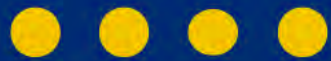


Convening on Measurement and Monitoring of Multiple Micronutrient Supplementation (MMS)



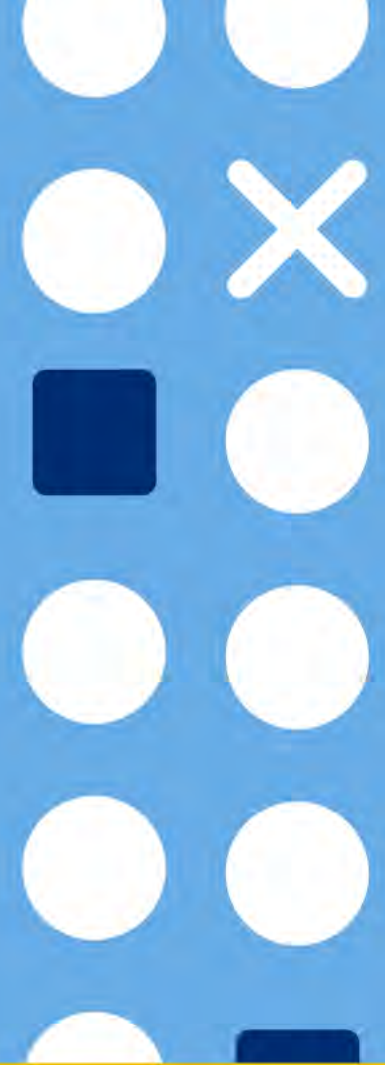
Day 1: 21 April 2026

555 Pennsylvania Ave, Washington DC



Session 1

Setting the Stage



Welcome & Introductions

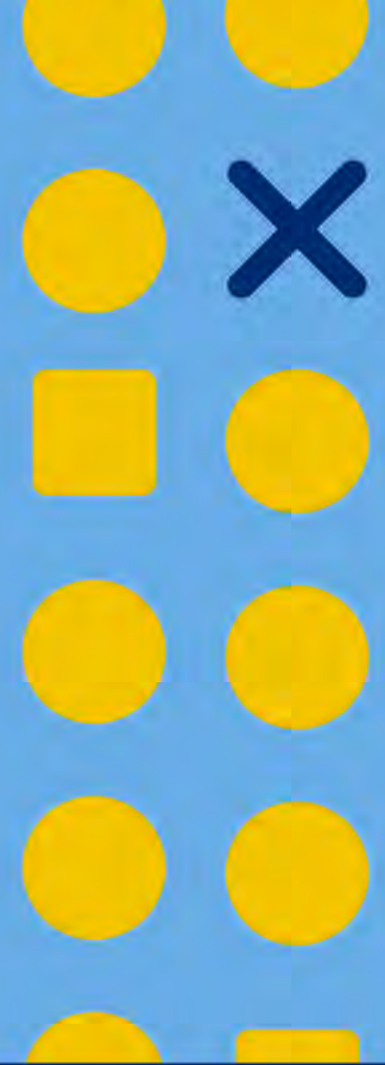
Martin Mwangi

Micronutrient Forum (MNF)

Healthy Mothers, Healthy Babies (HMHB)

Rebecca Heidkamp

Johns Hopkins Bloomberg School of Public Health



Introductions

What is a key indicator for your personal wellbeing?

What is an indicator should we measure across time to assess whether you are likely feeling good about life?

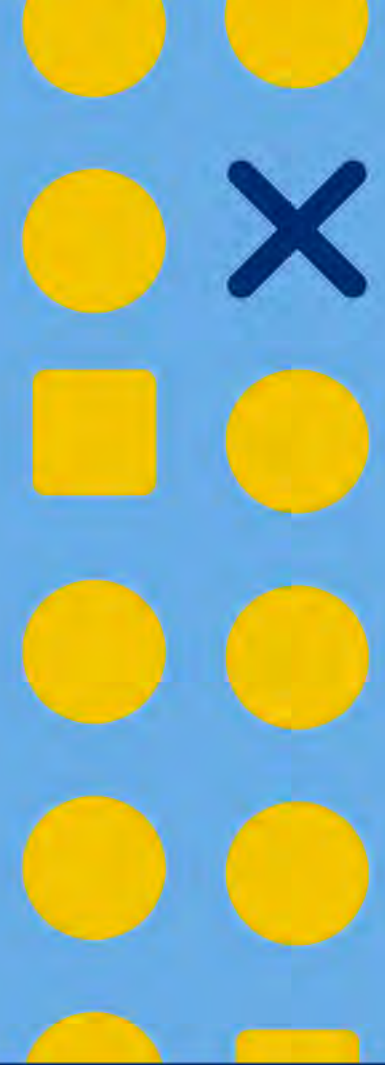
- 3 rounds of 1:1 'networking'
- Try to meet new-to-you people



Framing: the missing pillar in the IFA/MMS transition

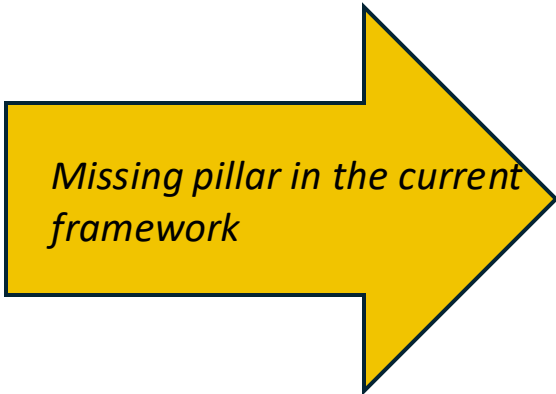
Rebecca Heidkamp

Johns Hopkins Bloomberg School of Public Health



How will governments, donors & implementation/technical partners monitor supply, reach, adherence, and quality delivery at scale?

Monitoring Systems



Activities

Outputs

POLICY/ REGULATORY



FINANCING



QUALITY PRODUCT



DELIVERY CHANNELS



MONITORING SYSTEM



I. BUILDING AN ENABLING ENVIRONMENT:

- Landscaping & analysis
- Stakeholder mapping & engagement
- Advocacy

II. DESIGN & TEST IMPLEMENTATION STRATEGIES:

- Advocacy
- Policy & guideline development
- Roadmap

III. SCALING & MAINTENANCE:

- Policies & guidelines adoption
- Operationalize Roadmap

STRATEGIC OBJECTIVES

Product is included in relevant policies & instruments at all levels of government

Outcomes

REACH COVERAGE



IMPROVED MATERNAL NUTRITION & BIRTH OUTCOMES

What needs to be done at each stage in process?

What is our objective?

COORDINATION AND MLE

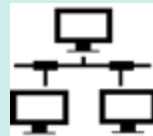
Adding the missing pillar

Our **strategic objective** is full integration of MMS into national information systems

Four common data sources are relevant to ANC (IFA & MMS)

Admin Data

HMIS / DHIS-2

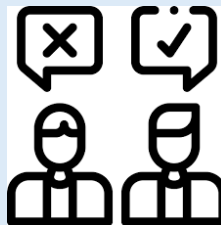


Logistics MIS

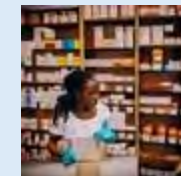


Survey data

Periodic Household Survey (e.g. DHS, national nutrition survey)

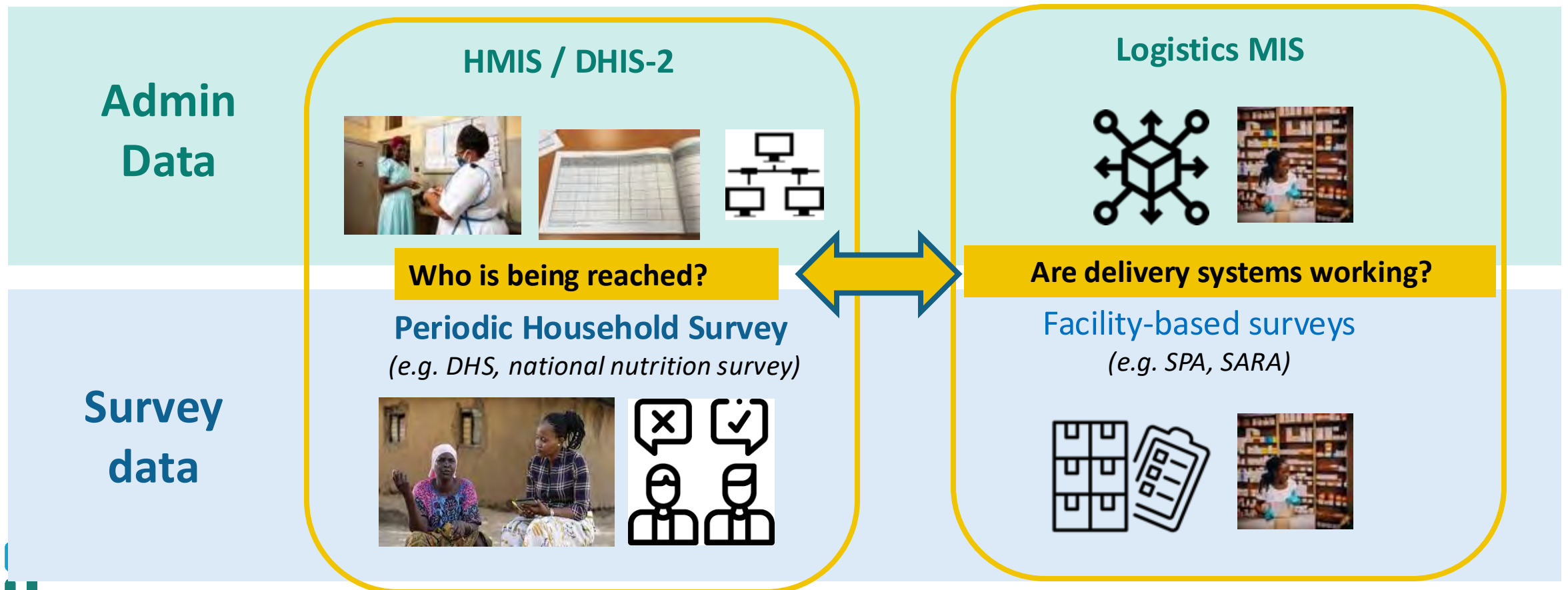


Facility-based surveys (e.g. SPA, SARA)



These data sources are complementary; they address different aspects of ANC implementation

Four common data sources are relevant to ANC (IFA & MMS)



Routine & survey data sources are complementary; they have different purposes, strengths & limitations

Four common data sources are relevant to ANC (IFA & MMS)

Admin Data

HMS / Surveys

Logistics MIS



- “real time” data
- even with data quality issues can provide meaningful signal/trend
- essential for program management



Survey data

Periodic
(e.g. DHS, I



- periodic / lagged data
- population-based estimates
 - capture women outside health system
 - track progress against coverage targets
 - allow for equity analysis
 - allow for co-coverage analysis
- can validate admin data

veys



How might we “do better” with monitoring & measurement as part of the transition from IFA to MMS?

CHALLENGE

- Need for broader systems strengthening (data quality)
- Nutrition is one of many who depend on these data sources --> limited ‘space’ for influence & edits
- Long time horizon - each data source has its own cycle for review & rolling out updates

OPPORTUNITY

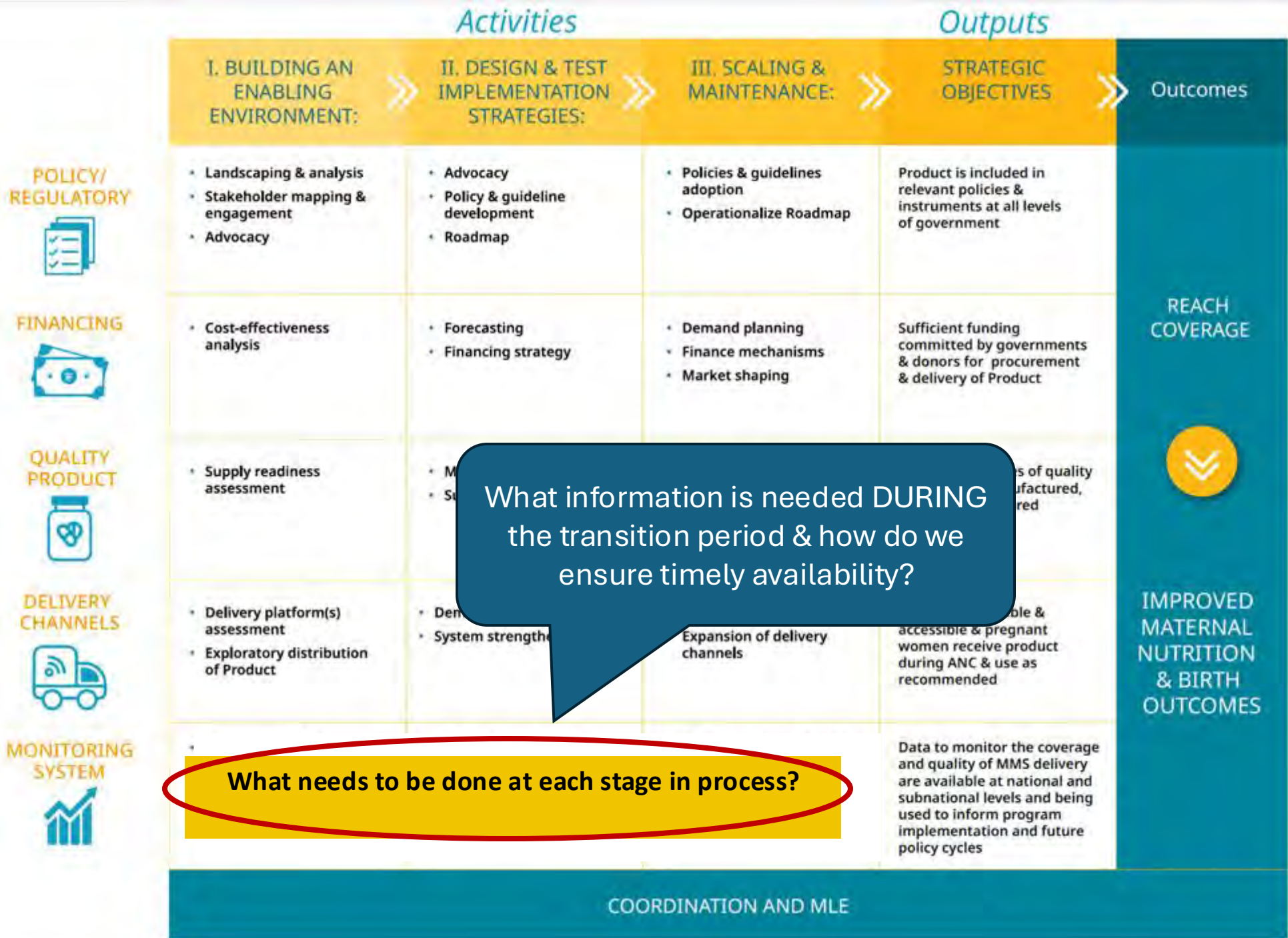
- Sustainability of data collection & reporting
- Integration with wider ANC platform

Prepare for **windows of opportunity**

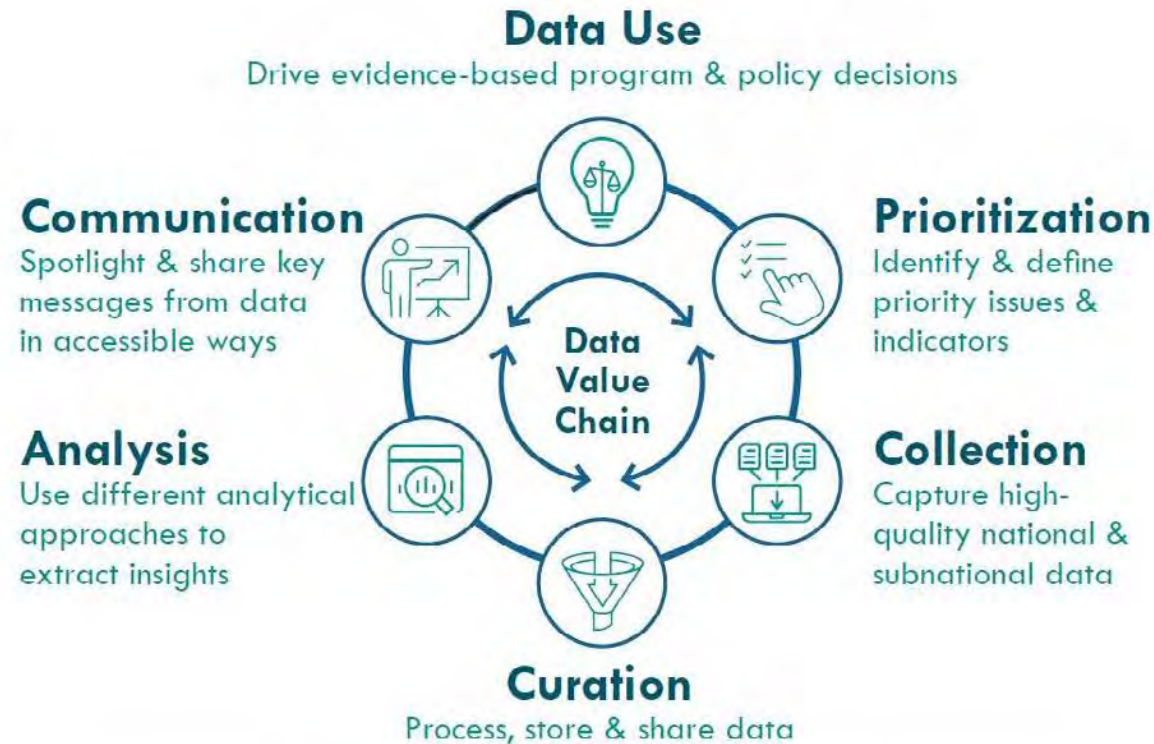
- *reflect on what is truly needed*
- *consider priorities of others & constraints of systems*
- *provide clear justification for changes*
- *start to advocate as early as possible*



Adding the missing pillar



We need to consider the full data value chain (DVC)



DATA VALUE CHAIN FOUNDATION
Strategy • Capacity • Governance • Financing



This meeting is > 3 years in the making....



HEALTHY MOTHERS
HEALTHY BABIES

- Started talking at the 2023 MNF in the Hague
- Carried out relevant research in 2024/2025
- Advocacy for DHS-9 in late 2024/early 2025
- Obtained core funding for meeting in mid-2025
- Held introductory webinar in November 2025
- Engaged country colleagues in preparation for meeting in March 2025



Review objectives & agenda

Martin Mwangi
Micronutrient Forum (MNF)
Healthy Mothers, Healthy Babies (HMHB)

Meeting Objectives

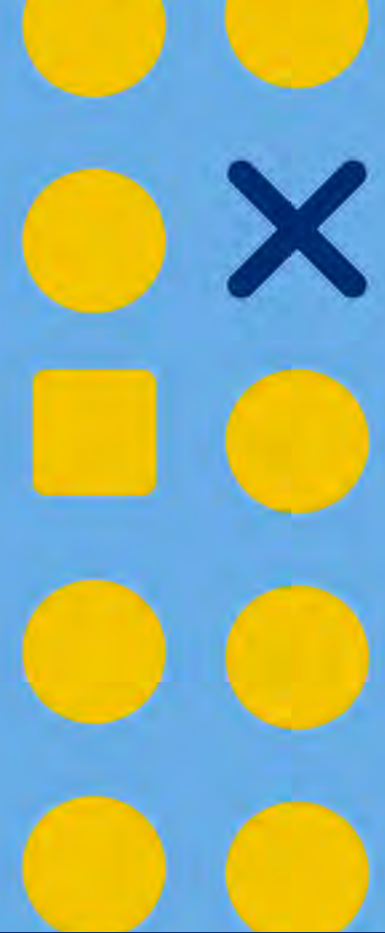
1. **Build consensus** that monitoring and measurement should be recognized as a core pillar of MMS scale-up,
2. **Examine information, monitoring actions, and systems integration needed** across the introduction and scale-up process,
3. **Identify and prioritize country needs** for guidance, technical assistance, and implementation research to achieve monitoring and measurement aims, and
4. **Strengthen stakeholder alignment** around an actionable agenda, including financing, for MMS monitoring and measurement.

Monitoring & Measurement for MMS: Evidence & Action

Robert Black
JHU BSPH

Lisa Rogers
WHO

Saskia Osendarp
MNF





JOHNS HOPKINS
BLOOMBERG SCHOOL
of PUBLIC HEALTH

Antenatal Multiple Micronutrient Supplementation: Considerations for Monitoring Adherence and Coverage

**Robert E Black FRS, MD, MPH
Bloomberg School of Public Health
Johns Hopkins University**

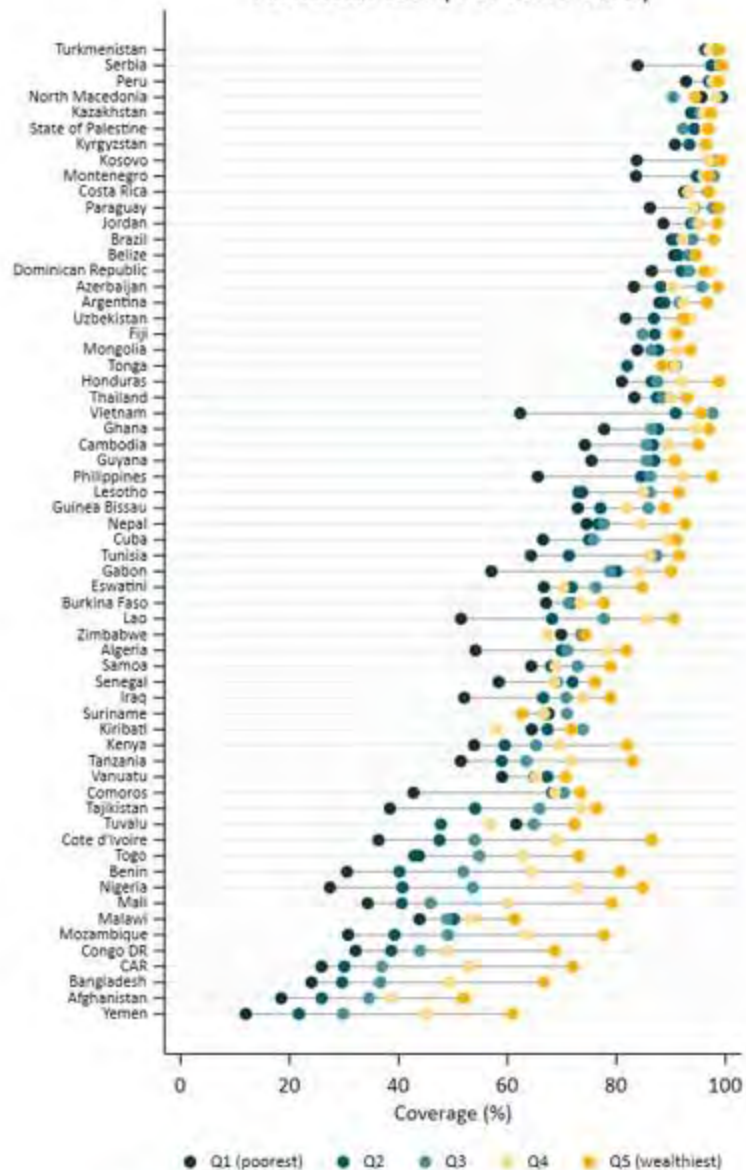
Evidence for Effect Modification By Maternal Nutrition

Birth Outcomes	Pregnant Women (Overall)	Anemic Pregnant Women (Hb <110 g/L)	Underweight Pregnant Women (<18.5 kg/m ²)
Stillbirth	8%	21%	NS
Infant 6-Month Mortality	NS	29%	NS
Low Birth Weight	12%	19%	12%
Preterm Birth	8%	NS	16%
Small for Gestational Age	3%	8%	NS

Reduction in stillbirth, low birthweight, preterm birth, and SGA (MMS vs. IFA) higher in anemic or underweight women

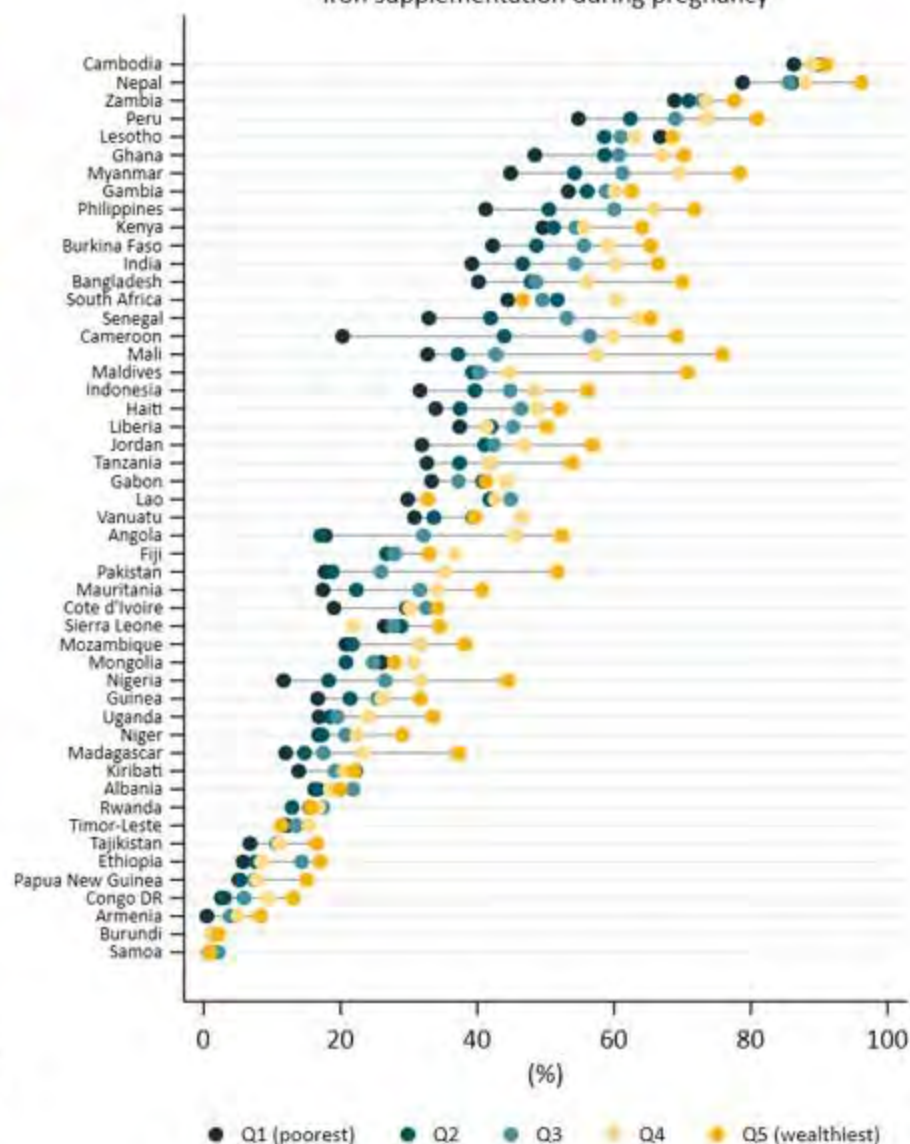
Reduction in 6-month deaths in anemic women

