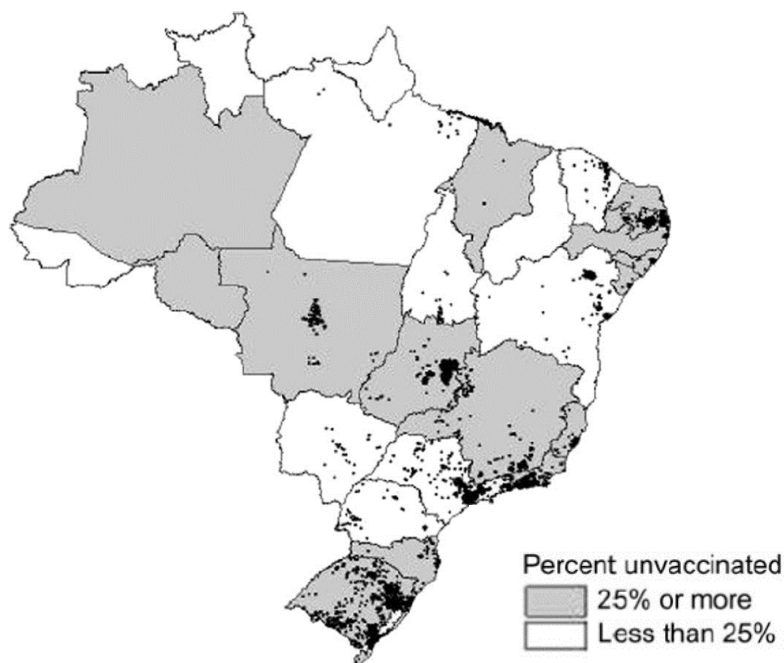


**Use existing program data** — beyond coverage, including input & impact measures

# Triangulation & use of existing program data

## Surveillance Data

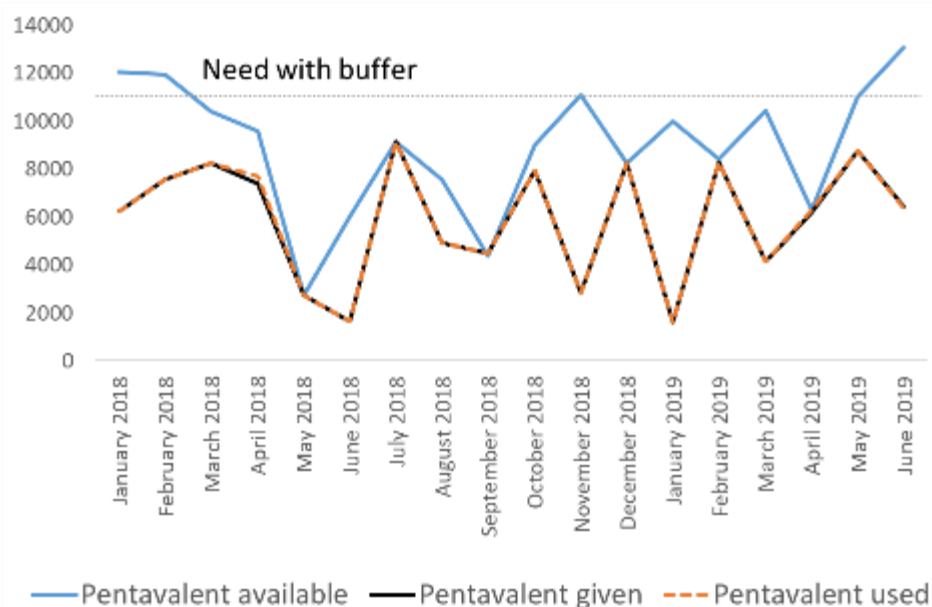
% unvaccinated vs. cases of disease



Each dot = 1 rubella case (n=8751 cases)

## Vaccine Stock Data

doses administered vs. doses available & used



**Brazil, 2007.** Source: Segatto 2011  
<https://www.ncbi.nlm.nih.gov/pubmed/21954255>

**Sub-district in Country A.** Data triangulation presentation, 2019 (CDC, WHO, UNICEF)

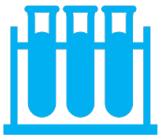


# Emerging challenges for monitoring immunization programmes



## Accuracy as coverage increases

- Need for more accurate population estimates
- Role of private sector & inclusion in reporting