Antenatal care (4 or more visits)



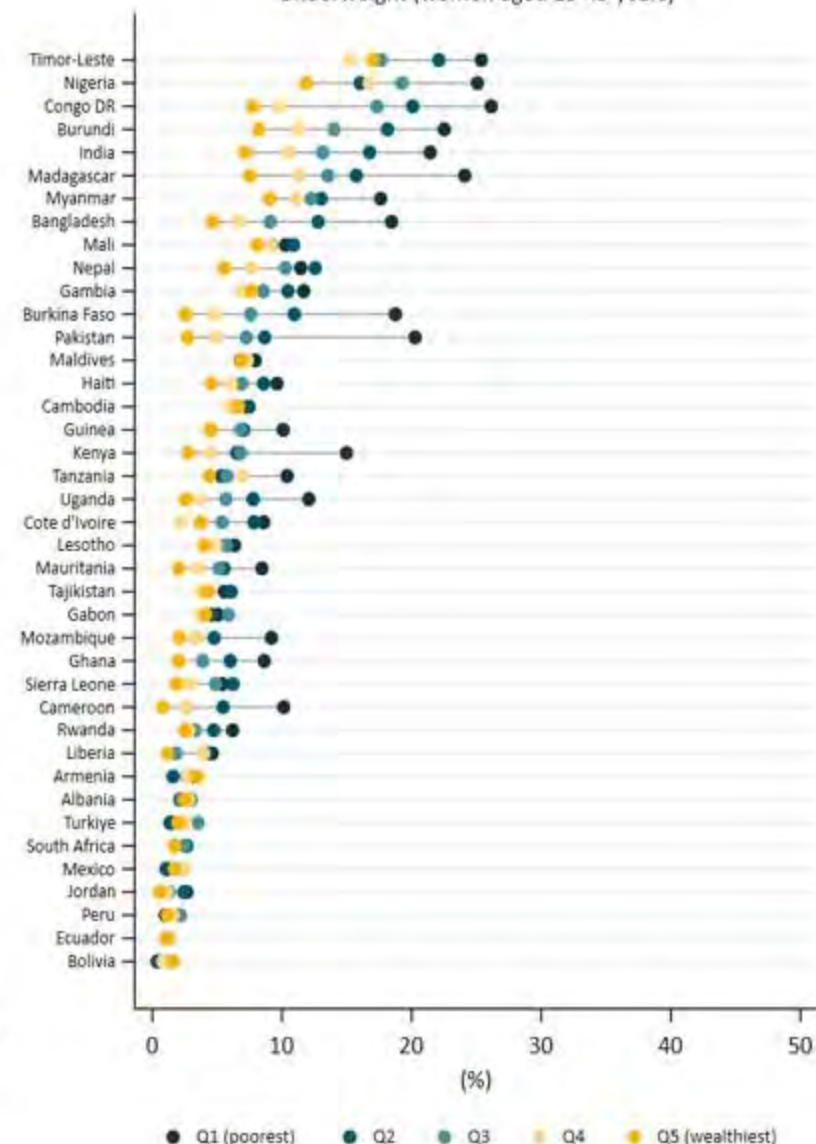
PERCENTAGE OF WOMEN WITH 4+
ANTENATAL CARE VISITS WITH ANY
PROVIDER

Iron supplementation during pregnancy



PERCENTAGE OF WOMEN WHO RECEIVED
IRON SUPPLEMENTATION DURING
PREGNANCY

Underweight (women aged 15-49 years)



PERCENTAGE OF WOMEN WHO ARE
UNDERWEIGHT

Evidence on Effect Modification for the Comparison of MMS and IFA by Time of Initiation of MMS

Gestational Age at Enrollment	Low Birth Weight	Preterm (<37 weeks)	Small-for-Gestational Age
<20 weeks	0.88 (0.86 – 0.91)	0.89 (0.85 – 0.93)	0.99 (0.97 – 1.01)
≥20 weeks	0.84 (0.77 – 0.92)	1.00 (0.94 – 1.08)	0.91 (0.86 – 0.96)

Evidence on Effect Modification for the Comparison of MMS and IFA by Adherence

Outcome	<60% Adherence	60 – 75% Adherence	75 – 90% Adherence	≥90% Adherence
Birth Weight (g)	8 (– 17 – 36)	58 (28 – 88)	36 (17 – 56)	56 (45 – 67)
Low Birth Weight (RR)	1.02 (0.94 – 1.12)	0.92 (0.83 – 1.03)	0.91 (0.85 – 0.97)	0.88 (0.84 – 0.91)
Preterm (RR)	0.92 (0.83 – 1.02)	0.98 (0.88 – 1.1)	0.95 (0.88 – 1.03)	0.89 (0.84 – 0.94)
Small-for-Gestational Age <10 th (RR)	1.06 (0.99 – 1.14)	1.02 (0.94 – 1.11)	0.96 (0.91 – 1.01)	0.96 (0.94 – 0.99)

Evidence on Effect Modification for the Comparison of MMS and IFA by Number of Tablets

Outcome	<90 Tablets	90 – 120 Tablets	120 – 180 Tablets	≥180 Tablets
Birth Weight (g)	34 (9 – 59)	54 (30 – 78)	53 (37 – 68)	44 (31 – 56)
Low Birth Weight (RR)	0.93 (0.86 – 1.01)	0.90 (0.81 – 0.99)	0.92 (0.85 – 1.00)	0.88 (0.84 – 0.92)
Preterm (RR)	0.88 (0.81 – 0.95)	0.97 (0.91 – 1.05)	0.88 (0.83 – 0.93)	0.89 (0.81 – 0.97)
Small-for-Gestational Age <10 th (RR)	1.10 (1.02 – 1.18)	0.91 (0.83 – 0.99)	0.97 (0.90 – 1.04)	0.95 (0.93 – 0.98)

Association of Adherence with Birth Outcomes Among MMS Users (Observational data) in Trials

$\geq 90\%$ adherence compared to $<90\%$ adherence

- Birthweight increased 18 (3,33) g
- LBW decreased: Effect size 0.93 (0.88, 0.98)

Combined effect of timing and adherence ie started <20 weeks and $\geq 90\%$ adherence

- Birthweight increased 23 (4,42) g
- LBW decreased: Effect size 0.92 (0.87, 0.98)

Conclusion

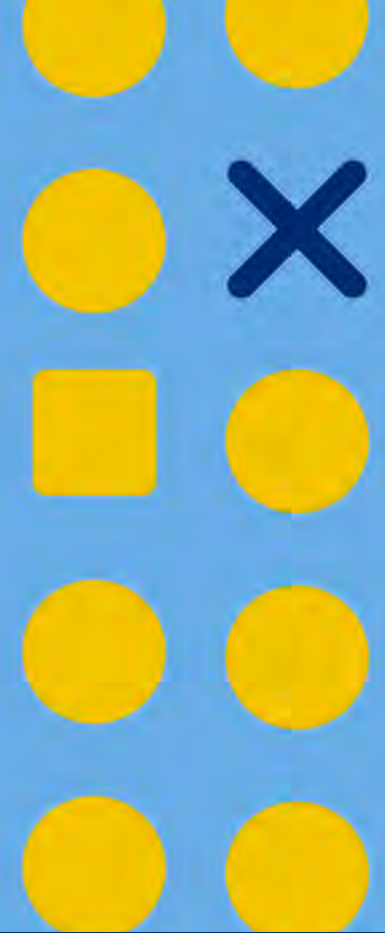
- Overall pregnant women have better birth outcomes with MMS vs IFA, but anemic and underweight women have greater benefits
- There are strong inequities by wealth in coverage of antenatal care and IFA
- Initiation of MMS before 20 weeks gestation may provide a better effect on preterm, but not small-for-gestational age births
- The benefit of MMS vs IFA is directly related to adherence, with consistent benefit for key birth outcomes with $\geq 90\%$ and possible benefit on some outcomes with lower adherence
- The relationship of consumption of larger number of tablets to benefit of MMS vs IFA is less clear, but there is consistent benefit for key birth outcomes with ≥ 180 tablets and possible benefit on some outcomes with fewer tablets

Monitoring & Measurement for MMS: Evidence & Action

Robert Black
JHU BSPH

Lisa Rogers
WHO

Saskia Osendarp
MNF



Navigating the current climate together

April 21, 2026

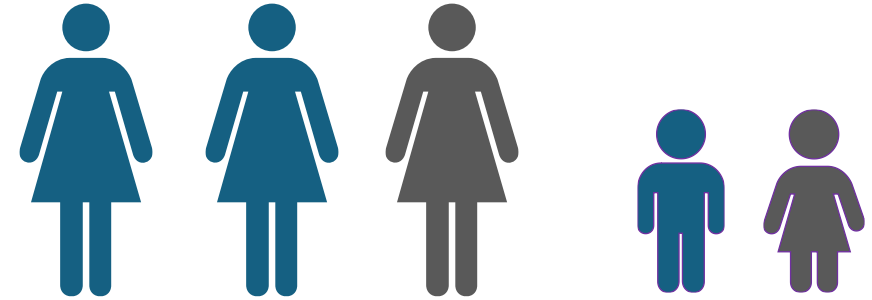




Recent funding cuts make an already limited micronutrient data landscape even more vulnerable...

Reliable data are sparse

Available data is often not well analyzed



**2 in 3 women
worldwide**

suffer from micronutrient
deficiency

**1 in 2 children
worldwide**

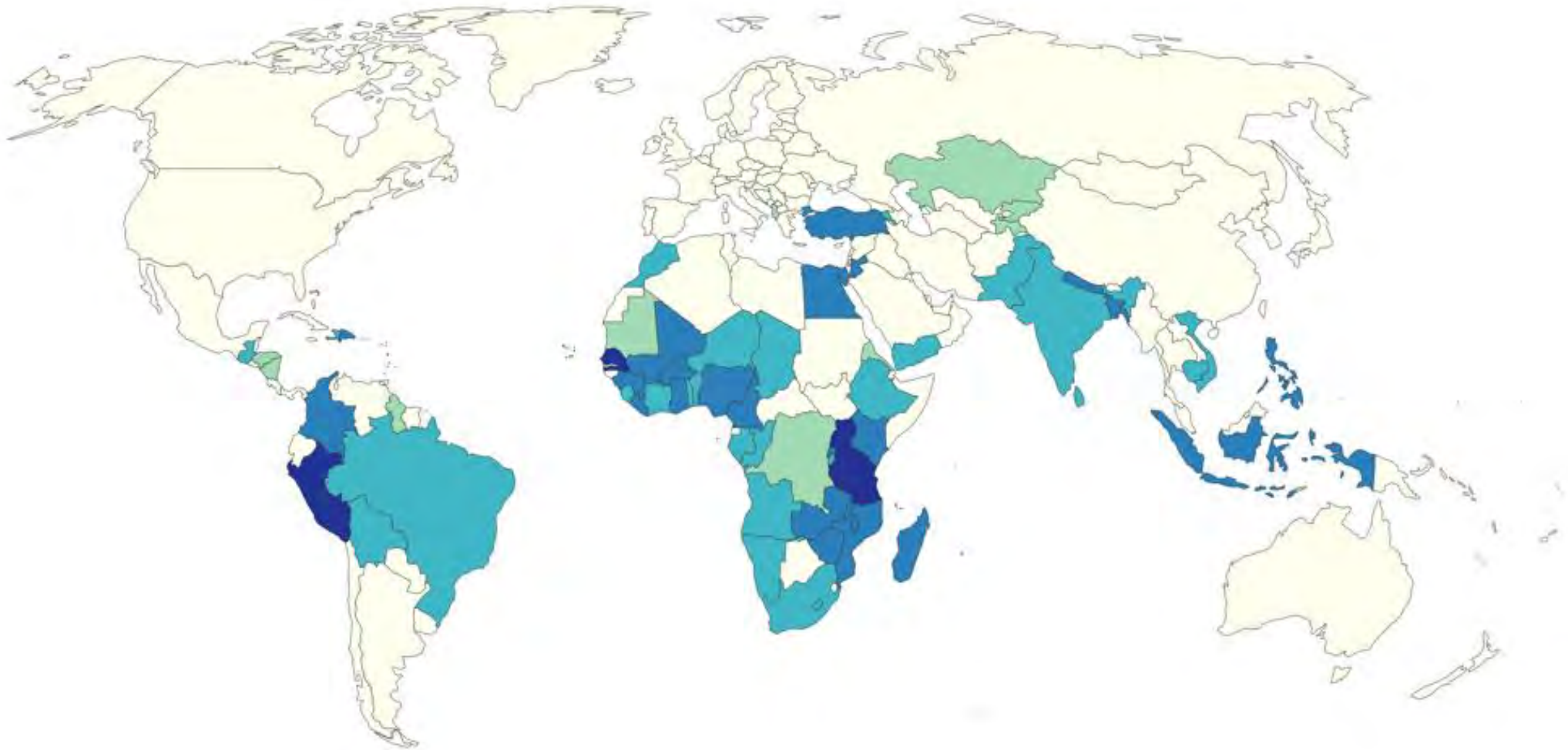
suffer from micronutrient
deficiency

**Existing analyses do not
adequately inform national-
level decisions**



The Demographic and Health Surveys brought crucial data for more than 90 countries — without them, we risk darkness

(Our World In Data, July 2025)





DHS Surveys and Nutrition Coverage Indicators

Number of DHS surveys and percentage of population size covered for key indicators (#, %)

Coverage Indicator	Global	Africa
Receipt iron-containing supplement, pregnant women	206 (51%)	122 (89%)
Deworming during pregnancy ¹	30 (97%)	23 (94%)
Blood pressure measured, antenatal	207 (51)	122 (89)
Counseling on breastfeeding, postnatal	57 (25%)	38 (74%)



¹ WHO guideline criteria for providing deworming during pregnancy is anemia >40% prevalence of hookworm and/or *T. trichiura* infection is 20% or more. Denominator based on anemia prevalence in 2023 >40% meeting due to unavailable data for parasitic prevalence estimates



Need for a Collective Action Plan for Micronutrient Data

"Resources are scarce, it should not be the loudest or fastest voice **but a common voice that helps to push the agenda forward and make sure we can get the best data that can support the unique needs countries have** for their various purposes."

- Lynnette Neufeld (FAO); Participant of the 'Micronutrient Data in a Changing Landscape: Impacts, opportunities, and a collective way forward' meeting, June 2025



Initiatives to strengthen Food Security and Nutrition Information Systems

Strengthening food and nutrition information ecosystems in the humanitarian and development peace nexus

A roadmap for action



DIInA
Humanitarian Data Information Alliance

TAKE THE GNR-ACTION DATA STAKEHOLDER SURVEY

Win free registration to the Micronutrient Forum 7th Global Conference

AVAILABLE IN ENGLISH + SPANISH + FRENCH

CLOSES APRIL 16



A roadmap: draft zero



- **Reduce** fragmentation and duplication across food and nutrition information systems
- **Strengthen** cross-sector alignment and interoperability for better decision-making
- **Promote** "good-enough, timely, and fit-for-purpose" data under operational constraints
- **Anchor** prioritisation and action in country-led governance and field realities under constrained funding

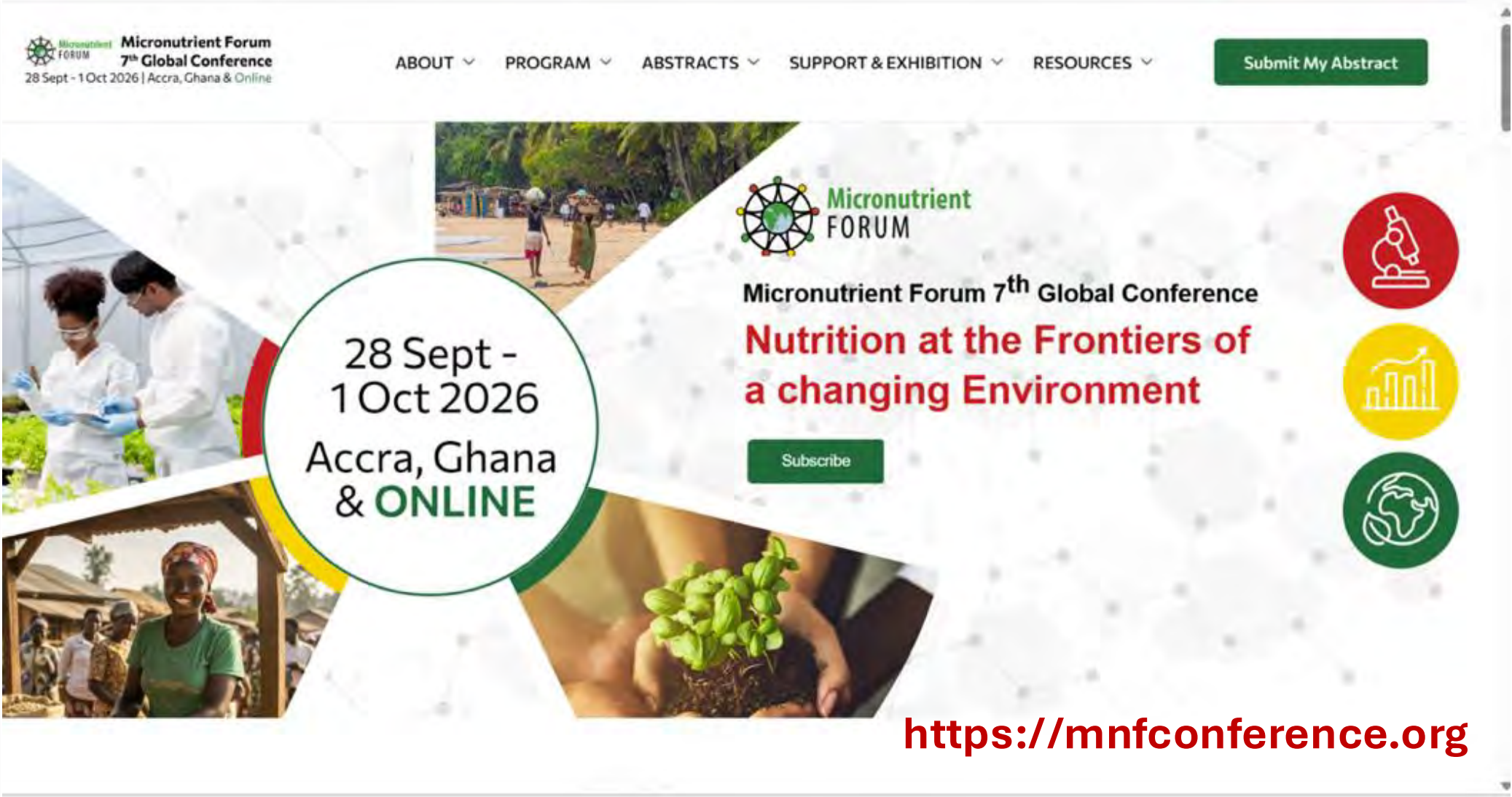


Collective ACTION Plan for Nutrition DATA

ACTION DATA



Advocacy Moment: Safeguarding Data for Nutrition Amid Funding Constraints



Micronutrient Forum
7th Global Conference
28 Sept - 1 Oct 2026 | Accra, Ghana & Online

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Micronutrient FORUM

Micronutrient Forum 7th Global Conference
Nutrition at the Frontiers of a changing Environment

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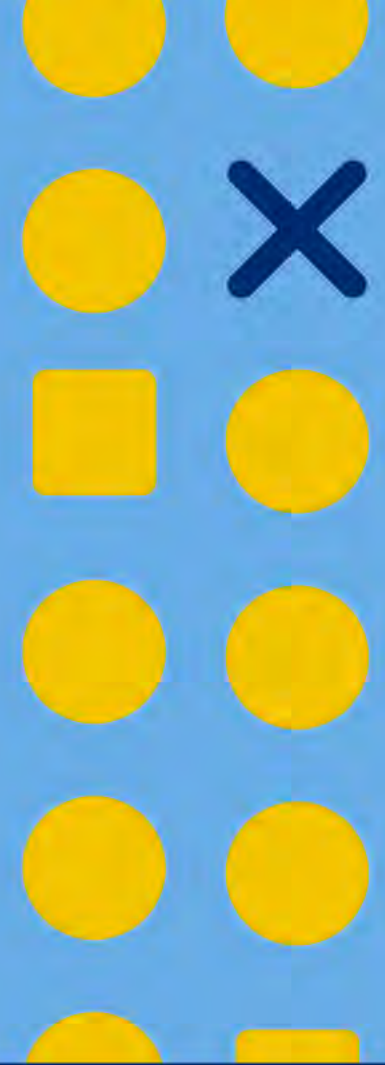
28 Sept - 1 Oct 2026
Accra, Ghana & **ONLINE**

<https://mnfconference.org>

Learning from Nepal: Monitoring and measurement in the MMS roadmap

Manish Gautam
Anweshan

Sasmita Poudel
Helen Keller International)



Planning for Monitoring Before MMS Scale-Up: Nepal's Experience

21 April 2026

Manish Gautam, MSc IPH, Mdevs
Managing Director, Anweshan
&
Sasmita Poudel, PhD
Sr. Research Manager, Helen Keller Intl.



Exploring Transition from Iron and Folic Acid (IFA) to MMS in Nepal

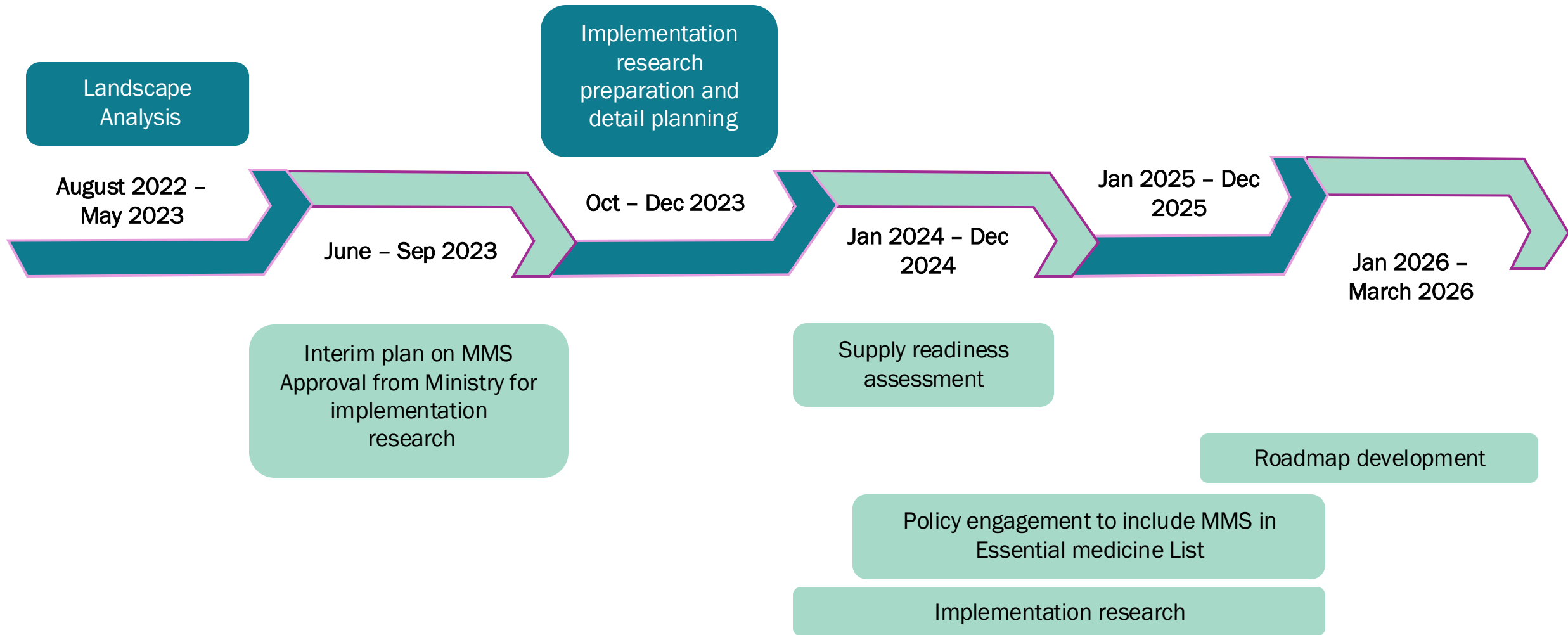
- Nepal has made strong progress in maternal health, but challenges remain:



- Maternal anemia and adverse birth outcomes remain concerns
- Antenatal care currently provides Iron–Folic Acid (IFA) supplements
- Emerging global evidence shows Multiple Micronutrient Supplementation (MMS) improves birth outcomes.

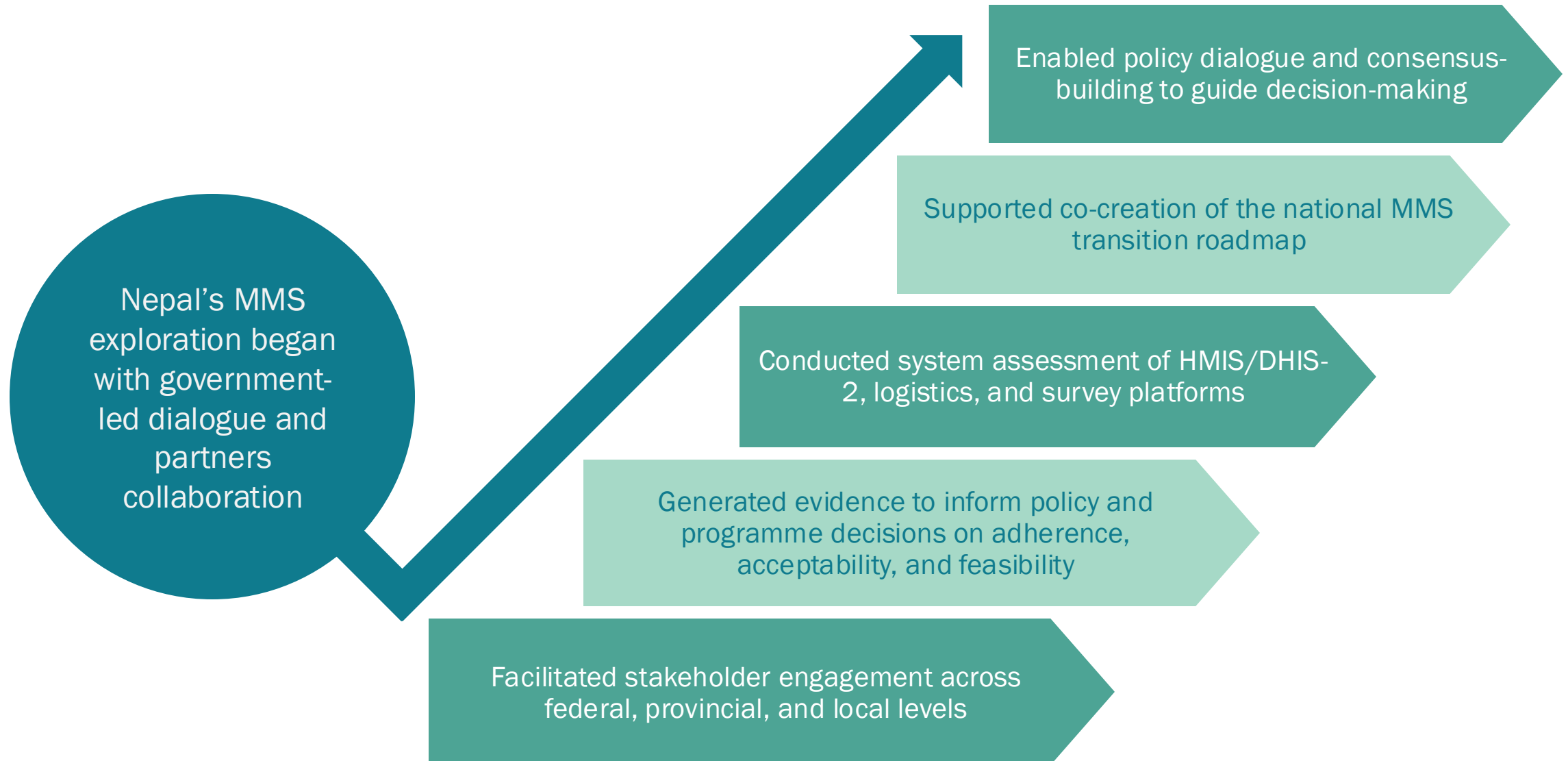
Can MMS be effectively delivered within Nepal's existing ANC system ?

Charting the Course: MMS Transition Exploration in Nepal



Critical success factor: Multi-stakeholder engagement across federal, provincial, and local government

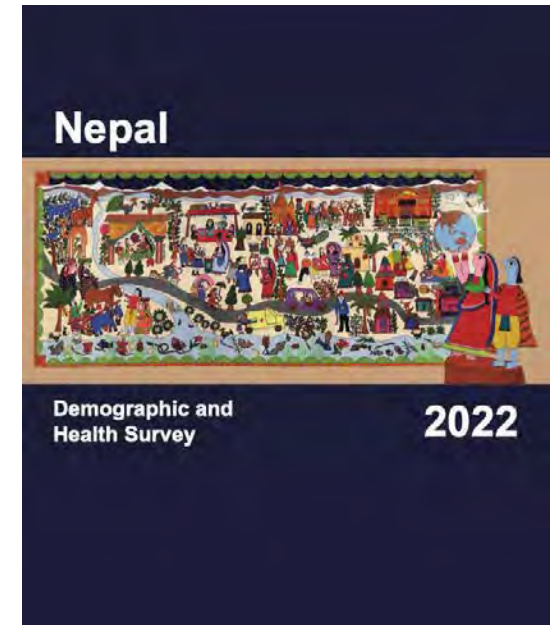
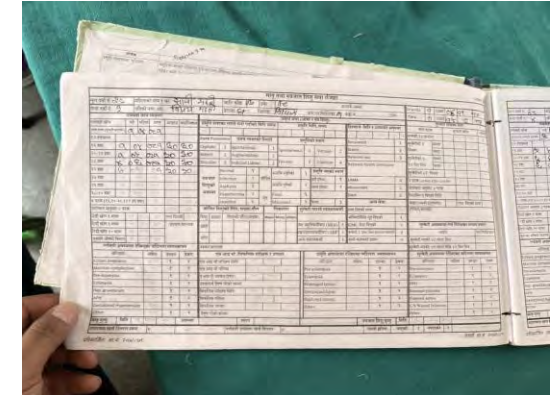
Role of Partners in supporting the MMS Transition



IFA Supplementation in Nepal: Programme and Monitoring Context

Iron–Folic Acid Supplementation (IFAS) in Nepal is monitored through multiple, complementary systems:

- **Routine service data (HMIS / DHIS-2):** Women receiving 180 IFA tablets in pregnancy and 45 days postpartum
- **Population & facility surveys (NDHS, Facility Surveys):** capture coverage, timing, and adherence
- **Logistics data (eLMIS → now PAMS):** monitors procurement, stock, and availability of supplements
- **Studies & evaluations:** provide deeper insight into compliance, barriers, and effectiveness



Together, these systems provide coverage and supply visibility—but limited insight into actual use.



How We Examined MMS Monitoring Readiness in Nepal

Our analysis combined document review and system-level consultations:



Desk review

Review of national HMIS/DHIS-2 tools, logistics systems (eLMIS → PAMS), surveys (NDHS, Facility Surveys), guidelines, and prior programme transitions



Stakeholder consultations

Semi-structured discussions with **federal, provincial, and facility-level** actors



System lens

Assessed data flow (**recording, reporting, analysis, and use**) for a potential transition from IFAS to MMS



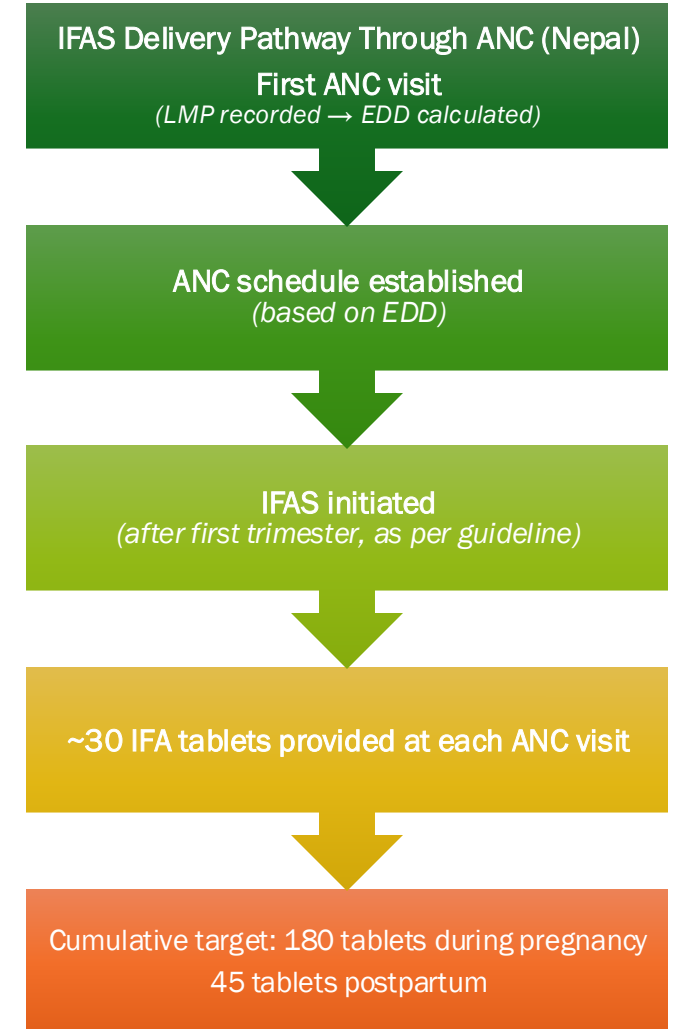
Validation

Validated findings through a **national consultation workshop**



From Distribution to Actual Use: Why Measurement Matters

- Systems track **distribution**, not actual use
- Distribution is used as a **proxy for consumption**
- **Adherence** determines impact
- Poor measurement can **overestimate programme success**
- Monitoring is essential for **decision-making and course correction**



Together, these systems provide coverage and supply visibility—but limited insight into actual use.

What the Current System Captures vs What It Misses

What the system captures well



- Number of pregnant women **receiving IFAS tablets**
- **Quantity of tablets distributed** through ANC and PNC
- **Routine service contacts** reported through HMIS / DHIS-2
- **Stock availability and movement** through logistics systems (eLMIS → PAMS)

What the system largely misses



- Routine, timely measurement of consumption and adherence
- **Completion of the full 180-tablet course**
- **Dropout, discontinuation, or side effects**
- **Treatment follow-up** for women identified as anemic
- Clear differentiation between **IFAS and MMS** during transition



What Stakeholders Told Us: Voices from the System

Across system levels, a common message emerged: MMS is welcomed, but monitoring is unclear.

- **Federal level**

“Health workers already have a lot to do. If we suddenly change the register just for MMS, it will confuse them.”

- **Provincial level**

“By the time we are consulted, everything is already decided. Our experience from earlier pilots is rarely used.”

- **Health facility level**

“We give the tablets and record them, but we never know if the woman actually took them.”

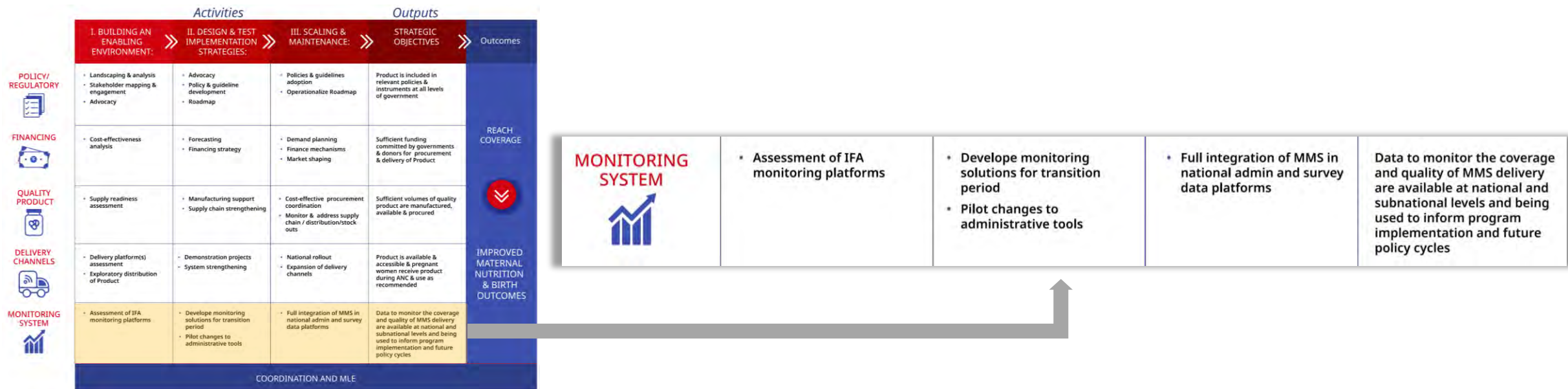
“We just write ‘MMS’ in the margin. In the report, everything still goes as iron tablets.”



What Nepal Is Doing Differently

Nepal is deliberately bringing monitoring to the roadmap for the MMS transition:

- Actively engaging **programme units, data teams, and logistics departments** to discuss monitoring early
- Treating monitoring as a **decision-support function**, not just a reporting requirement
- Focusing on how MMS data can **inform rollout decisions, course-correct implementation, and improve accountability**
- Exploring practical options to **improve recording and reporting** before nationwide scale-up



Recognizing that while monitoring changes may seem simple, they are often overlooked—but critical



Bringing Monitoring to the Front of the MMS Roadmap

Step 1: Started with systems, not supplements

- Reviewed HMIS, DHIS-2, logistics (eLMIS/PAMS), and survey platforms to identify gaps
- Positioned monitoring as a ***system readiness question***

Step 2: Engaged stakeholders early and Jointly

- Engaged programme, HMIS, nutrition, and logistics units jointly across federal, provincial, and facility levels
- Shifted discussions from “what to implement” to “how to measure”

Step 3: Create a focused space for monitoring discussions

- Dedicated consultations specifically on ***recording, reporting, and data use***
- Anchored monitoring within the national MMS roadmap process

Step 4: Align monitoring with decision-making needs

- Defined what data is needed for: rollout decision, course correction and accountability
- Framed monitoring as a decision-support function

Step 5: Began practical preparation before rollout

- Exploring integration into HMIS/DHIS-2 registers
- Assessing feasibility of adding MMS-specific indicators
- Identifying transition options (integration vs temporary tools)

Monitoring Must Transition in Phases

Nepal's 3 options

Option 1

Use existing tools,
separate MMS by
geography

Option 2

Add MMS field in
register/DHIS-2
(preferred)

Option 3

Temporary
standalone MMS
tools for pilots

Why Option 2 Works Best

- Clear separation of IFAS and MMS
- Minimal burden on health workers
- Fits within national HMIS
- Supports national scale-up without confusion

Next Step



Define **MMS-specific indicators** and adherence measures



Align with **phased scale-up**



Integrate into **HMIS/DHIS-2 systems**



Strengthen **data use** for decision-making



Pilot and refine **monitoring approaches**





Thank You!





Country Spotlight

Ethiopia & Rwanda

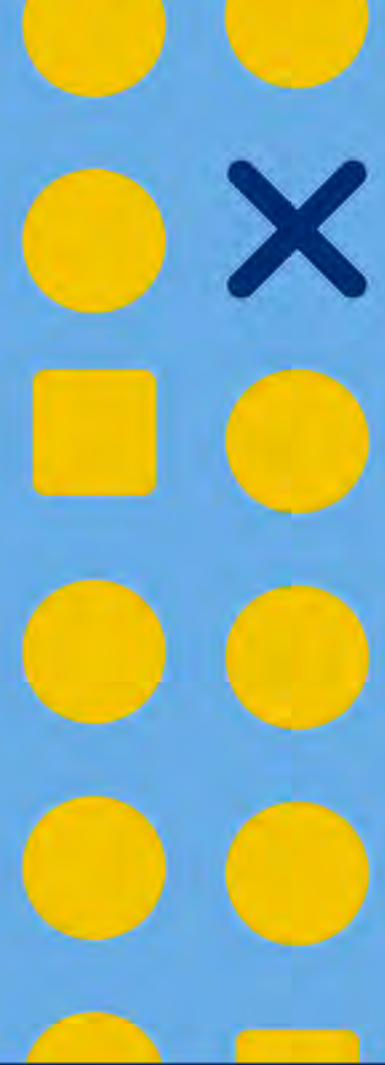
Audience question: 1-2-4-ALL

Agree on 1 question to submit & write it on
the index card

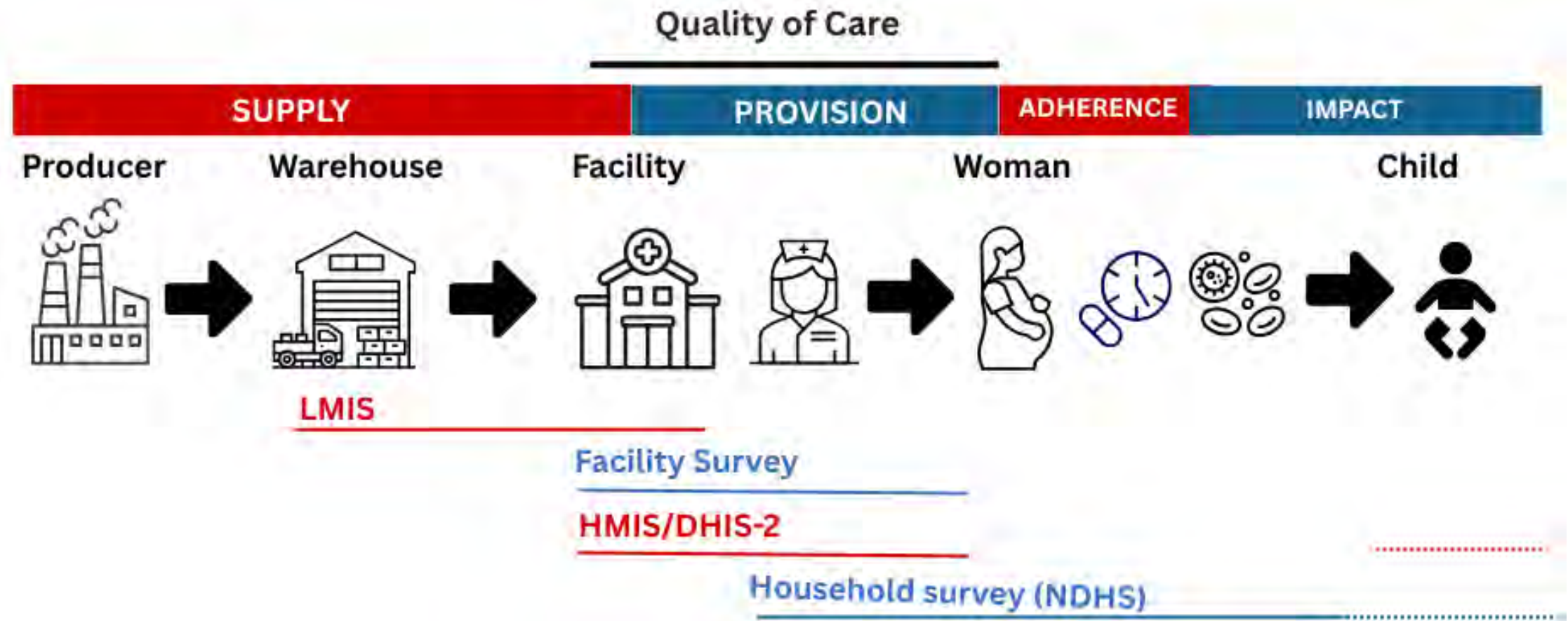
- Designate whether it is for one or both speakers

Session 1 Wrap Up

Rebecca Heidkamp
JHU BSPH



Refining our understanding of what, where, when & how to collect data across the information system



Proposal: what needs to be done in countries

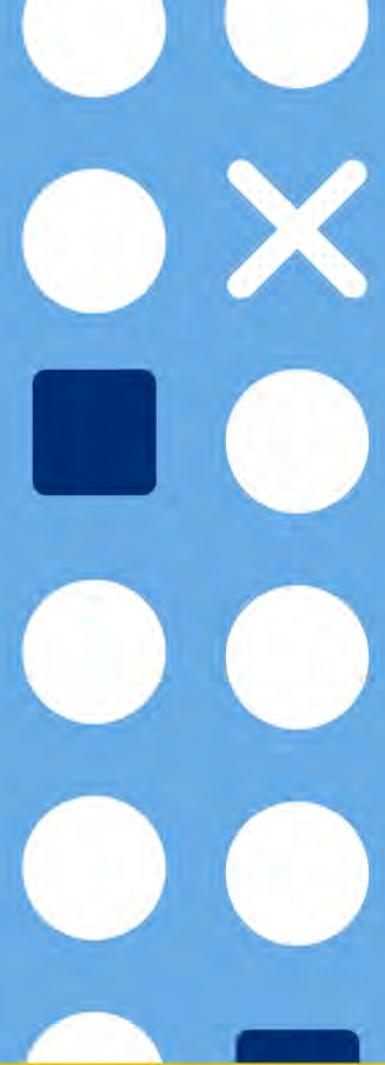
-  Add monitoring & measurement to the national MMS roadmap (to plans for intro & scale-up)
-  Identify & advocate for feasible & impactful *long-term* changes to national information systems
-  Adopt cost-effective approaches to collect & share prioritized data *during the transition and scale-up period*

What is needed to support these actions?

tools/ guidance/ advocacy materials / TA / research

Session 2

Building Blocks for Monitoring Implementation Strategies, Information Needs, and Data Sources



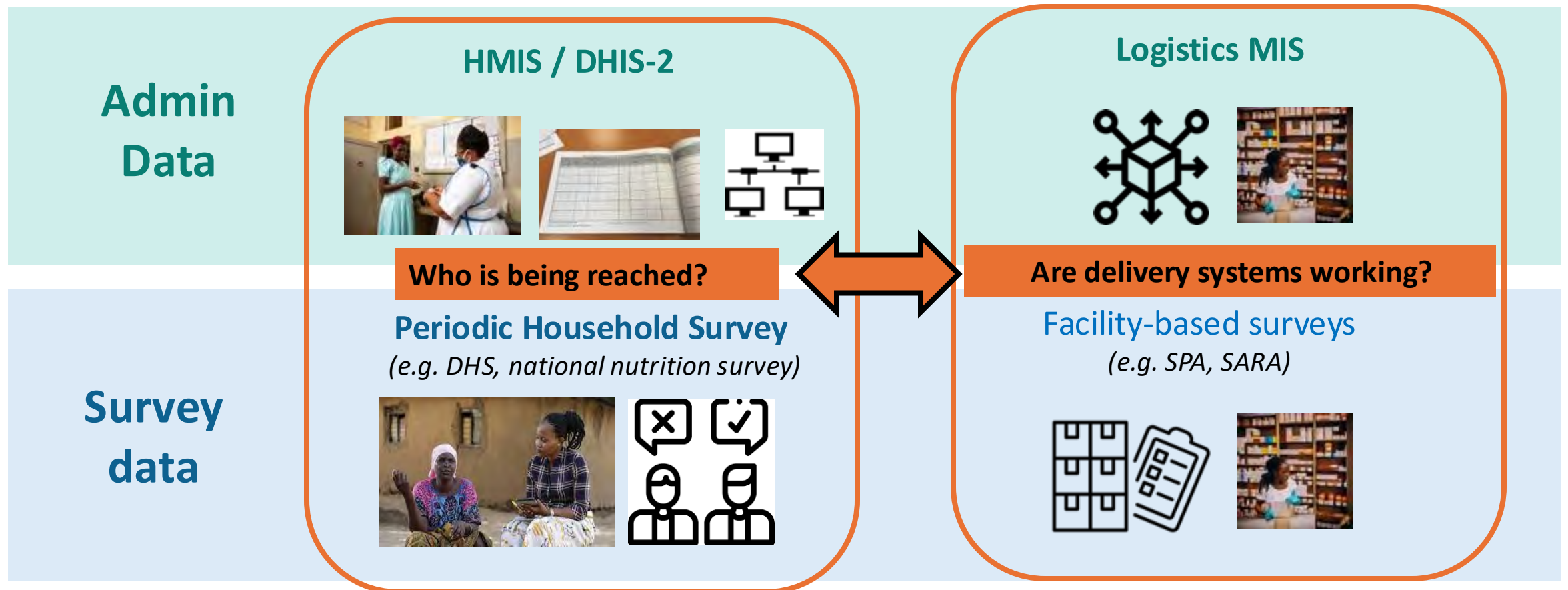
Session 2 Framing

Kenda Cunningham
IFPRI

Monica Fox
JHU

Objective: full integration of MMS into national monitoring systems for ANC

What monitoring systems are currently being used for IFA in countries?



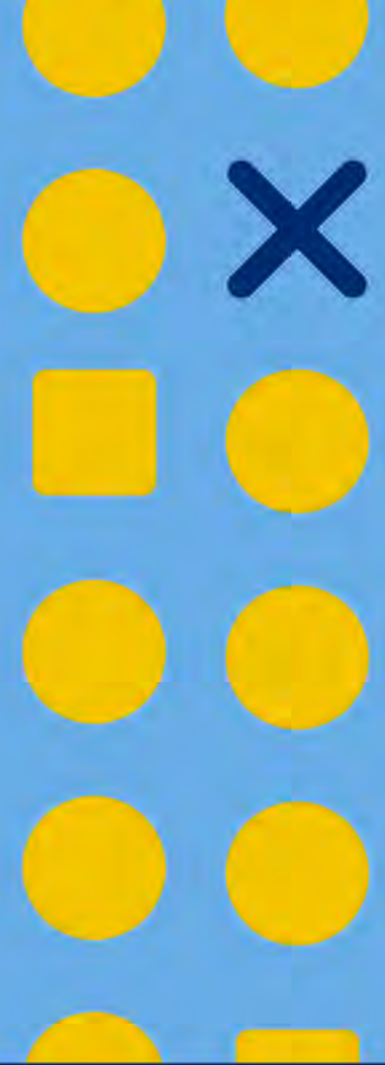
Session 2. Building Blocks for Monitoring: implementation strategies, information needs, & data sources

- How does implementation diversity affect monitoring?
- How does stage of implementation scale-up effect monitoring?
- How do we respect the tension between what is ideal vs what is realistic for the system when we thinking about monitoring?
- How can different data source types be utilized to capture the data prioritized for monitoring?