## Access/use of relevant VPD surveillance data

- Lacking individual-level & laboratory data, data sharing & use for planning & decision-making
- WHO Comprehensive VPD Surveillance Strategy 2030



## Equity

- No guidance on routine equity monitoring
- How to target/monitor migrants & other high-risk groups



## Life-course

- Challenges in accurately measuring coverage beyond infancy: MCV2, DTP4, HPV, pregnancy
- Role of serosurveillance in monitoring

# Filling gaps in evidence

What data quality & use interventions lead to better decision-making & better immunization programme performance, in particular at facility level

**Effectiveness, cost-effectiveness, time efficiency & sustainability** of interventions for improving data quality & use, & how/ when to scale up — different contexts

Lack of consensus definition of data quality & how to monitor it

See report for detailed **Research Agenda**

# High level recommendations

See **Yellow Book** for more specific recs, relevant levels and time horizon

- 1) Embed **monitoring of data quality** into global, regional & national monitoring of immunization & VPD surveillance performance
- 2) Increase **workforce capacity & capability** for data quality & use, starting at the lowest level where data collection occurs
- 3) Take actions to improve accuracy of **programme targets**
- 4) Enhance **use of existing data** at all levels for tailored action, including programme planning, management & decision-making
- 5) Adopt a data-driven **continuous quality improvement** approach as part of health system strengthening at all levels
- 6) Strengthen **governance** around **piloting & implementation of new tools** for immunization and surveillance data collection & use
- 7) Improve **data sharing & knowledge management** across areas & organizations for improved transparency & efficiency
- 8) WHO & UNICEF to strengthen **global reporting & data monitoring** through a periodic needs assessment & revision process

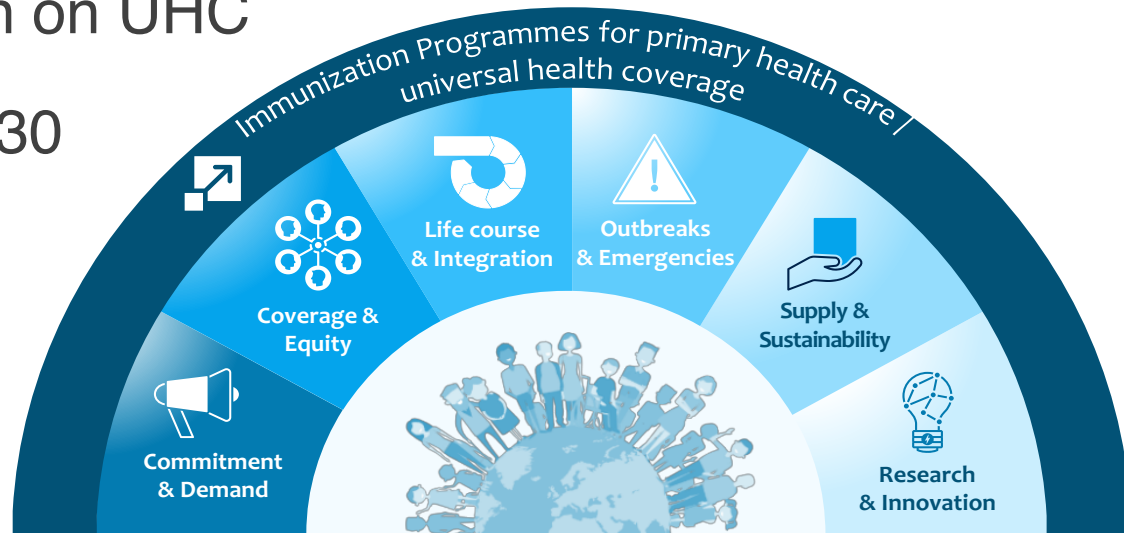
# Opportunities for implementing WG recs

Global Framework to Strengthen Immunization and Surveillance Data for Decision-making [*draft*] co-created

Immunization monitoring and surveillance as a component of program planning → budget allocation and M&E

Landmark UN declaration on UHC

Immunization Agenda 2030



**Data-Driven:** Improvements are based on data, evidence and research

Using timely and accurate data, evidence and research to drive improvements in immunization performance.

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