Information Priorities

MMS Implementation and Scaling Models: What do we need to monitor?

Jennifer Busch-Hallen
Nutrition International





Building blocks for monitoring

Implementation strategies, information needs & data sources

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Nutrition International

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Presentation outline

1. Country MMS transition and scale up approach
2. Key phases of MMS transition and expansion
3. What should be monitored at each phase?
4. Country examples



Approach to MMS implementation and scale up

- Key ingredients:
 - Government leadership
 - Policy
 - Product
 - Delivery Systems
 - Financing

Key phases of MMS transition and expansion



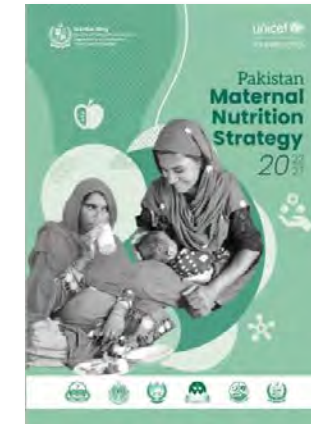


**What should be monitored at each phase of
MMS introduction, transition and scale ?**

Phase 1: Monitoring during exploration

Enabling environment

- Government buy-in and decision making
- stakeholder engagement
- policy environment
- product cost and availability
- strength of health system
- cost and affordability
- financing





MMS Delivery Platforms: data considerations

- Private or/and public providers
- ANC platforms and care
 - Health facilities primary, secondary, tertiary
 - Health Posts e.g. HEWs in Ethiopia
 - Community e.g. LHWs in Pakistan
 - Maternal & Child Health Days e.g. Nigeria with VAS ++
- Private pharmacy providers e.g. Bangladesh
- Prevention of anaemia
- Treatment of anaemia – MMS+IFA, or IFA only
- A woman's ANC journey - various providers, platforms & experiences

Careseeking journey across pregnancy

Journey Map 1

Fatima, pregnant with her second child, has never been to school. She was interviewed in her final month of pregnancy.



Pregnancy Month 1 2 3 4 5 6 7 8 9

Types of ANC Contacts:



Facility Health Worker



Community Health Worker



MMS Provided



Community Midwife



Doctor

Public Sector

Private Sector

ANC-2

Sought ANC consultation and medical tests that were free of charge.



ANC-1

Sought a pregnancy test from midwife's clinic near her home.

ANC-3

Sought ANC due to pregnancy-related complications.



ANC-5

Sought ANC due to swelling in her legs.



Informal ANC

Offered MMS as it was not available at ANC 5.



ANC-4

Sought an ultrasound, this service was not available at the Rural Health Centre.

Public Sector

Private Sector



Phase 2: Monitoring during initial implementation/pilot

MMS quantification considerations

- Anaemia rates
- Public verses private ANC coverage
- Shelf life of MMS

Embedding MMS into ANC

- Demand metrics
- Supply metrics
- Delivery platforms
- Training needs/numbers
- Quality of care measurement
- Supportive supervision (checklists)
- Monitoring for course correction and unintended consequences
- Safeguarding

Data considerations

- Routine system
- Project monitoring
- Evaluations, including adherence
- Data collection and use



Phase 2 & 3: Monitoring challenges

- MMS indicators are lacking in routine monitoring systems, such as DHIS2/LMIS
- Updating routine systems takes time and requires a coordinated process
- How to track against MMS roadmap until MMS is standard of care?
- High risk of MMS stock outs
- New product packaging and shelf life needs to be considered, e.g. 180-count prepositioned
- Existing IFA coverage verses effective MMS coverage
- Measuring MMS adherence is an ongoing challenge



Phases 2/3: current monitoring practices

Parallel monitoring systems are being established

- This includes:
 - Designing and staffing the system (incl data flow into dashboard and use of data)
 - Training health care providers and supervisors on filling out forms, training supply staff, providing ongoing support to data entry teams
 - Ongoing QA to support data collection and use of data to support timely corrective action

Parallel monitoring system from Pakistan pilot/IR

Handwritten form titled 'ممانعت از بارداری (MMS) - پوشش داده شده' (Contraception - Covered). It includes fields for 'تاریخ' (Date), 'محل' (Location), 'نام' (Name), 'سن' (Age), 'تعداد' (Count), and 'ملاحظات' (Remarks). The form is filled with handwritten data in Urdu.

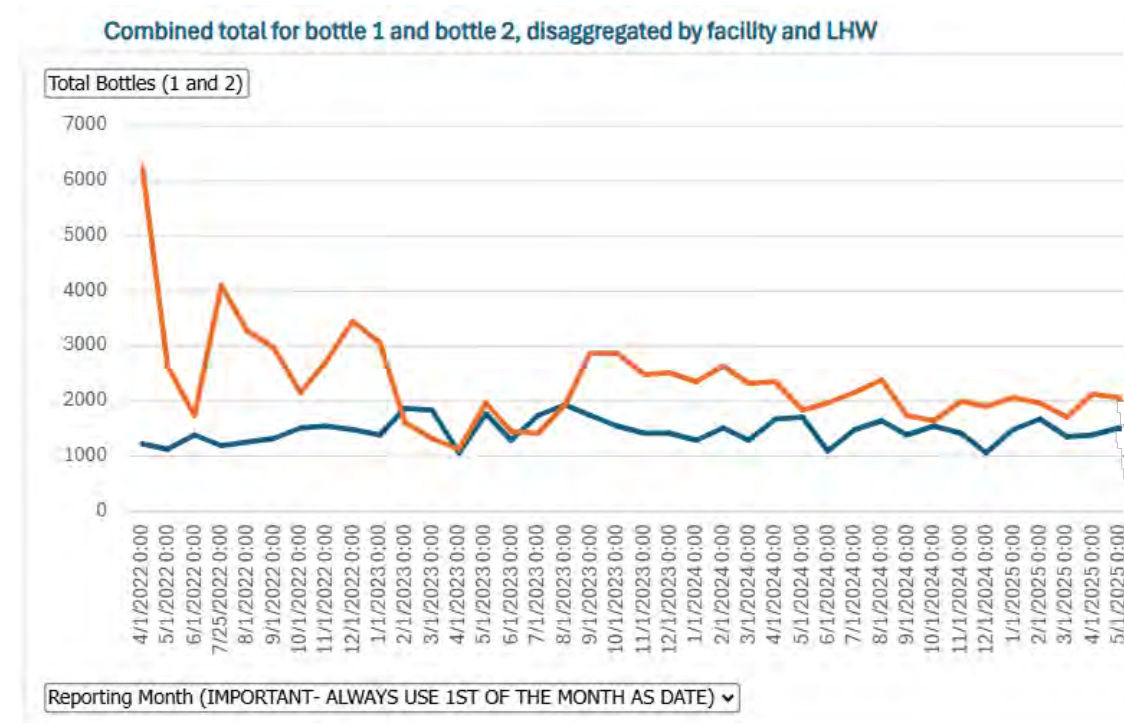


Figure 1: Monthly MMS coverage data for Swabi district¹

Source: ¹monitoring



Example: Core Dashboard Indicators (Pakistan Scaleup)

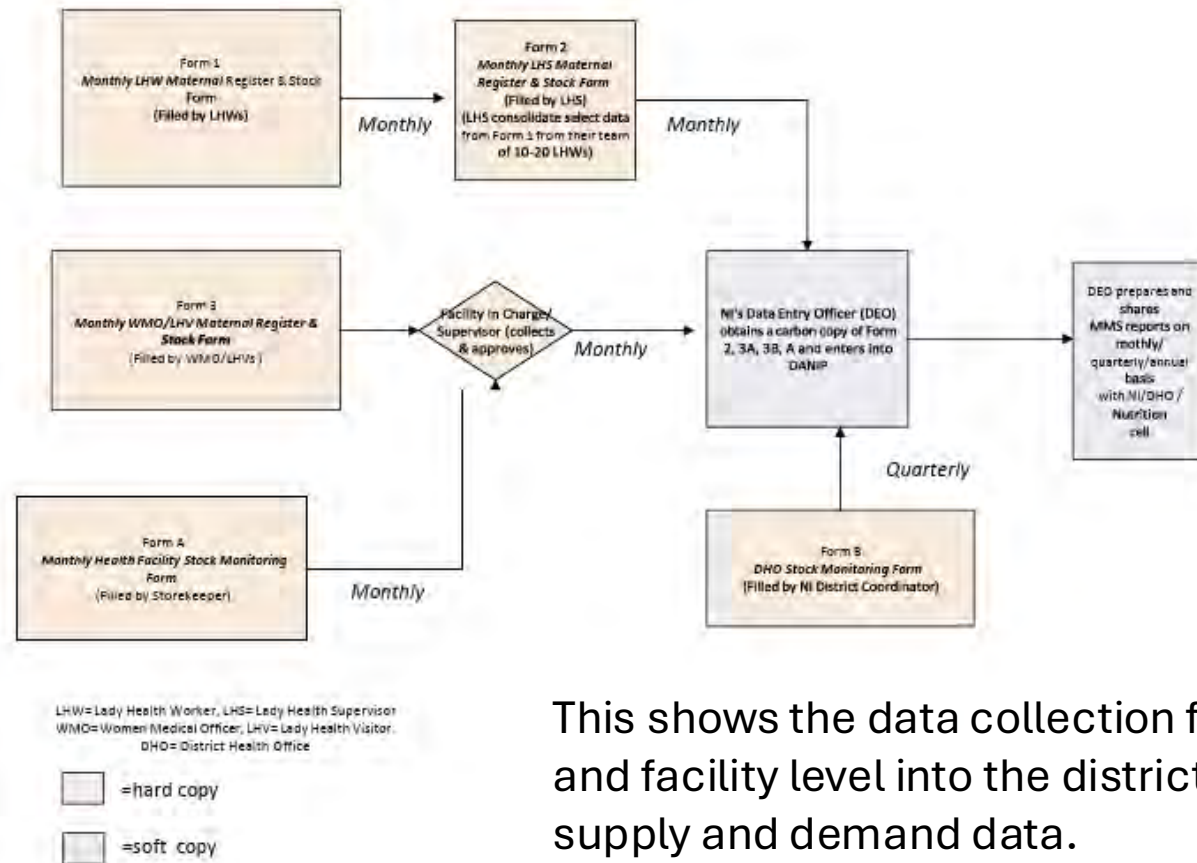
DEMAND

- Total pregnant women registered for ANC (disaggregated by platform)
- Total pregnant women who received MMS (disaggregated by platform)
- Total pregnant women registered for 1st ANC, any ANC
- % coverage (of ANC-1, of any ANC)
- Pregnant women who have not received MMS and the reasons
- Total pregnant women who received MMS: Actual vs Forecast

SUPPLY

- Stock utilization rate at health facilities and at warehouse
- Stock on hand at warehouse, at community level and at health facility level

Example: Data flow for Pakistan MMS Scale up districts



This shows the data collection flow from community and facility level into the district. It includes both supply and demand data.

Pakistan: Example of MMS Monitoring Form to be completed

Form 3: Monthly WMO/LHV Maternal Register

Instructions: To be filled by LHV/WMO at the end of month and handed to NI DEO



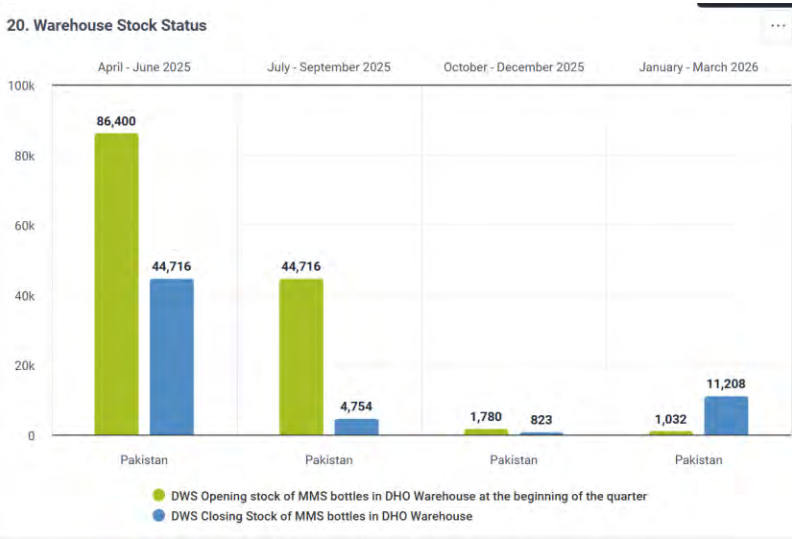
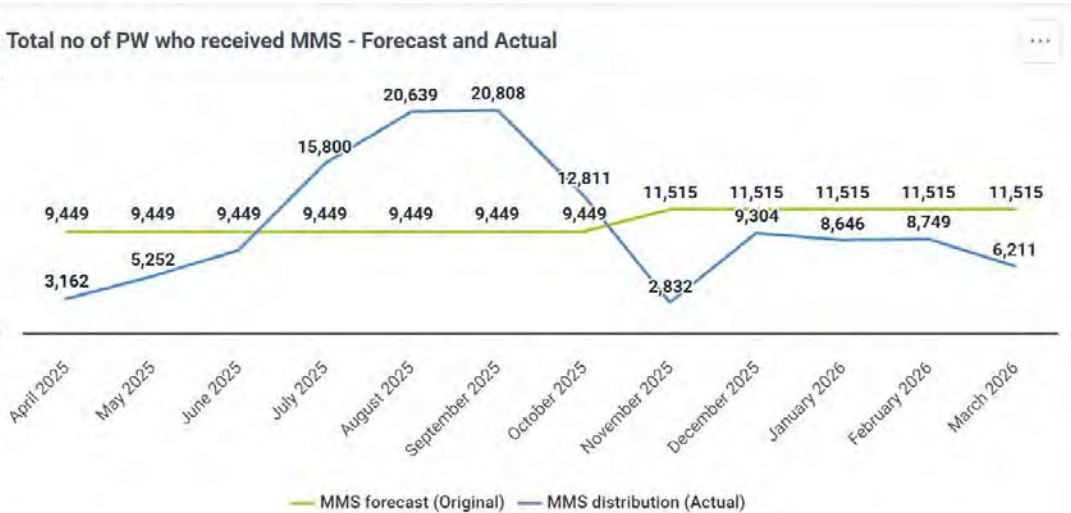
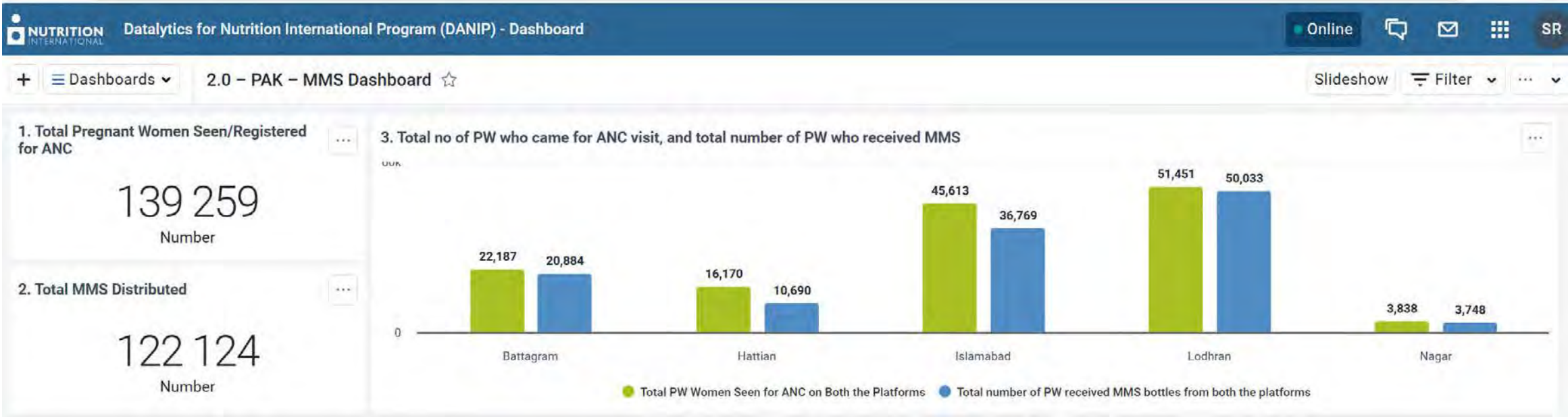
Health Facility Information													
1. Reporting Month/Year:		2. Health Facility Code Number:		3. Name of Health Facility:		4. Type of Health Facility (DHQ, RHC, MCH, CHC, Hospital, DHQ Hospital):							
5. Name of Taluk:		6. Name of UC:		7. Previous Location:		8. Name of Health Worker:							
9. Description of Health Worker:													
Pregnant Women's Record													
S/N	Date (DD/MM/YY)	CHC number	Name of pregnant woman	Age of pregnant woman	Name of husband	Village and UC	Phone number	ANC visit number at this facility (no.) (1, 2, 3, 4, 5, 6, 7, 8)	Current month of pregnancy (number)	Referred by LHV: ☐ Yes ☐ No	Received MMS bottle: ☐ Yes ☐ No	Reasons MMS bottle was not given (select one): ☐ Already received MMS ☐ Suspected anaemia ☐ Refused MMS bottle ☐ No stock of MMS ☐ Other:	Counselling to support ongoing compliance: ☐ Yes ☐ No
	20-03-2025									☐ Yes ☐ No	☐ Yes ☐ No	☐ Already received MMS ☐ Suspected anaemia ☐ Refused MMS bottle ☐ No stock of MMS ☐ Other:	☐ Yes ☐ No
										☐ Yes ☐ No	☐ Yes ☐ No	☐ Already received MMS ☐ Suspected anaemia ☐ Refused MMS bottle ☐ No stock of MMS ☐ Other:	☐ Yes ☐ No
										☐ Yes ☐ No	☐ Yes ☐ No	☐ Already received MMS ☐ Suspected anaemia ☐ Refused MMS bottle ☐ No stock of MMS ☐ Other:	☐ Yes ☐ No
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										☐ Yes ☐ No	☐ Yes ☐ No	☐ Already received MMS ☐ Suspected anaemia ☐ Refused MMS bottle ☐ No stock of MMS ☐ Other:	☐ Yes ☐ No
										☐ Yes ☐ No	☐ Yes ☐ No	☐ Already received MMS ☐ Suspected anaemia ☐ Refused MMS bottle ☐ No stock of MMS ☐ Other:	☐ Yes ☐ No
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										☐ Yes ☐ No	☐ Yes ☐ No</		

Health Facilities

[illegible][illegible]

Translated text

Pakistan: dashboard for monitoring MMS scale up



Nigeria: parallel monitoring during introduction of MMS



Ethiopia has a similar MMS parallel monitoring system



Phase 4: National Scale up

- Need to bridge the parallel system together with the routine system:
 - Find ways to connect the parallel data with the routine data (i.e. ANC)
 - Even when the system isn't updated, the government staff can still be involved (i.e. project staff attend regular district/provincial DHIS)
- Supporting data systems strengthening for routine system
 - Strengthen theory of change
 - Develop standardized indicators
 - Foster buy in
 - Operationalize plans (at all levels)

Rwanda: national scale of MMS

From IFA to MMS in personal **ANC records** at the health center level

Provision of IFA
(Y/N)

IFA Records

E. PREVENTIVE MEASURES									
Number of Contacts	Provision of (Iron+ Folic Acid) Y/N	Provision of Metendazole Y/N	Tetanus and diphtheria vaccines TD Y/N	Calcium Y/N	Provision of mosquito net Y/N	Treatment of urinary infection Y/N	RDV	Names of health provider	Signature
1	Y	N	Y	N	Y	N	8/12/24		
2	Y	Y	N	N	Y	Y	23/9/24		
3	Y	N	N	Y	Y	Y	21/10/24	Stacy	
4									
5									
6									
7									
8									
9									

MMS Records

F. PREVENTIVE MEASURES									
Number of Contacts	Provision of MMS	# of tablets received	# MMS fully taken	# MMS left	Vomit Y/N	Nausea Y/N	Other (cramp or any other) Y/N	Provision of Metendazole Y/N	Tetanus and diphtheria vaccines TD Y/N
1	Y	10	8	2	Y	Y	Y	Y	Y
2	Y	10	8	2	Y	Y	Y	Y	Y
3									
4									
5									
6									
7									
8									
9									

Provision of MMS: # of tablets received

of tablets fully taken

of tablets left

F. PREVENTIVE MEASURES									
Number of Contacts	Provision of MMS	# of tablets received	# MMS fully taken	# MMS left	Any Adverse effects			Provision of Metendazole Y/N	Tetanus and diphtheria vaccines TD Y/N
1	Y	30	30	0	Y	Y	Y	Y	Y
2	Y	30	30	0	Y	Y	Y	Y	Y
3									
4									
5									
6									
7									
8									
9									

Rwanda: HMIS report

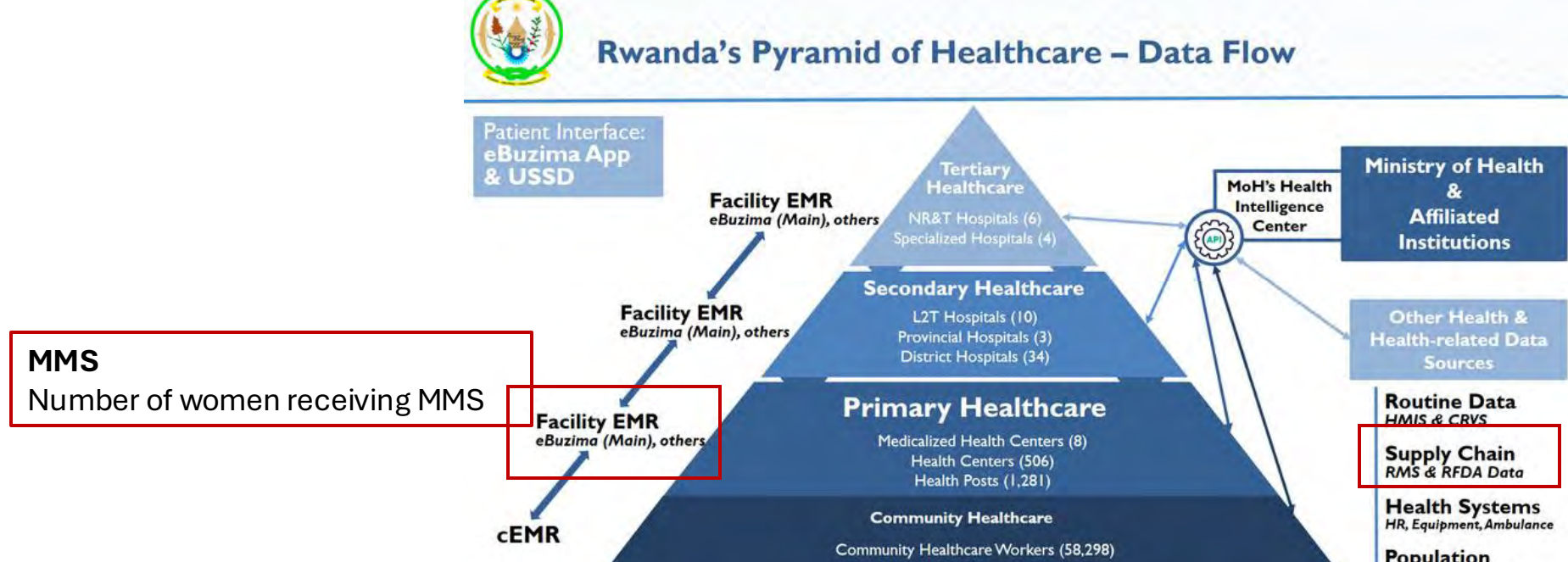
Health center monthly **HIMS** report:
ANC consultation module

**Number of women
who received MMS
at the first ANC visit**

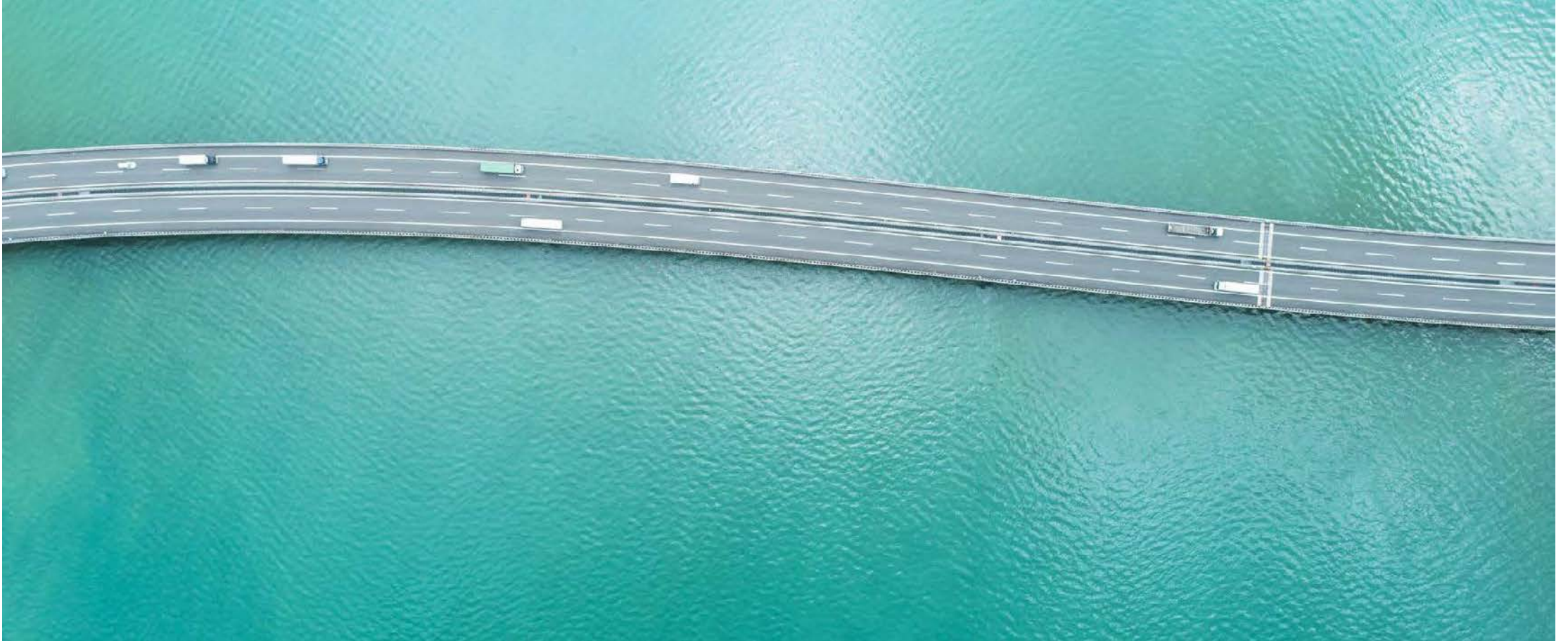
XI. Antenatal Consultations/ Consultations pre-natales		
#	Data element	Number
1	ANC New Registrations/ <i>CPN Nouvelles inscrites</i>	
2	ANC new registrations under 14 years/ <i>CPN Grossesses chez les femmes de moins de 15 ans</i>	
3	ANC new registrations aged 14-17 years/ <i>CPN Grossesses chez les femmes de 15-17 ans</i>	
4	ANC new registrations aged 18-19 years/ <i>CPN Grossesses chez les femmes âgées 18-19 ans</i>	
5	ANC First standard contacts (Within 12 Weeks)/ <i>CPN Première contact standard (endéans 12 semaines)</i>	
6	ANC 4 contacts standard / <i>CPN femmes ayant fait 4 contacts standard</i>	
7	ANC 8 contacts / <i>CPN femmes ayant fait 8 contacts</i>	
8	ANC risk pregnancy detected / <i>CPN grossesses à haut risques dépistées</i>	
9	Pregnant woman with previous scar referred to Hospital at last ANC (in last trimester)/ <i>Femmes enceintes avec utérus cicatriciel transférées lors de la dernière CPN (dernier trimestre)</i>	
10	ANC TT 1 given/ <i>CPN VAT1</i>	

11	ANC TT 2 to 5 given / <i>CPN VAT 2 à 5</i>	
12	ANC TT new registrations fully vaccinated / <i>CPN VAT Nouvelles inscrites complètement vaccinées</i>	
13	ANC new registrations who received full course of Iron and Folic Acid supplements (90 tablets)/ <i>CPN nouvelles inscrites qui ont reçu 90 Comprimés de Fer et Acide Folique</i>	
14	ANC Insecticide Treated Bed nets distributed / <i>CPN Moustiquaires Imprégnées d'Insecticide distribuées</i>	
15	ANC new registrations screened for malnutrition (MUAC) / <i>CPN nouvelles inscrites dépistées pour la malnutrition (MUAC)</i>	
16	ANC new registrations screened who were malnourished (MUAC < 21 cm) / <i>CPN nouvelles inscrites chez lesquelles la malnutrition est détectée (MUAC < 21 cm)</i>	
17	ANC new registrations tested for anemia / <i>CPN nouvelles inscrites testées pour l'anémie</i>	
18	ANC new registrations with anemia Hb <11 g/dL	
19	ANC new registrations syphilis tested/ <i>CPN nouvelles inscrites testés pour la syphilis</i>	
20	ANC new registrations syphilis tested positive/ <i>CPN nouvelles inscrites testées positives pour la syphilis</i>	
21	ANC new registrations received ultrasound scan / <i>CPN nouvelles inscrites qui ont reçu ultrasound scan</i>	
22	Number of pregnant women screened for HBV	
23	Number of pregnant women with HBV infection defined by HBsAg-positive serological status	
24	Number of HBsAg-positive pregnant women tested for confirmatory viral load.	
25	Number of HBsAg-positive pregnant women with detectable viral load.	
26	Number of pregnant women confirmed positive on viral load and eligible for antiviral treatment	
27	Number of pregnant women with high HBV viral loads who newly received antiviral treatment	
28	Number of infants born to HBV-positive mothers	
29	Number of infants born to HBV-positive mothers vaccinated within 24 hours.	





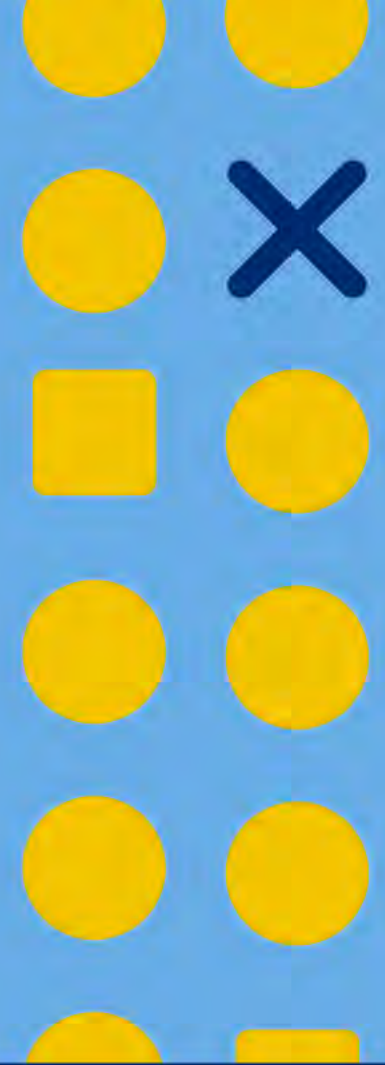
Thank you



Information Priorities – Reflection

Information Priorities of ANC Actors

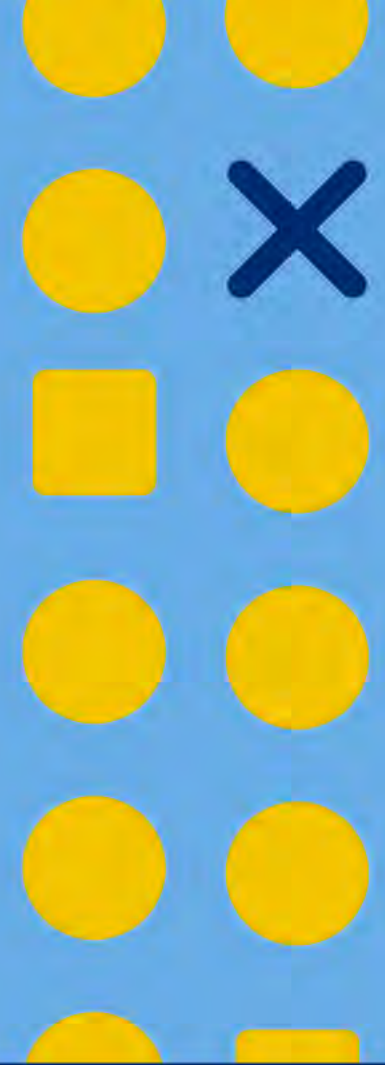
Stephen Rulisa
University of Rwanda



Data Sources

Logistics Information Systems

Barb Knittel
JSI Research & Training





Data Sources for Commodity Security: The Role of the Logistics Management Information System (LMIS)

Barb Knittel, JSI

*Convening on Measurement and Monitoring of Multiple
Micronutrient Supplementation (MMS)*

April 21-22, 2026

Better Health & Education Outcomes. For All.



LMIS provides the end-to-end visibility required to manage the supply chain

- **Purpose:** To provide end-to-end visibility into the flow of health commodities and supplies throughout the health system.
- **Objective:** To manage commodities effectively so that the supply chain can ensure product availability and system health.
- **Focus:** The system is designed specifically to track the Product.

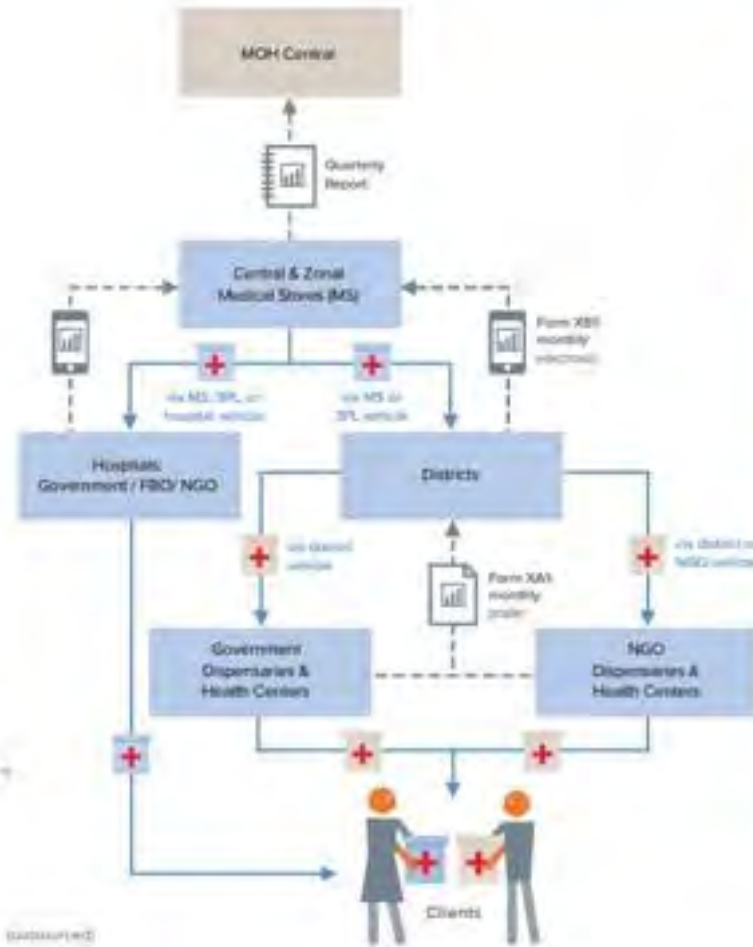


System governance is defined by the balance of oversight, influence, and investment



- **MOH and Central Medical Stores (CMS)** provide the **oversight**, establishing standardized reporting protocols and tools that define the system.
- **Facility providers and pharmacists** drive the system's **content** through their daily data entry; they are the "ground truth" of the supply chain.
- **Many LMIS platforms were established through donor funding**, driving rapid advancement but often creating silos between health programs.
- **Long-term country ownership requires integration** of these routine systems into national budgets and digital health strategies.

Logistics data flows from the point of service to national decision-makers



Foundation: Data is recorded daily at SDPs via stock cards and dispensing registers; these records are the "ground truth" for the entire system

Upward flow: Facilities consolidate daily data into monthly summary reports that aggregate at higher levels for MOH and CMS monitoring.

Strategic view: Aggregated data allows the central level to monitor national stock status, allocate budgets, and coordinate procurement.

Feedback loop: Mature systems facilitate a downward flow, sending performance trends and resupply alerts back to the frontline.

The LMIS captures standardized data elements to drive supply chain decisions

Data Element	Data Source & Insights
Stock on Hand (SoH)	Stock records (e.g., stock cards, ledgers) track the quantity of usable product currently in the facility.
Consumption	Dispensing registers track the volume of products provided to patients at the point of service.
Issues data	Requisition and issue vouchers document the movement of products between different levels of the supply chain.
Losses and Adjustments	Stock records capture inventory removed for reasons other than patient use, such as expiry, damage, or transfers

Key logistics indicators provide a real-time pulse on the health of the supply chain

Average Monthly Consumption

Monitors historical usage trends over a specified period to track actual demand.

Months of Stock

Predicts exactly how long current supplies will last by translating shelf inventory into units of time based on consumption rates.

Inventory Thresholds

Establishes the "safe zone" for a facility by tracking whether the MOS is within designated minimum and maximum levels.

Stock Status

Uses the MOS to trigger specific actions, such as identifying if a facility is understocked, overstocked, or stocked according to plan.

Visibility is the engine that drives accurate forecasting and stable commodity availability



- **Supporting Accuracy:** Reliable visibility into SOH and actual consumption trends allows for evidence-based forecasting.
- **Optimizing Supply Planning:** Real-time data supports the development of delivery schedules and order quantities that align with facility needs.
- **Ensuring Commodity Security:** High data visibility prevents gaps in the supply chain where product location or status is unknown, ensuring medicines are available where patients need them.
- **Stable Service Provision:** A healthy LMIS ensures that service delivery is never interrupted by stockouts, protecting the system's overall reliability.

LMIS and HMIS provide different but complementary views of the health system

Feature	LMIS (Logistics)	HMIS (Clinical/Health)
Primary Unit	Product Unit (Doses, vials, kits)	Patient Visit (Cases, client visits)
Key Questions	How much is on the shelf? When do we reorder? Is stock expiring?	Who is coming for services? What are the disease patterns? Is the program hitting targets?
Core Goal	Ensure continuous commodity availability and prevent stockouts.	Monitor health outcomes, service provision, service quality, and program impact.

Sayana Press integration demonstrates how the LMIS adapts to a novel method



Pfizer's Sayana Press combined Depo-Provera in a single-use, pre-filled injection system, allowing for discrete self-injection.

JSI supported the entire value chain to ensure a seamless market entry.



Forecasting & Demand Insights

Inform Pfizer's production and ordering schedules via advanced modeling.



System Integration

Track real-time stock and shipment data in national LMIS platforms.



Capacity Building

Train health workers for clinical delivery and routine reporting to ensure steady flow.

Targeted interventions addressed unique data and logistics challenges of self-injection introduction

Challenges

Standard HMIS and LMIS forms lacked categories to distinguish self-injection (SI) from provider-administered doses.

Recording a new product with unique protocols adds a layer of complexity to already heavy provider workloads.

No historical trend data existed for this new technology, making traditional forecasting models unreliable.

What We Did

Visibility & Form Architecture: Integrated specific SI categorizations into national reporting tools and registers to ensure the method was visible and accurately tracked in the supply chain.

Simultaneous Clinical & Data Training: Scaled provider training on routine data management at the same time as clinical practices to ensure accurate recording at the point of service.

Advanced Market Modeling: Overcame the data gap by using advanced forecasting models and demand insights to help manufacturers and ministries align supply with global demand.

Data visibility gaps and structural barriers weaken the health of the supply chain

- **Data Quality:** Challenges like transcription errors, mathematical mistakes on paper forms, and reporting delays create a "garbage in, garbage out" cycle that misleads central planners.
- **System Fragmentation:** When different health programs use separate, non-interoperable reporting tools, it creates an unnecessary burden on providers and obscures the total stock picture.
- **Structural Barriers:** Limited internet connectivity at the "last mile" and high staff turnover often result in inconsistent data entry and a breakdown in the reporting chain.

Quality Assurance Solutions: To combat these issues, programs implement Routine Data Quality Audits (RDQAs) and peer-to-peer supervisory visits to validate that physical stock on shelves matches the digital records

Maturity transforms the supply chain from reactive tracking to proactive action

Advancing System Integration

Modernizing the ecosystem through digital linkages between the eLMIS, EMRs, and WMS to automate requisitions and ensure seamless data exchange.

Predictive Intelligence

Shifting toward predictive forecasting and automated alerts that utilize AI to analyze seasonal trends and risk signals, flagging stockouts or expiries before they occur.

Global Monitoring Standards

Implementing advanced traceability tools like GS1 Barcoding for automated inventory control and IoT Sensors for remote temperature monitoring to protect product potency to the last mile.

Transition to Country Ownership

Moving away from donor-dependent systems and integrating the eLMIS into national digital health strategies and securing domestic financing to ensure sustainability and local governance.



Thank you!

Contact Us

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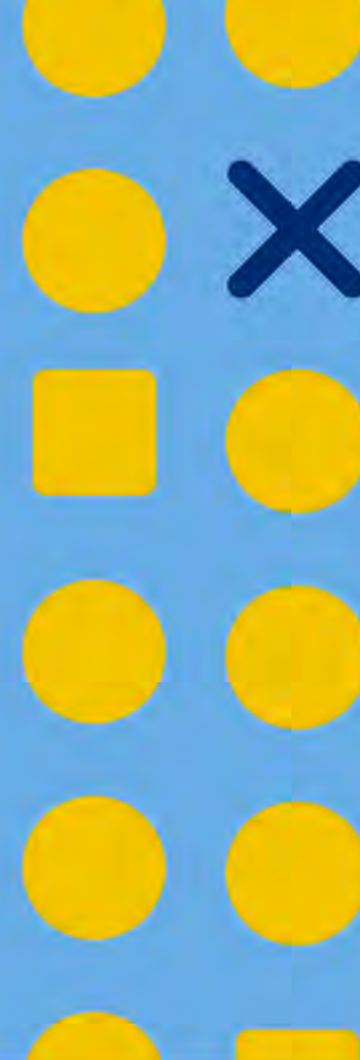


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Data Sources

Health Management Information Systems (HMIS) and Administrative Data Systems

Chika Hayashi
UNICEF



HMIS/Administrative Data Systems and MMS

Convening on Measurement
and Monitoring of Multiple
Micronutrient Supplementation
(MMS), 21–22 April 2026

Chika Hayashi, UNICEF
Senior Advisor and Unit Chief, Nutrition Data

Outline

- HMIS Administrative Data
- What IFA/MMS information is collected
- Global guidance
- Strength and Weaknesses
- Potential or future innovations



HMIS – Administrative Data

Administrative data from a Health Management Information System (HMIS) is an integrated system for **collecting, processing, storing, analyzing, and using health data** from health facilities and programs to support decision-making across the health system. **RHIS**.

Common purposes:

- **Monitor performance:** track service, quality, and equity
- **Improve service delivery:** identify gaps, bottlenecks
- **Patient care:** patient monitoring
- **Report on accountability:** national plans, donors
- **Closer to Real-time data:** provide available data without new data collection efforts

- Facility-based events
- Community-based events
- Campaigns
- Case-based surveillance
- CRVS

“Easier said than done”

Tools:

MCH Card (patient-held)

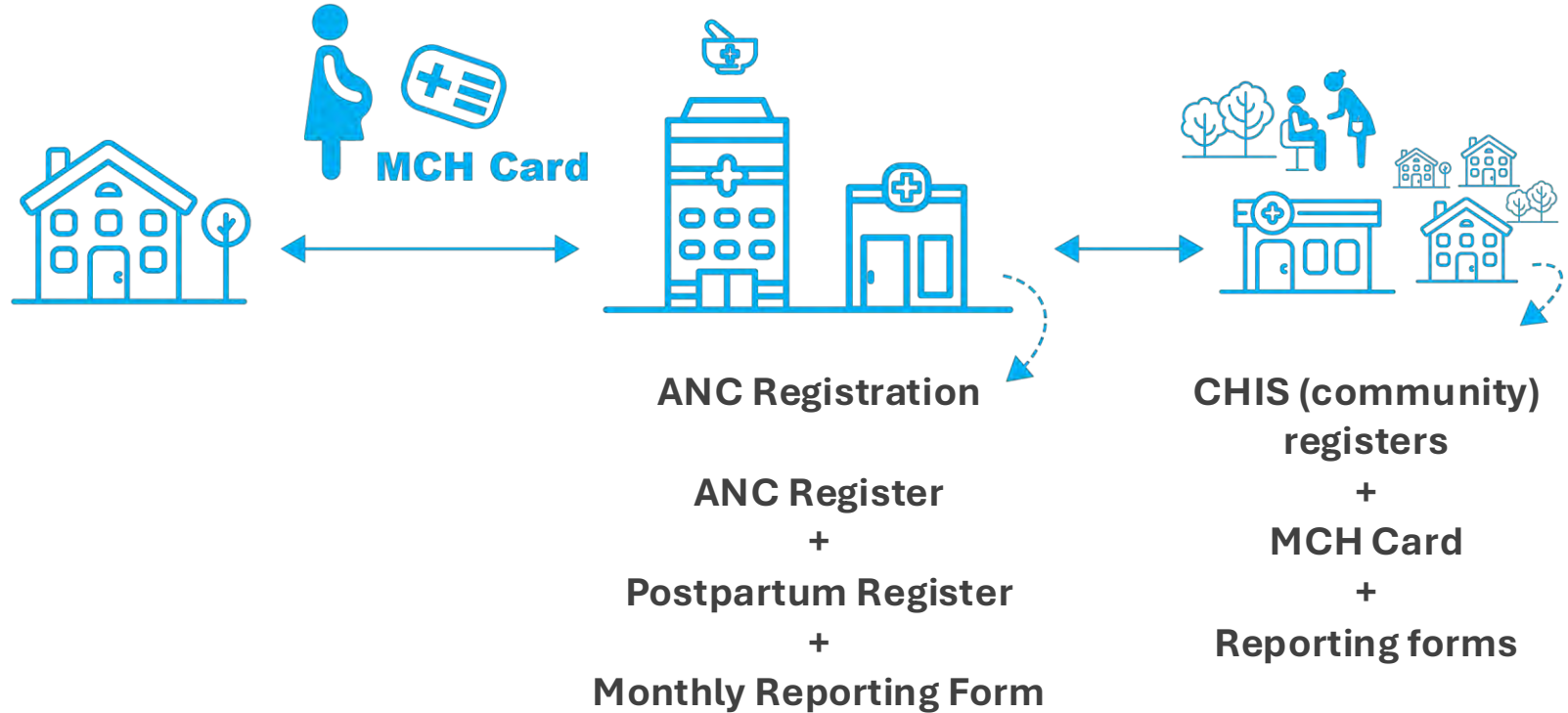
ANC Registration

ANC Register (visit-based or longitudinal)

Postpartum Register

CHIS (community) registers

Monthly reporting form



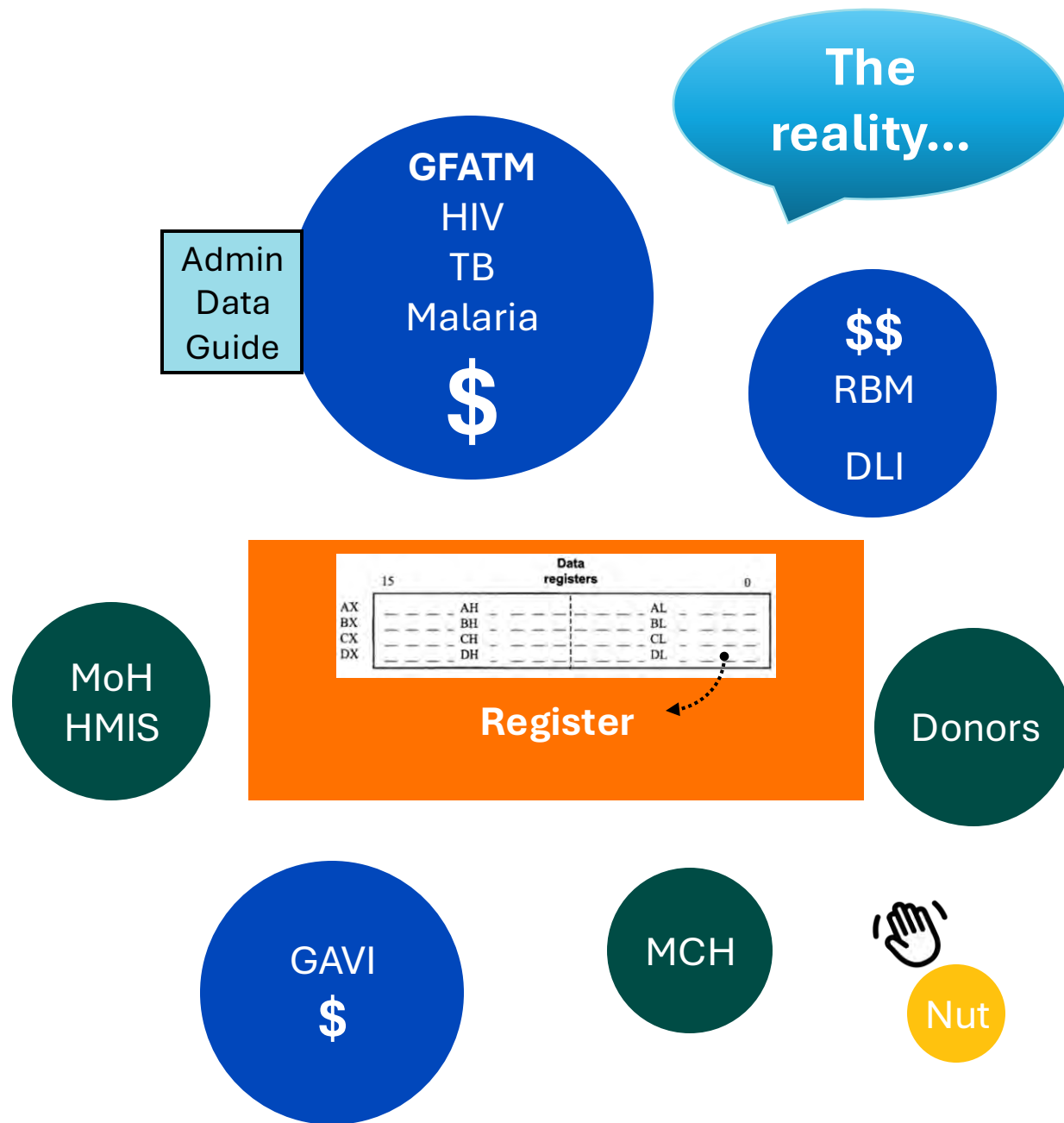
What does it take to set up the system?

- **Indicators and data elements**
(Essential, Commitments, Disaggregation)
- **Good design**
(for QA and Aggregation, data use)
- **Roles & Responsibilities**
- **Piloting**
- **Finalization**
- **Printing**

1-2 years

- **Training**
(materials, ToT)
- **Roll out and phase out**
- **Supportive supervision**
- **Register supply mgmt.**
- **Analysis and Interpretation**
- **Digitization**

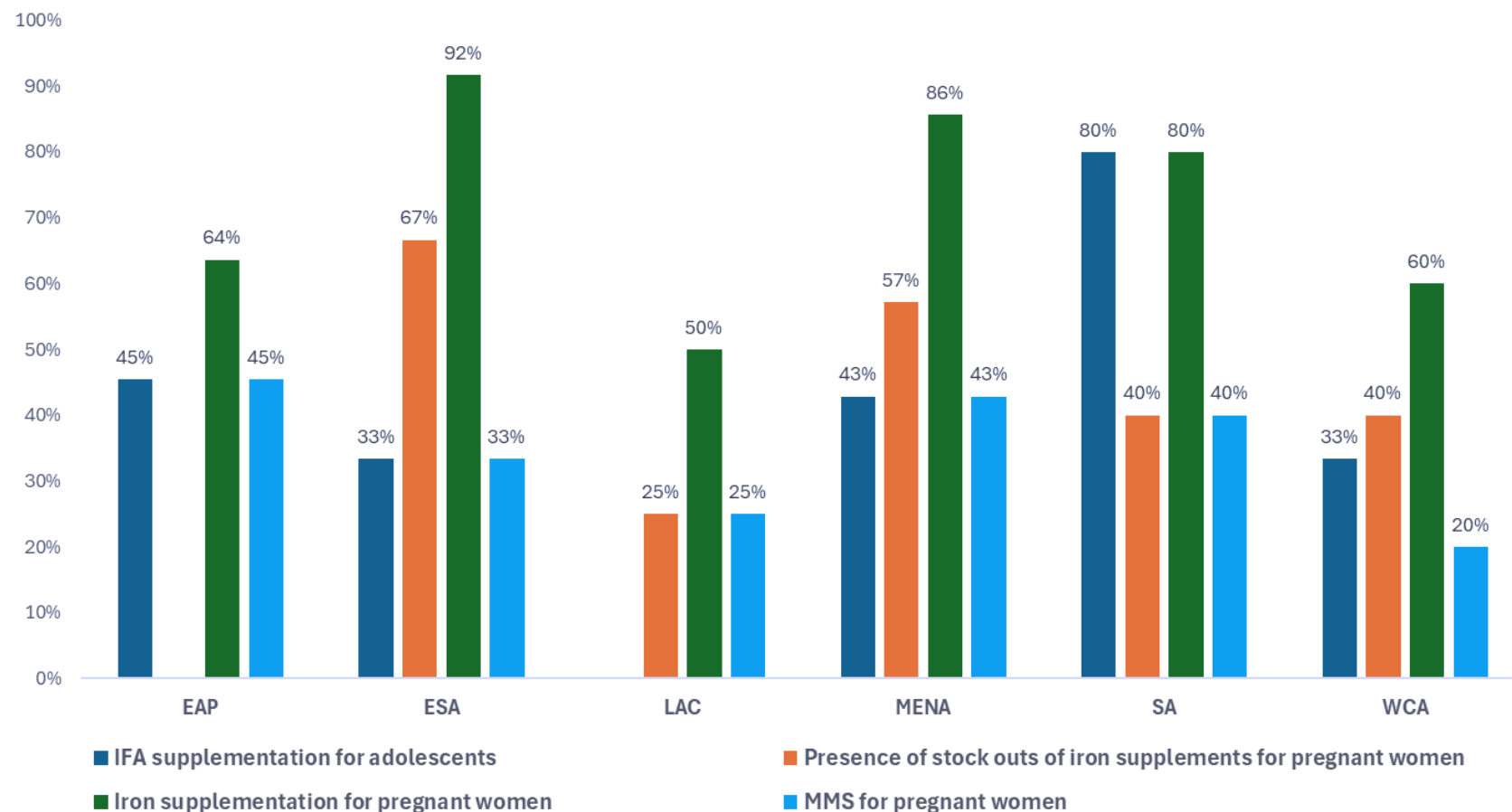
1-2 years



IFA data collection coverage

Across all regions, **IFA/MMS supplementation for pregnant women** is reported through HMIS administrative data.

Most countries in South Asia also track IFA supplementation among adolescents



How is IFA/MMS collected?



NATIONAL HEALTH MANAGEMENT INFORMATION SYSTEM
HEALTH FACILITY MONTHLY SUMMARY FORM VERSION 2019

Identification

Health Facility:

Month:

Political Ward:

Year:

LGA:

Public: ☐

Private: ☐

State:

Number of Beds:

Facility Code:

Health Facility Attendance

Male

Female

0-28 days

29d - 11 mths

12 - 59 mths

5 - 9 yrs

10 - 19 yrs

≥20 yrs

0-28 days

29d - 11 mths

12 - 59 mths

5 - 9 Yrs

10 - 19 yrs

≥20 yrs

Total

Inpatient care (IPC)

Total

Mortality (Deaths)

Male

Female

0-28 days

29d - 11 mths

12 - 59 mths

5 - 9 yrs

10 - 19 yrs

≥20 yrs

0-28 days

29d - 11 mths

12 - 59 mths

5 - 9 Yrs

10 - 19 yrs

≥20 yrs

Total

Maternal Mortality

Causes of deaths

10 - 19 yrs

≥20 yrs

Maternal Health (Ante-Natal Care)

Total

10

Antenatal attendance by pregnant women

10 - 14 yrs

15 - 19 yrs

20 - 35 yrs

35 - 49 yrs

≥ 50 yrs

11

Antenatal attendance first visit

gestation age before 20 weeks (GA < 20wks)

gestation age 20 weeks or later (GA ≥ 20wks)

12

Pregnant women that attended antenatal clinic for 4th visit

13

Pregnant women that attended antenatal clinic for 8th visit

31

Pregnant women who received Haematinics (Iron and Folic Acid supplements)

32

Pregnant women with severe anaemia

33

Pregnant women with proteinuria

Nigeria reports on:
Pregnant women who received Haematinics (IFA),
by age (10-14,15-19, 20-34, 35-49, 50+)

Pakistan - Facility

- No. of pregnant women **received counselling** during (ANC 1-4 & above) on **IFA/MMS or iron supplement**
- No. of ANC visits with IFA/MMS provision (**1, 2+**)
- No. of ANC visits with IFA/MMS provision (**1, 2+**)

No. of 1st ANC visit and Provision of Iron supplement
No. of ANC (2-4 & above) visits with iron supplementation
No. of PNC (1-4 & above) visits with iron supplementation
No. of ANC 1st contact with MMS supplementation/tablet
No. of ANC with MMS supplementation/tablet
No. of PNC with MMS supplementation/tablet

Pakistan – Community

- Counselling – MMS, IFA
- ANC with iron supplement, MMS
- PNC with iron supplement, MMS

Section 4: Maternal Counselling	
29	ANC given maternal counselling
30	ANC given weight gain counselling
31	ANC contact physical activity counselling
	ANC contact MMS containing supplement counselling
32	ANC contact IFA or iron containing supplement counselling
33	Early initiation of breastfeeding
34	Live birth in community
35	PNC contact by CHW
36	PNC given maternal counselling
37	PNC given healthy diet counselling
Section 4: IFA	
	ANC with MMS supplements
38	ANC with iron supplement
	PNC with MMS supplements
39	PNC with iron supplement

116 HMIS/Administrative Data Systems and MMS | UNICEF

How is IFA collected?

Philippines, longitudinal register.

Data recorded on IFA supplementation on each visit during ANC and PNC

Summary indicator: No. of pregnant women (postpartum women) **who completed the dose** of IFA/MMS supplementation

PRENATAL CARE PART 2										
No.	Date of Registration (mm/dd/yy)	Family Serial Number	Full Name (LastName, FirstName, MI)	Age (in years)	Age Group A - 10-14 years old B - 15-19 years old C - 20-49 years old	Last Menstrual Period (LMP) (mm/dd/yy)	Gravida (G)	Parity (P)		
1						LMP: _____ G-P: _____				
2						LMP: _____ G-P: _____				
						Postpartum Supplementation				
						Iron with Folic Acid Supplementation #. Nu	Completed IFA supplementation? 1 - Yes 0 - No if Yes , date completed (mm/dd/yy)	Completed 200,000 I.U. of Vitamin A capsule supplementation? (within 1 month after delivery) 1 - Yes 0 - No if Yes , date completed (mm/dd/yy)	Completed CC supplementation? 1 - Yes 0 - No if Yes , date completed (mm/dd/yy)	
						Iron with Folic Acid (IFA) Supplementation				Completed MM supplementation? 1 - Yes 0 - No if Yes , Date completed (mm/dd/yy)
						1st visit	2nd visit	3rd visit		
						1st visit (1)	2nd visit (2)	3rd visit (2)	4th visit	
						#. _____ d: _____	#. _____ d: _____	#. _____ d: _____	#. _____ d: _____	

IFA/MMS in the DHIS2/Admin Guide- Aggregate

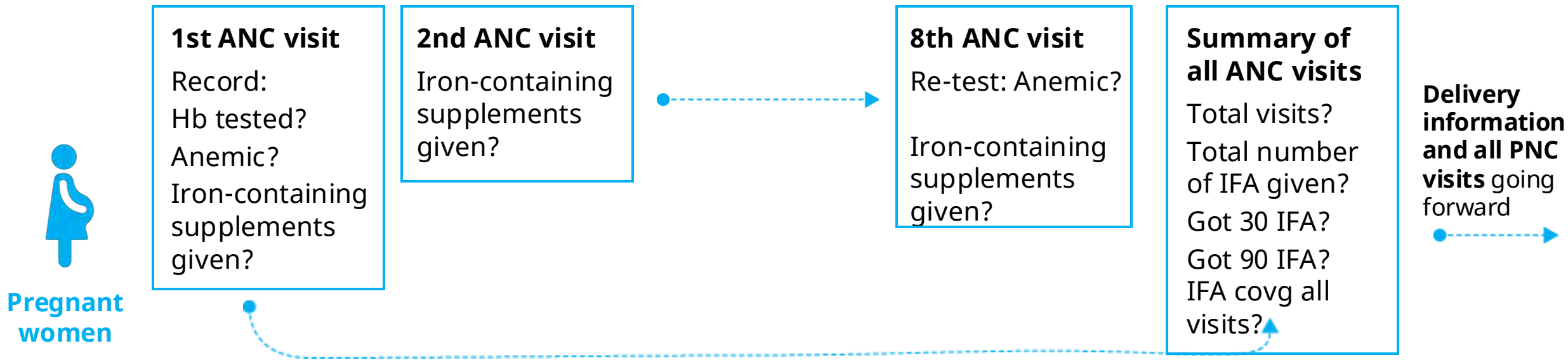
Core indicator assessing receipt (i.e., **the supplements were given or prescribed**) of iron-containing supplements during **ANC contacts** in facility and community

Additional indicator on assessing receipt of iron-containing supplements during **PNC contacts** in facility and community

Indicators include **any type** of iron-containing supplements

Core indicators (Iron-containing supplements): Facility & Community			
Indicator name	Rationale and Notes	Definition	Calculation
Receipt of iron-containing supplements during ANC contacts in a facility	Pregnant women require additional iron to meet their own nutritional needs as well as those of the developing foetus. The use of iron-containing supplements throughout pregnancy has long been the standard approach to prevent and treat iron-deficiency anaemia during pregnancy.	Percentage of ANC contacts in a facility during which pregnant women were given/prescribed iron-containing supplements	Numerator: Number of ANC contacts in a facility during which pregnant women were given/prescribed iron-containing supplements Denominator: Total number of ANC contacts in a facility
Receipt of iron-containing supplements during ANC contacts in the community		Percentage of ANC contacts in the community during which pregnant women were given/ prescribed iron-containing supplements	Numerator: Number of ANC contacts in the community during which pregnant women were given/prescribed iron-containing supplements Denominator: Total number of ANC contacts in the community
Receipt of iron-containing supplements during ANC contacts in a facility and the community		Percentage of ANC contacts in a facility and the community during which pregnant women were given/prescribed iron-containing supplements	Numerator: Number of ANC contacts in a facility and the community during which pregnant women were given/prescribed iron-containing supplements Denominator: Total number of ANC contacts in a facility and the community

Longitudinal Monitoring, IFA/MMS in DHIS2 Individual Tracker (Pilot)



	First Prenatal visit						Second Prenatal visit				Third Prenatal visit				Fourth Prenatal visit				
Date of visit (DD/MM/YY)	Location (Health facility or community*)	Was Hb tested (Y/N/ referred for testing)			If Hb tested what was value in g/dl and was patient anaemic? ____g/dl (Y/N)	iron-folic acid supplement s given? (P / T / N)*	other interventions	Date of visit (DD/MM/YY)	Location (Health facility or community*)	iron-folic acid supplement s given? (P / T / N)*	other interventions	Date of visit (DD/MM/YY)	Location (Health facility or community*)	iron-folic acid supplement s given? (P / T / N)*	other intervention s.....	Date of visit (DD/MM/YY)	Location (Health facility or community*)	iron-folic acid supplement s given? (P / T / N)*	other interventions
	HF C	Y	N	R	____g/dl (Y N	P T N			P T N					P T N				P T N	
	HF C	Y	N	R	____g/dl (Y N	P T N			P T N					P T N				P T N	

Cohort monitoring by due date

As in case of ANC, a longitudinal register may further follow the woman to record information about her delivery, each PNC visit and interventions received during those times.

Common issues

Strengths

- Tracks iron-containing supplements are prescribed
- Data collected at every visit – e.g. continuous collection at ANC
- Longitudinal registers with cohort monitoring is possible with paper-based systems.

Longitudinal		
		Visit
1	A	
2	B	
3	A	
4		

		Person
1	A	
2	B	
3	C	
4	D	

Weaknesses

- Measures contact coverage, but population effective coverage is difficult
- Prescription $\neq$ Receipt, Adherence
- Representativeness: private sector, reporting completion
- Overburdened staff, data quality
- Aggregation across multiple sites & approaches requires careful planning
 - Pregnant women may receive a one-month or a three-month supply during ANC.
 - During PNC, supplements can be provided by different service providers (by health facility following birth or by PNC provider)

Data Quality

Design

Data clerks in high volume sites

Supportive supervision, incentives

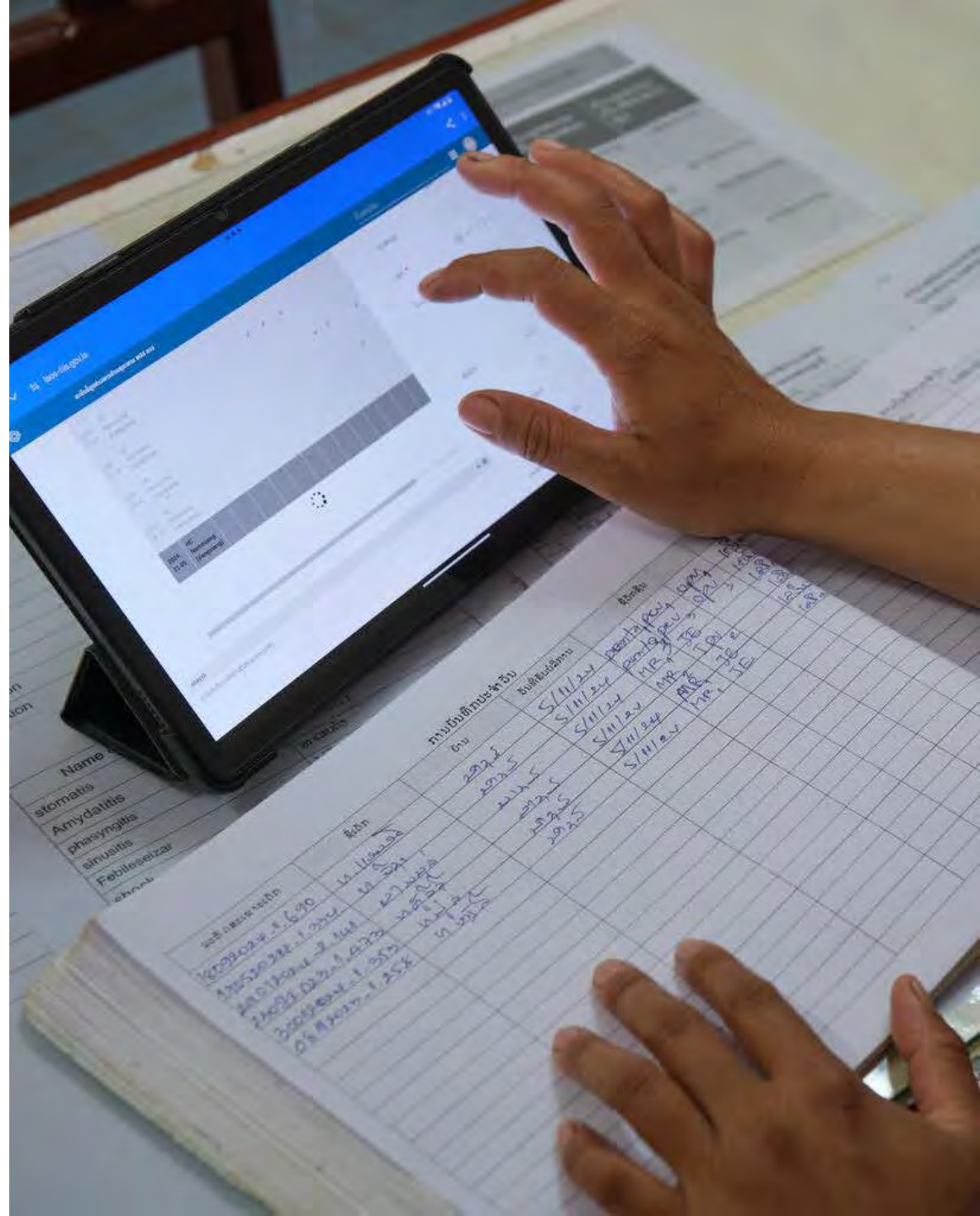
Validation rules, anomalies

RDQA: Routine data quality audits

Periodic data extraction on a sample of patients for extra data

Data use

Digital & AI



Innovations

Digitization at patient contact – tablets, adaptive, voice, Unique ID

Longitudinal monitoring over mother-child pair

More automated insights for ongoing data use

Data governance. Integration of other sources – citizen data, private, CHIS-routine HIS.

DHIS2: individual tracker capacity, interoperability enhancements

Countries with upcoming opportunistic events

Out of 159 countries, so far 38 (24%) have a planned event that could be used to integrate nutrition indicators in HMIS/DHIS2 or disseminate related work. These countries include:

Afghanistan	Cuba	Guinea	Lesotho	Nigeria	South Sudan	Vanuatu
Bhutan	DRC	India	Madagascar	Pakistan	Sri Lanka	Zimbabwe
Brazil	Egypt	Indonesia	Malawi	Philippines	State of Palestine	
Burkina Faso	Ethiopia	Kenya	Moldova	Senegal	Syrian Arab Republic	
Cameroon	Gambia	Lao PDR	Mongolia	Sierra Leone	Tunisia	
Cote d'Ivoire	Ghana	Lebanon	Mozambique	Somalia	Uganda	

Events planned include:

- Sector reviews
- Mid-year and annual health sector reviews
- Indicator or DHIS2/HMIS revision events
- A National Nutrition Forum
- Nutrition coordination meetings
- New Strategy development

Thank you.

unicef 
for every child

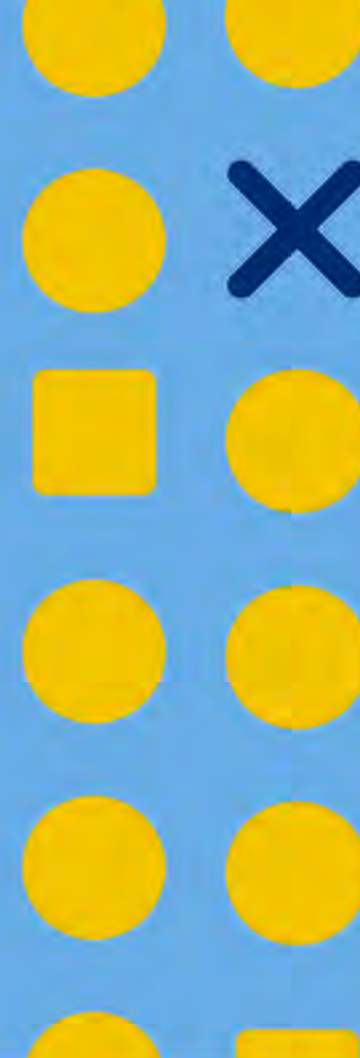


Data Sources

Household Surveys

Sorrel Namaste

Micronutrient Forum, Data Innovation Alliance [DInA]



Household Surveys

Session 2: Building blocks for monitoring: implementation strategies, information needs & data sources

Convening on Measurement and Monitoring of Multiple Micronutrient Supplementation (MMS)

Sorrel Namaste

April 21, 2026





Household survey characteristics

Advantageous

- Nationally representative of population
- Standardized and methodologically consistent over time
- Direct triangulation
- Captures women who receive supplements outside public health system

Disadvantageous

- Collected infrequently
- Resource-intensive
- Recall bias
- Respondent comprehension of intervention

Best practices

Micronutrient survey manual



- Ask women about their consumption of iron-containing supplements during a current or past pregnancy within the last two years
- Show the participant an example of the exact supplement
- Consider questions that differentiate between the use of supplements for prevention and as part of clinical care

Questionnaire tool: DHS as an example

Women

- Q: During this pregnancy, were you given or did you buy any iron tablets or iron syrup? SHOW TABLETS/SYRUP/MULTIPLE MICRONUTRIENT SUPPLEMENT
- Q: Where did you get the iron tablets or syrup? Anywhere else? PROBE TO IDENTIFY THE TYPE OF SOURCE. IF UNABLE TO DETERMINE IF PUBLIC, PRIVATE, OR NGO SECTOR, RECORD 'X' AND WRITE THE NAME OF THE PLACE(S)
- Q: During the whole pregnancy, for how many days did you take the iron tablets or syrup? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS
- Adapt the question wording to reflect all types of iron-containing supplements available in country
- DHS-8 QRE does not include a question on counseling

PUBLIC SECTOR

GOVERNMENT HOSPITAL	A
GOVERNMENT HEALTH CENTER	B
GOVERNMENT HEALTH POST	C
MOBILE CLINIC	D
COMMUNITY HEALTH WORKER/FIELD WORKER	E
OTHER PUBLIC SECTOR	F

(SPECIFY)

PRIVATE MEDICAL SECTOR

PRIVATE HOSPITAL	G
PRIVATE CLINIC	H
PHARMACY	I
PRIVATE DOCTOR	J
MOBILE CLINIC	K
COMMUNITY HEALTH WORKER/FIELD WORKER	L
OTHER PRIVATE MEDICAL SECTOR	M

(SPECIFY)

NGO MEDICAL SECTOR

NGO HOSPITAL	N
NGO CLINIC	O
OTHER NGO MEDICAL SECTOR	P

(SPECIFY)

OTHER SOURCE

SHOP	Q
MARKET	R
[MASS DISTRIBUTION CAMPAIGN]	S

OTHER X
(SPECIFY)



Questionnaire tool: DHS as an example

Children

- In the last 12 months, was (NAME IN 603) given any of the following:

Iron tablets or syrup? SHOW COMMON TYPES OF TABLETS/SYRUPS

[LOCAL NAME FOR MULTIPLE MICRONUTRIENT POWDERS]? SHOW
MULTIPLE MICRONUTRIENT POWDERS





Tabulation: DHS as an example

Women

Among women with a live birth and/or stillbirth in the last 2 years, percentage who during pregnancy for the most recent live birth or stillbirth took any iron-containing supplements

Among women age 15-49 who had a live birth and/or stillbirth in the 2 years preceding the survey who were given or bought iron-containing supplements during the pregnancy of the most recent live birth or stillbirth, percentage who obtained supplements, according to source

Children

Among children age 6-59 months percentage given iron tablets or syrups in last 12 months

Among children age 6-59 months percentage given multiple micronutrient powders in last 12 months

Among children age 6-59 months percentage given iron-containing supplements in last 12 months



2020 IMPROVE/DataDENT validation study in Nepal confirmed that DHS questions about IFA across pregnancy do not produce accurate estimates



In study with >400 women who delivered in last 6 months,

- Women could accurately report of *any iron folic acid (IFA)* during most recent pregnancy
- However, 72.6% overreported the number of IFA tablets they received, by an average of 70 tablets.
- A smaller number of women significantly under-reported the amount of IFA received.
- Cognitive testing showed that women did not understand questions well.

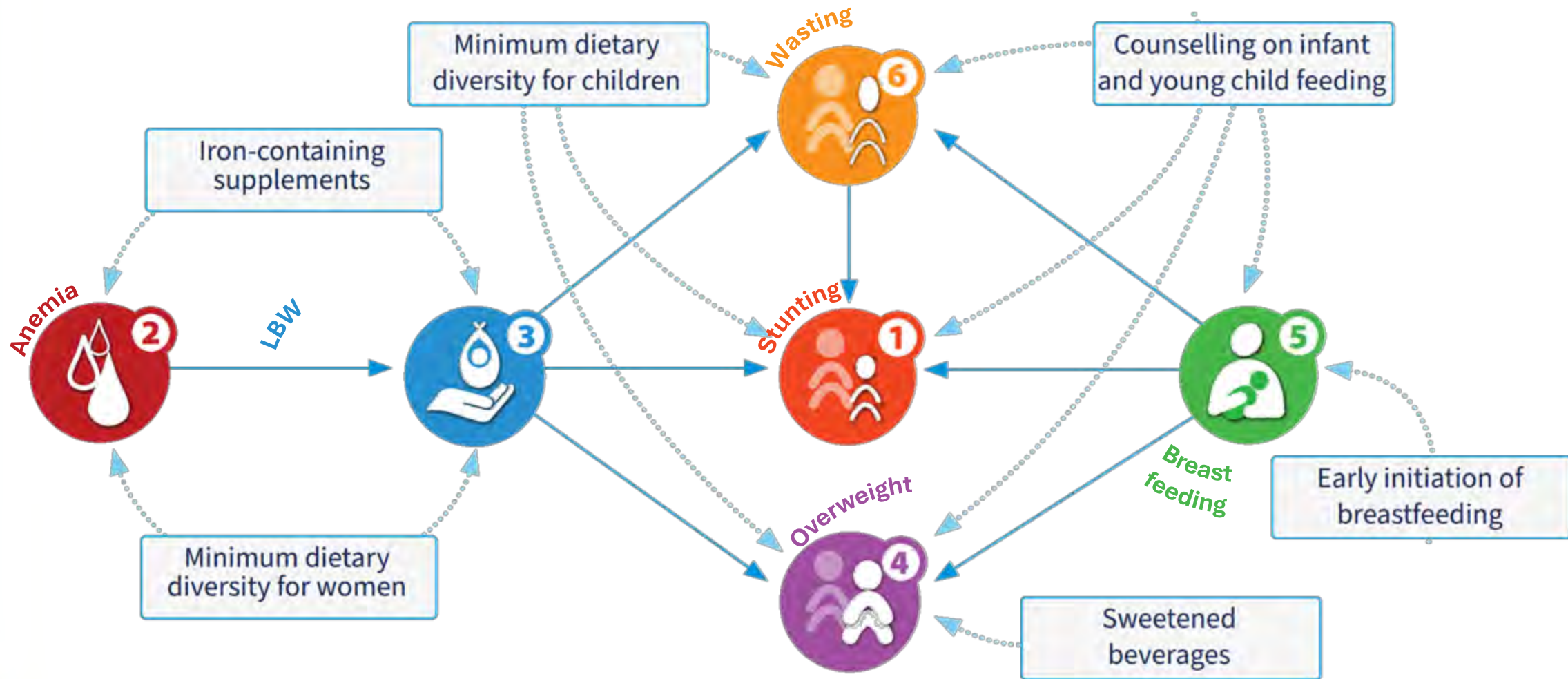
Implication: if true coverage increases from 30% in 2025 to 70% in 2030, a national survey using these questions would estimate 47.5% in 2025 and 57.5% in 2030.



Household survey providers of iron supplementation

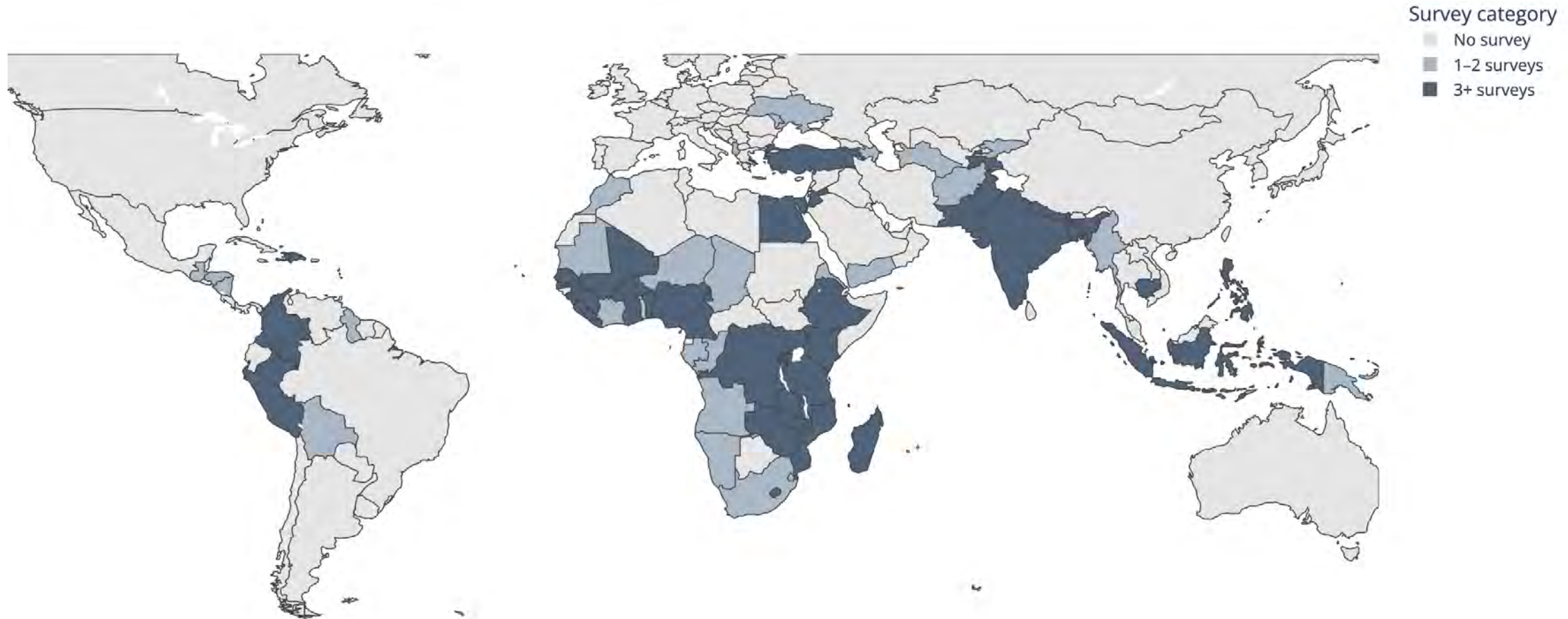
Survey name	<u>Typically</u> include coverage of IFA supplementation
Demographic and Health Survey Program (DHS)	Yes
Dietary intake and practices	No
Household Consumption and Expenditure Surveys (HCES)	No
Living Standards Measurement Study (LSMS)	No
Micronutrient surveys	Yes
Multiple Indicator Cluster Surveys (MICS)	No
National Nutrition Surveys (NNS)	Sometimes

2030 Nutrition Targets and Process Indicators



Receipt of iron-containing supplements, 2000-2024

204 surveys collected indicator between 2000-2024





Receipt of iron-containing supplements, 2000-2024

Region	Country Coverage, %	Population Size Coverage, %
Global	30	50
Africa	68	89
Asia	38	54
Europe	6	6
LAC	18	24
Northern America	0	0
Oceania	4	23



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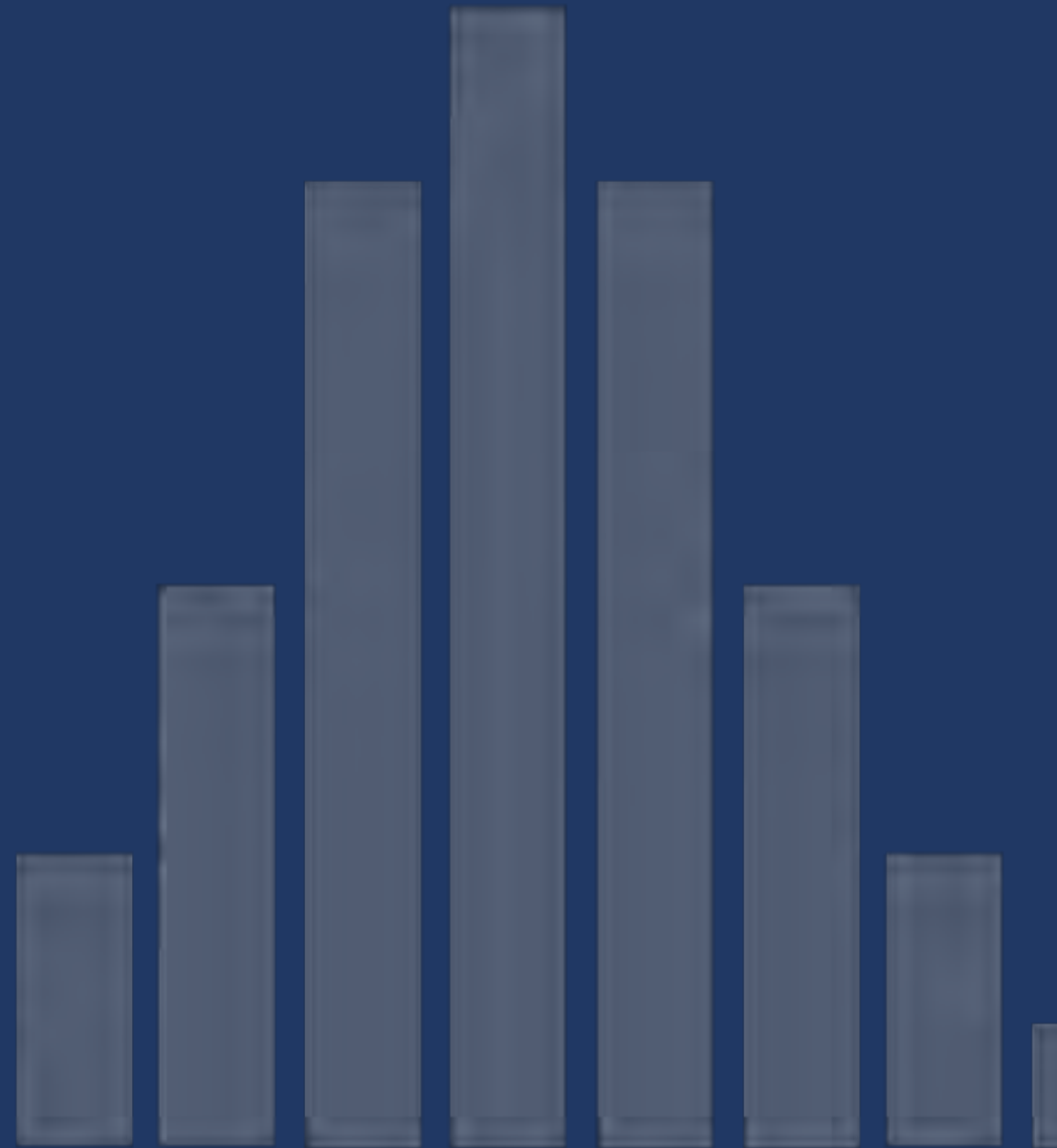
DInA@micronutrientforum.org



Micronutrient Forum



@MNForum



Data Sources

Quality of Care: Facility Surveys and Other Approaches

Sara Beth Riese

World Bank GFF

Health Facility Surveys & Quality of Care Measurement

for ANC/IFA/MMS Monitoring

Focus: health facility surveys and specialized quality of care measurement tools
used to monitor antenatal supplementation (IFA & MMS) programs

Day 1 · Data Sources Session · 12–1 PM

What We'll Cover

Scope: health facility surveys & specialized QoC tools · Focus on antenatal supplementation (IFA & MMS)

1

Overview of Data Sources

Purpose, structure & governance of facility survey and QoC platforms

2

IFA/MMS Monitoring

Common indicators, strengths & challenges

3

Data Quality Issues

Key challenges and quality assurance approaches

4

Potential Innovations

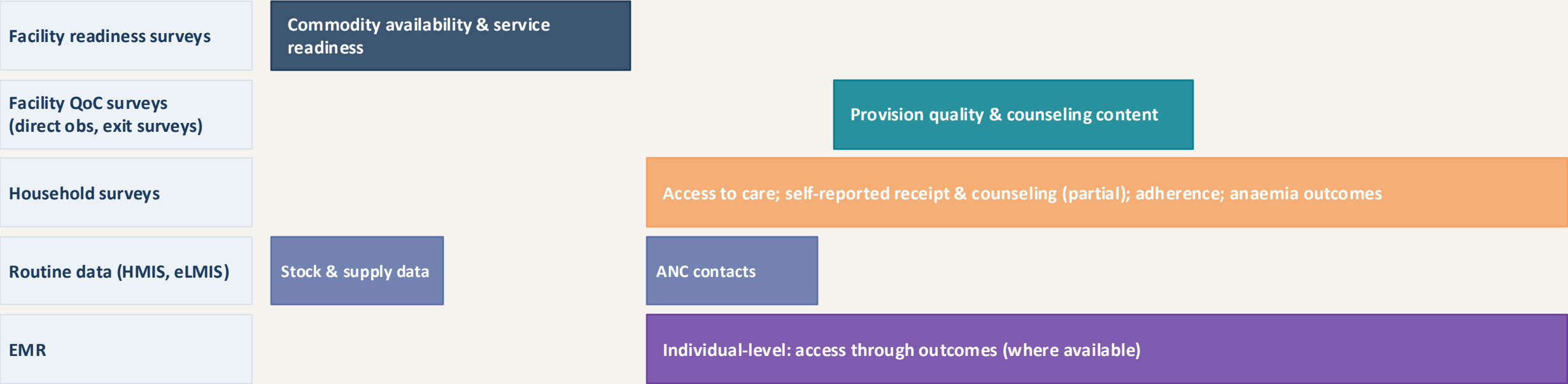
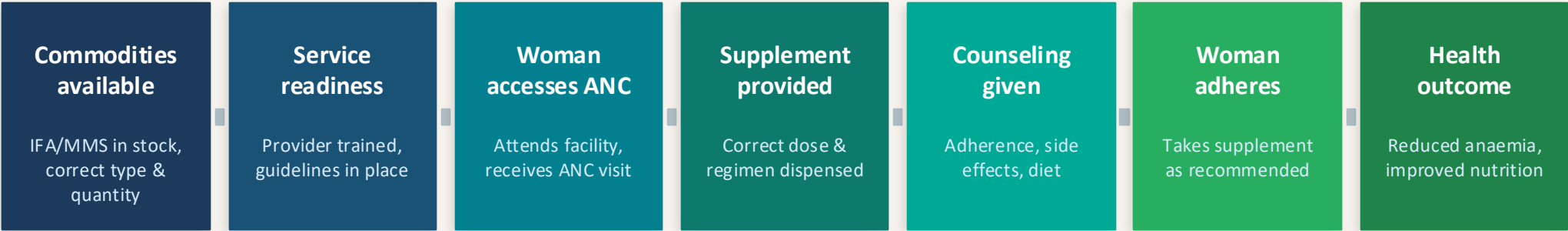
Emerging and future directions in the data ecosystem

1

Overview of Data Sources

Health facility surveys & quality of care measurement platforms

Why No Single Data Source Is Sufficient



Triangulating across data sources is essential — no single platform covers the full supply-to-outcome pathway

Facility Survey & QoC Measurement: Key Platforms

National Periodic Surveys & Rapid-Cycle Assessments

HHFA / SARA (WHO)

WHO flagship facility assessment; national-level, multi-domain; 3–5 yr cycles; overseen by MoH/WHO; content shaped by global norm-setters and donors

SPA (DHS Program)

Facility + provider/client observations incl. direct observation of ANC; high depth but infrequent; content influenced by USAID/ICF and global experts

SDI (World Bank)

Cross-country comparability focus; infrastructure, readiness & provider absence; content shaped by WB and research community

FASTR HFA

Phone-based facility survey conducted quarterly; content aligned with PHC MFI & HHFA standards; low-burden design enables continuous monitoring between periodic surveys

Rapid-cycle

Specialized QoC Measurement

Often not routinely implemented or nationally representative; includes specialized platforms for monitoring quality of care

Standalone QoC studies

Facility-level assessments of provider knowledge, counseling quality, and process indicators; design varies by country and research question

Specialized QoC platforms

Purpose-built tools for measuring specific quality dimensions (e.g., ANC content, IFA/MMS counseling quality); may use observation, interview, or record review

Country-specific M&E tools

Program-designed monitoring tools for tracking quality benchmarks; often linked to improvement initiatives or donor reporting

How These Platforms Are Structured & Governed

Dimension	HHFA / SARA	SPA	SDI	FASTR HFA 
Primary purpose	Service availability & readiness	Service availability & readiness + technical quality of care + experience of care	Service availability & readiness + technical quality of care + experience of care	Service availability & readiness; quarterly monitoring between periodic surveys
Unit of analysis	Facility	Facility, provider, client	Facility, provider, client	Facility
Frequency	Every 3–5 years	Every 3–5 years	Every 3–5 years	Quarterly
Who oversees core tool	WHO	USAID / ICF (DHS Program)	World Bank	GFF / implementing partners
Who influences content	Global guidance; WHO technical experts; MoH priorities	Global guidance; USAID priorities; MoH priorities	Global guidance; World Bank project priorities; MoH priorities	Global guidance; WB/GFF priorities; MoH priorities

2

IFA / MMS Monitoring

Common indicators, strengths & challenges

IFA/MMS Indicators: Which Tools Measure What?

Indicator	HHFA / SARA	SPA	SDI	FASTR HFA
Availability & Readiness				
Facility offers IFA/MMS supplementation for pregnant women	✓	✓		✓
IFA stock available on day of visit	✓	✓	✓	✓
MMS stock available on day of visit		✓		✓
Stock-out frequency & duration (prior 3 months)			✓	
Storage conditions & cold chain	✓	✓		
Quality of Care				
Provider training on IFA/MMS protocols		✓		
Counseling on adherence, side effects & diet		✓		
Client recall of counseling content (exit interview)				
Anemia screening during first ANC	✓	✓		

Strengths & Challenges for IFA/MMS Monitoring

Strengths

- Quality of Care measures are relatively rare
- Although in-person surveys are becoming less frequent, phone surveys have shown to have good validity to measure certain readiness indicators like commodity availability

Challenges

- Reality of a diminishing number of large scale in-person surveys
- Unequal roll-out of MMS as a new intervention
- Are facilities the main distribution point for IFA/MMS?
- Is provider training in ANC adequate to measure knowledge and skills for IFA/MMS?
- Facility surveys do not capture women's uptake/adherence

3

Data Quality Issues

Key challenges and effective quality assurance approaches

Data Quality: Common Issues & Assurance Approaches

- IFA/MMS may be stored in multiple locations at facilities.
 - Assurance approach: In-person enumerators check all different locations. For phone surveys, in-person spot checks of a sample of facilities.
- Facility surveys often rely on one respondent who may or may not have correct information.
 - Assurance approach: In-person spot-checks (for commodity questions)
- Over-reporting from respondent due to recall and/or social desirability bias.
 - Assurance approach: In-person spot checks/record review as appropriate. Consider estimates as the ceiling.

4

Potential Innovations

Emerging and future directions in the data ecosystem

Potential Innovations in Facility Survey & QoC Data

- Using routine data sources (LMIS/supply chain) to triangulate health facility survey data
- Including client/CHW surveys linked to facility surveys to capture experience of care as well as adherence information
- Approaches to ensure health facility data are **used** by key stakeholders to improve services
- Electronic medical records. What data could point-of-care/AI-enabled records provide that could be used to measure facility QoC indicators as well as outcomes?

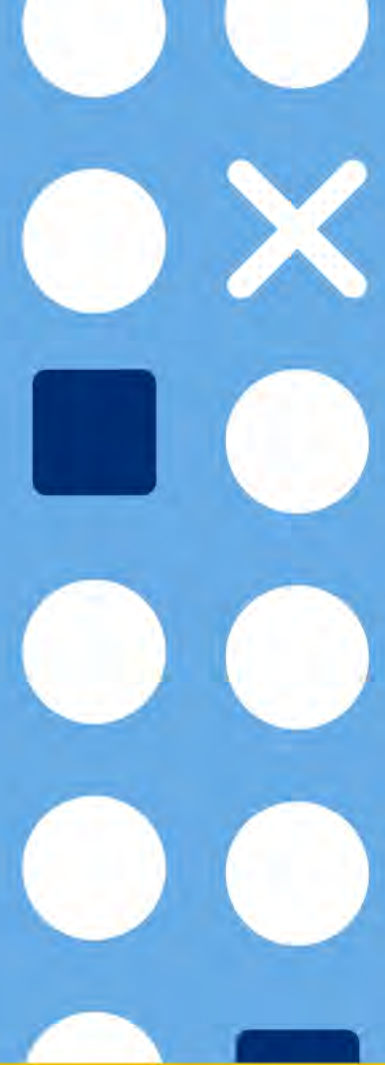
Session 2 Wrap Up

Kenda Cunningham
IFPRI

Monica Fox
JHU

Session 3

Specific Topics in MMS Measurement

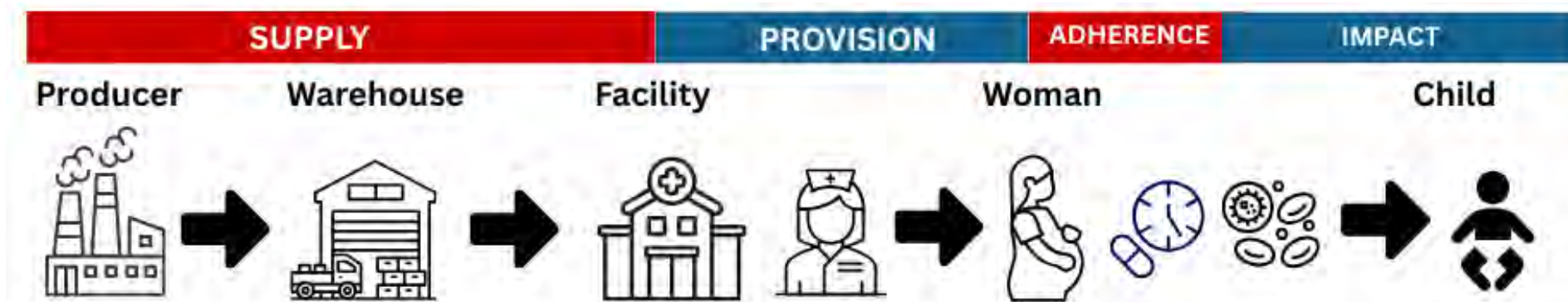


Framing the Session

Sunny Kim
IFPRI

Melinda Munos
JHU

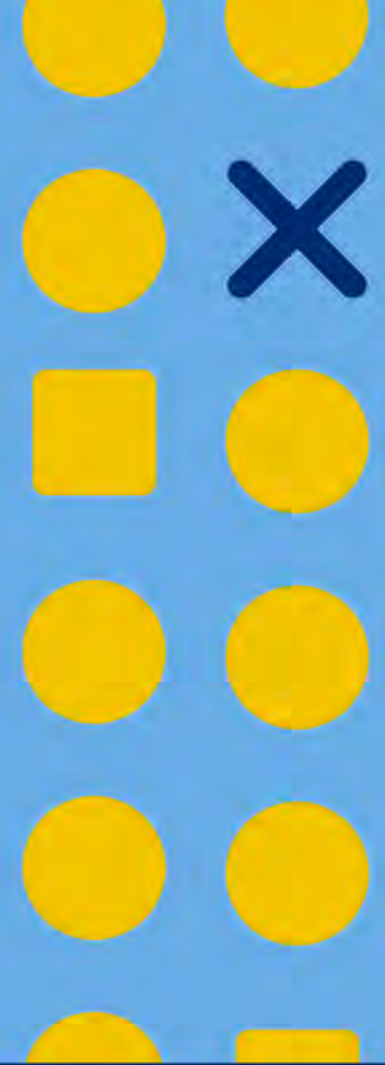
Session 3: Specific Topics in MMS Measurement



Monitoring systems	Supply chain	Implementation – Coverage, Quality and Adherence	Treatment	Measurement resources
- NutriDASH - UNRWA for Palestine Refugees in Near East	Monitoring supply and logistics	- CROWN Ethiopia - Ethiopia Demo Program - DataDENT formative research in Ethiopia & Bangladesh - Nepal Validation - UNRWA Jordan	Anemia program – India	- Coverage analysis and communication - M&E costs for national roadmaps - ACTION: Collective Action Plan for Nutrition data - LSMS priorities - DHS nexts
	<i>Discussion</i>	<i>Discussion</i>	<i>Discussion</i>	<i>Discussion</i>

NutriDASH: Global Monitoring of the MMS Transition

Louise Mwigiri
UNICEF

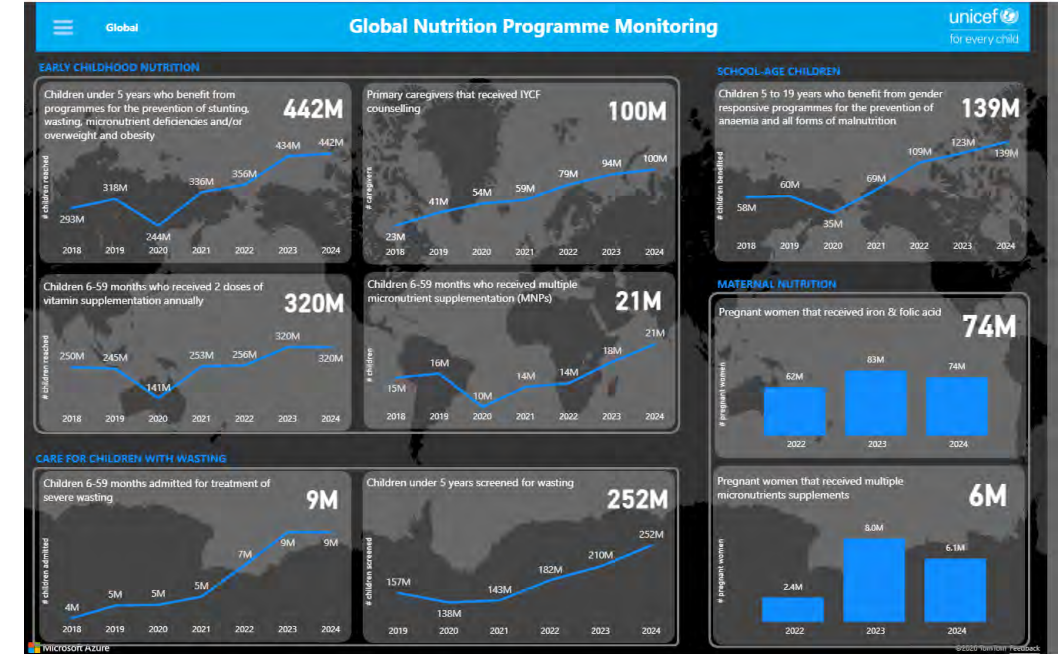
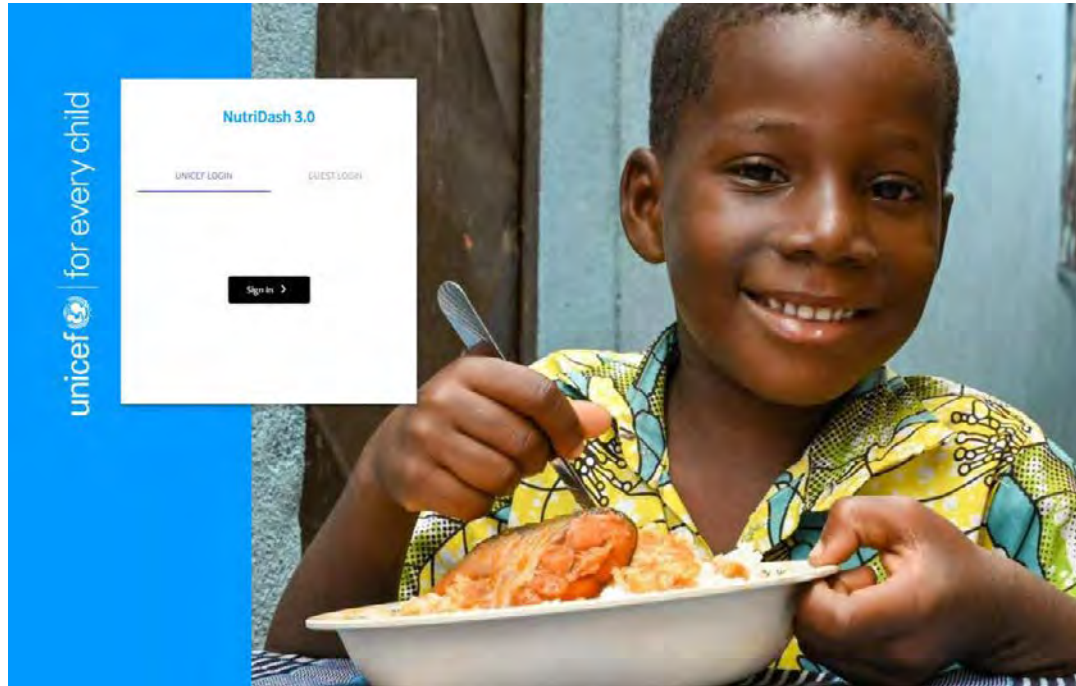


UNICEF Nutridash: Global Maternal Nutrition Programme Monitoring



Monitoring of Maternal Nutrition Programmes: NutriDash

Overview



www.unicefnutridash.org

- **Online system** started in 2010 to collect global nutrition programme data annually
- Collects, stores, analyzes and visualizes nutrition programme data from more than **130 countries** from UNICEF and non-UNICEF supported nutrition programmes

Overview

What information does NutriDash collect?



1. Early childhood nutrition

Prevention of malnutrition in children under five years of age.



2. Nutrition in middle childhood and adolescence

Prevention of malnutrition in children aged between 5 and 19 years old



3. Maternal nutrition

Prevention of malnutrition in women during pregnancy and breastfeeding, and prevention of low birthweight.



4. Care for children with wasting

Early detection and treatment of child wasting in early childhood.



5. Maternal and child nutrition in humanitarian action

Nutrition programming in emergencies guided by UNICEF's CCC and CLA role.



6. Partnerships and governance for nutrition

Strategic partnerships, data, knowledge, advocacy and financing for nutrition.

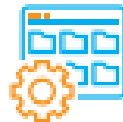
Types of data collected



Existence of nutrition policies, strategies and programmes



Programme inputs



Coverage and performance



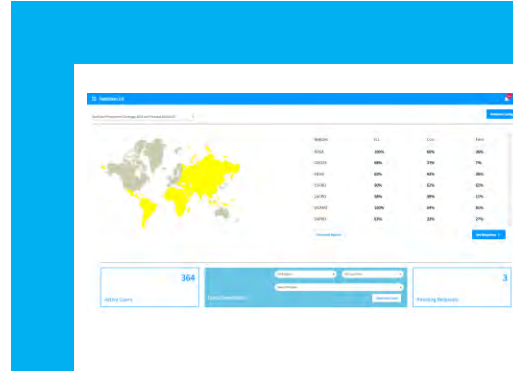
Governance, knowledge and partnerships



Supply forecasting

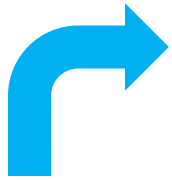
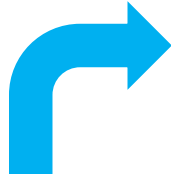
How is NutriDash data collected?

NutriDash



Data is submitted annually by countries through Nutridash by the UNICEF CO with agreement from government

National Nutrition Information Systems



At national level, data and reports compiled and finalized. Data on policies, strategies, co-ordination and programme is available at this level

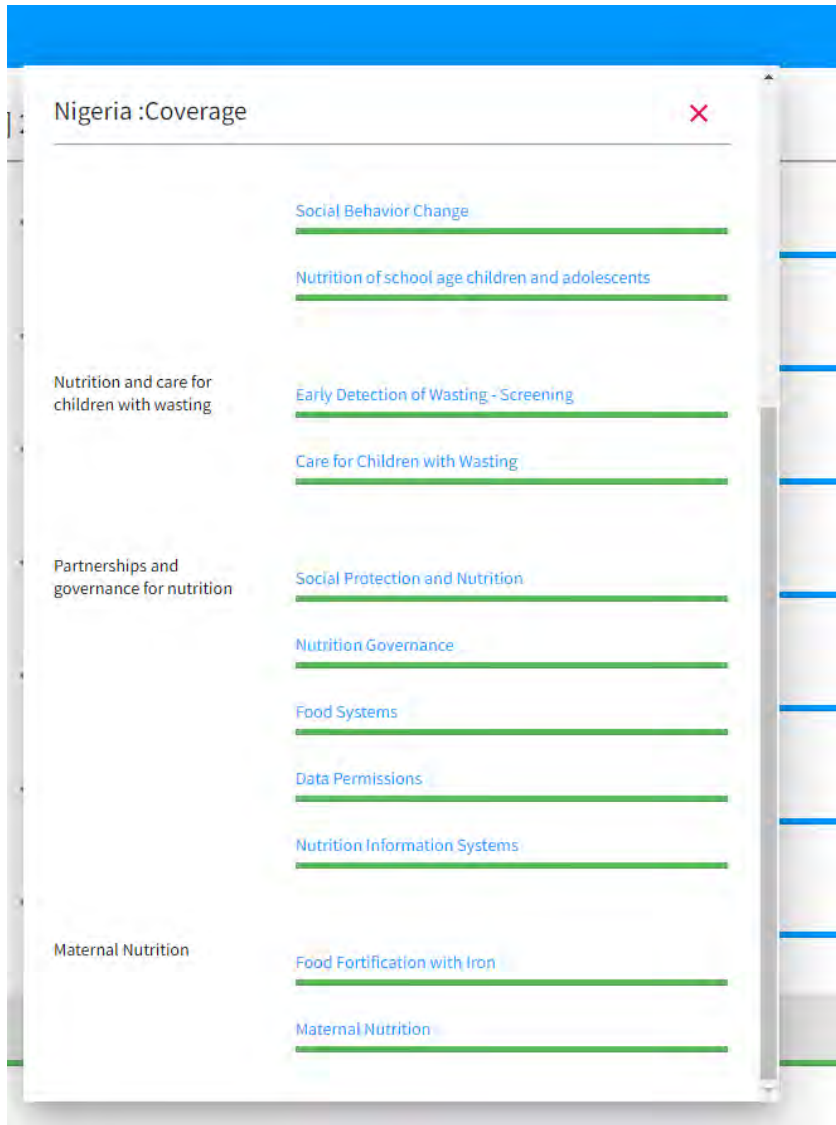
Programme Monitoring Data



At country level, data is collected at the health facility, programme site, or monitoring point and reported upwards to the national level

Maternal Nutrition Data Collected via NutriDash

Module: Maternal Nutrition



(a) Preventative iron supplementation for pregnant women

- Existence of IFA programmes
- UNICEF support to IFA programmes
- Existence of policies, strategies for IFA supplementation
- Supply and coverage

(b) Multiple Micronutrient Supplementation (MMS)

- Existence of MMS programmes
- UNICEF support to MMS programmes
- Existence of policies, strategies for MM supplementation
- Supply and coverage
- Programme implementation in emergencies

(d) Nutrition counselling and promotion for pregnant women

- Existence of nutrition counselling and promotion programmes
- UNICEF support to nutrition counselling and promotion programmes
- Existence of policies, strategies for nutrition counselling and promotion supplementation
- Programme implementation in emergencies

(e) Services to improve nutrition during pregnancy

- Services provided alongside antenatal care
- Scale of services provided
- UNICEF support on services provided
- Programmes implemented during pregnancy as part of ante-natal care

Data Quality Assurance



Data is mainly filled by **UNICEF country colleagues in consultation with government and partners**. Data can also be filled directly in the system by government and partners

Data collected by NutriDash is dependent on the **availability and quality of information at country level**; which varies by country

NutriDash also tracks the presence of **national information monitoring systems to support strengthening NIS systems**

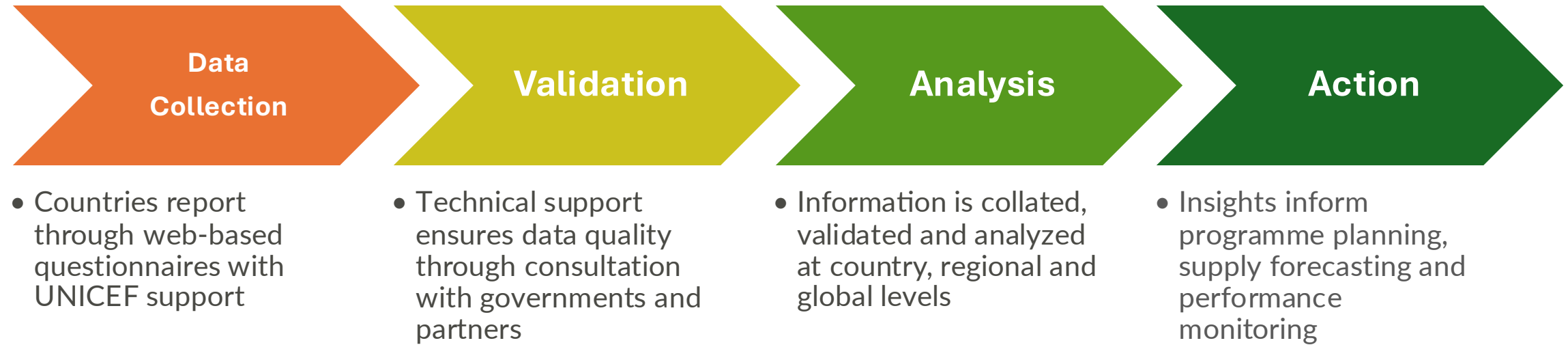
Review data for consistency – considering trends, reports, funding etc

Country, regional and HQ teams provide **technical support** through entire process - questionnaire, data analysis and dissemination

Use **globally accepted methodologies** for data collection and analysis

Triangulate programme data and analysis with Supply Division data on nutrition commodities

How NutriDash Works



In 2024, the maternal nutrition module was revised and updated to track key maternal nutrition programming, components, including data on countries delivering iron and folic acid supplements and/or multiple micronutrient supplementation (MMS) to pregnant

Maternal Nutrition indicators were revised to include indicators on MMS distribution, policy and implementation

Validation was an iterative process with the countries to verify inputs, clarify discrepancy and resolve inconsistencies with last year's input

Simple analysis was conducted to provide information on programme and policy in the country; comparable across countries and region

Data was disseminated on the nutridash platform; shared with partners e.g. HMHB and used to support decision making and programme prioritization



Maternal Nutrition Programme Data

2024 Maternal Nutrition Key Results



123 countries provided data for maternal nutrition module



99 countries worked delivered IFA to pregnant women reaching 73million pregnant women globally



47 countries worked on multiple micronutrient supplementation programmes reaching 6.1million pregnant women globally



113 countries worked on nutrition counselling and promotion reaching 43million pregnant women



52 countries delivered a maternal nutrition intervention in emergency settings



Iron-Folic Acid Supplementation

99 out of 123 countries programmed with IFA in 2024

Countries reaching the most pregnant women with IFA include; India, Ethiopia, DR Congo, Indonesia, Tanzania, Nigeria, Mozambique, Yemen, Pakistan and Mali

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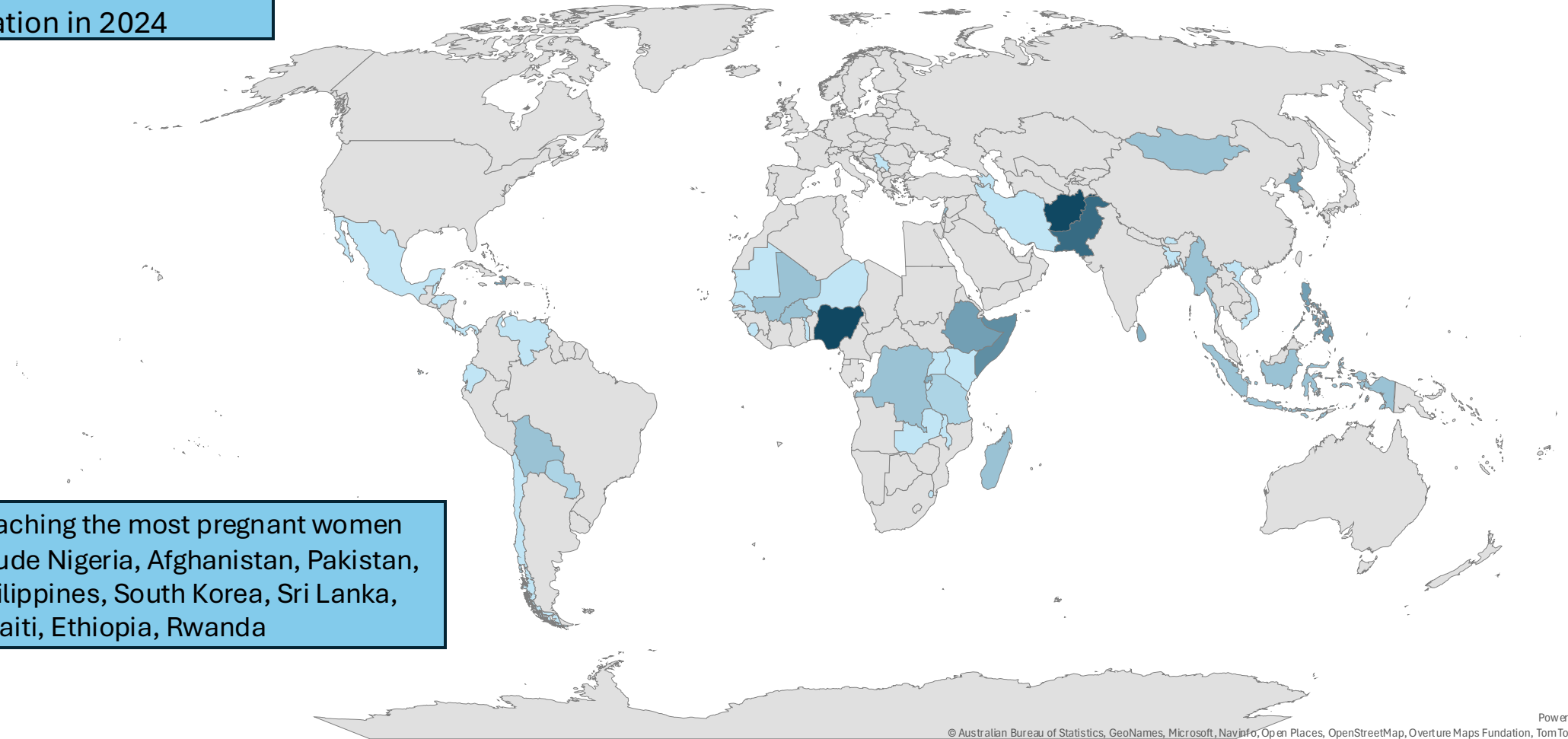
99 out of 123 countries
programmed with IFA in 2024

Countries reaching the most pregnant women with IFA include; India, Ethiopia, DR Congo, Indonesia, Tanzania, Nigeria, Mozambique, Yemen, Pakistan and Mali

© Australian Bureau of Statistics, GeoNames, Microsoft, Navinfo, Open Places, OpenStreetMap, OvertureMaps Foundation, TomTom, Zenrin

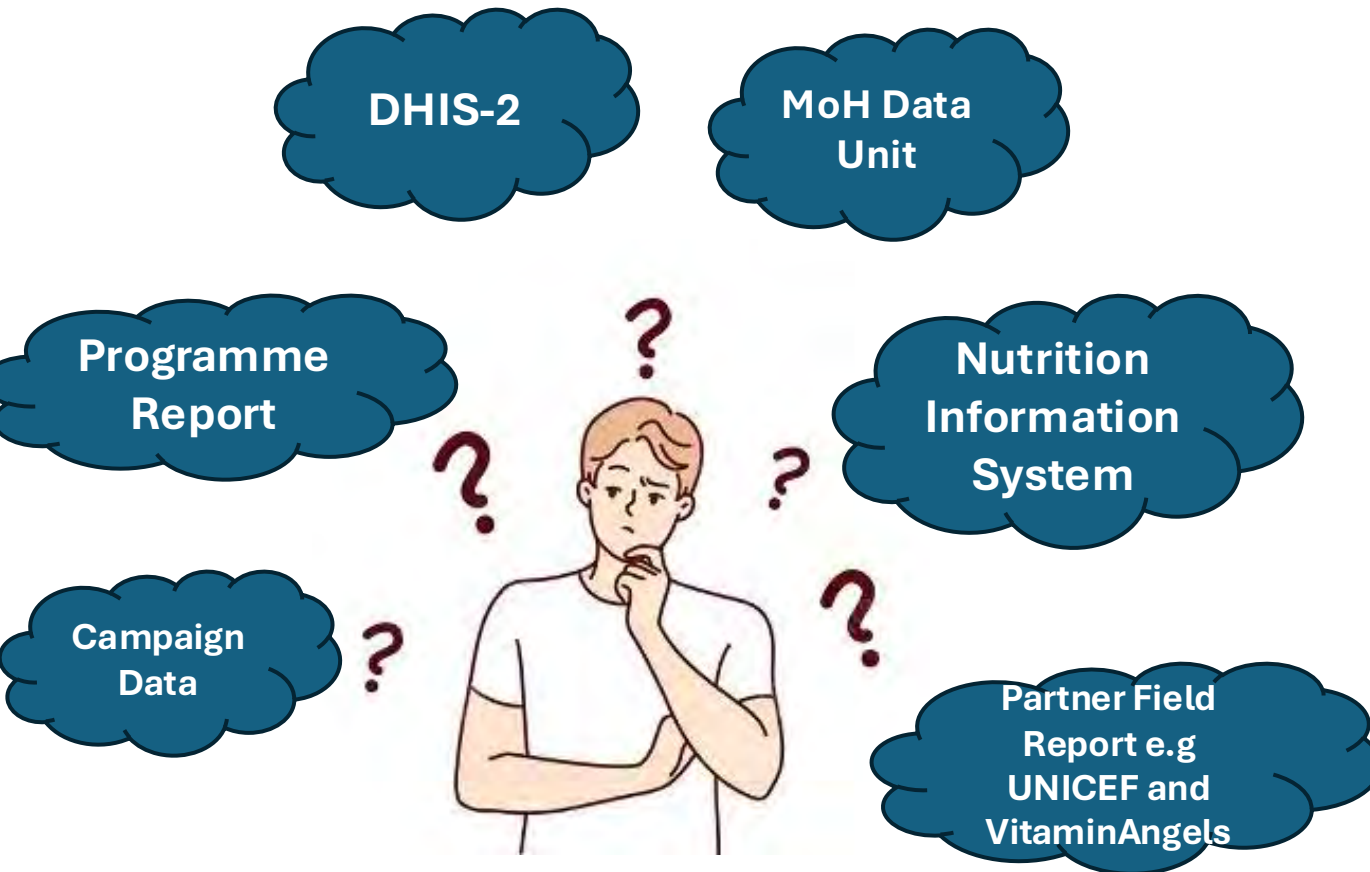
Multiple Micronutrient Supplementation

47 out of 123 countries worked on multiple micronutrient supplementation in 2024



Countries reaching the most pregnant women with MMS include Nigeria, Afghanistan, Pakistan, Somalia, Philippines, South Korea, Sri Lanka, Haiti, Ethiopia, Rwanda

Where is the MMS Data Reported into NutriDash From?



- Data on 'numbers reached with MMS' are from government sources or partner databases but **they are all government verified**
- The source of MMS data in the country can sometimes be a reflection of the maturity of MMS integration into the health system e.g Madagascar
- There have been improvements in transition from non-government sources of information into government sources e.g DRC and Uganda
- Strengthening of national nutrition information systems to support programme monitoring is imperative

From Data to Impact

Programme Planning

Evidence-based design of nutrition interventions tailored to national contexts and identified gaps

Users: UNICEF, Governments, Partners

Supply Forecasting and Procurement

Accurate projections for therapeutic foods, supplements and essential commodities

Users: Governments, MMS manufacturers, Donors

Performance Monitoring

Real-time tracking of intervention coverage, quality and effectiveness across countries

Users: UNICEF, Governments, Partners, Researchers

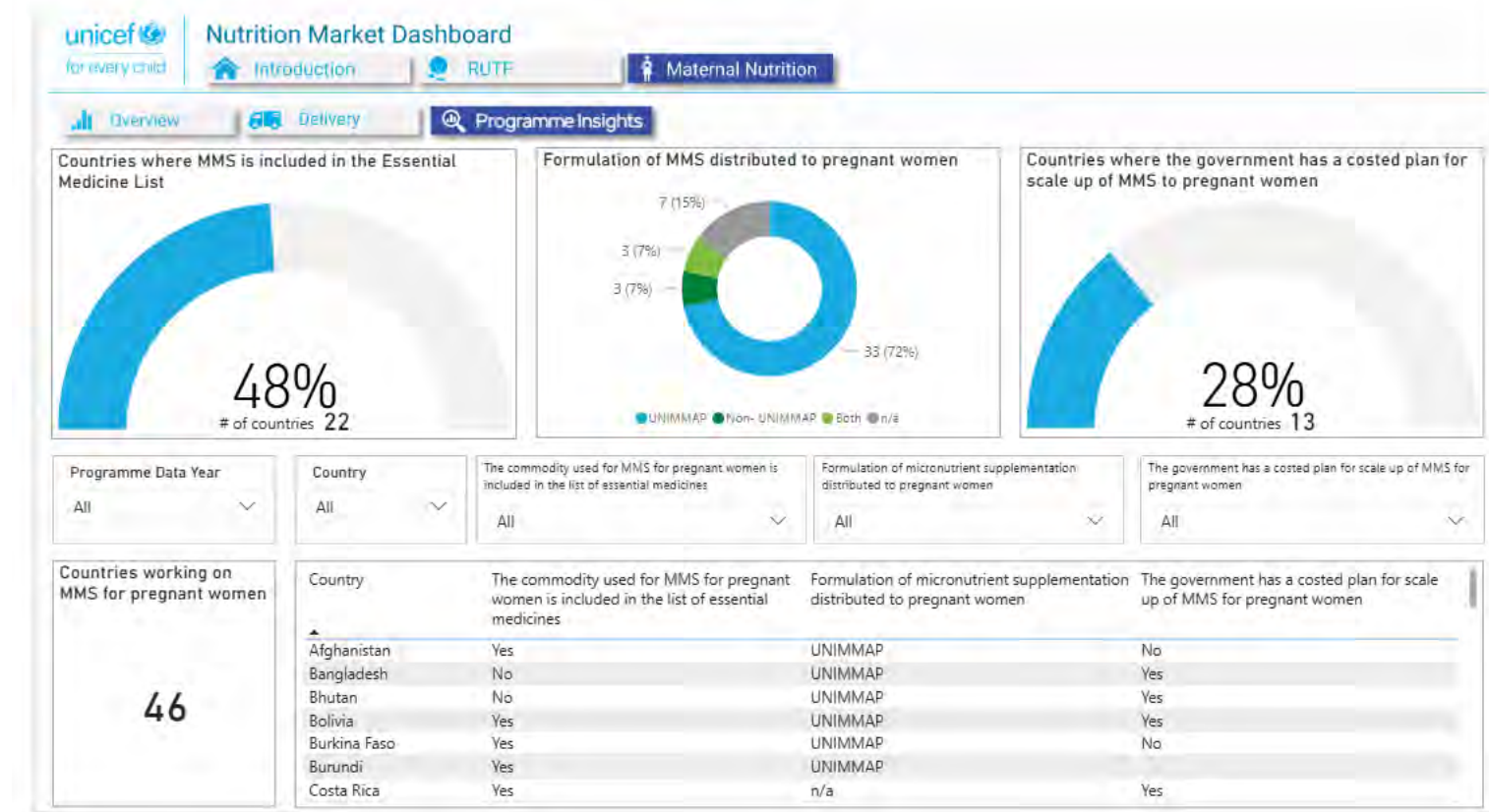
Priority Setting

Identification of critical nutrition actions needed to accelerate progress towards 2030 targets

Users: Governments, UNICEF, Partners

Nutrition Market Dashboard: Programme Insights

- All the data in the Programme Insights is from UNICEF NutriDash and is updated yearly
- The Programme Insights tab offers local manufacturers insight into the national enabling environment for MMS scale-up, reflecting the level of preparedness to scale and procure MMS.
- Provides programme insights on
 - *countries distributing MMS for pregnant women*
 - *countries with MMS included in the essential medicines list*
 - *formulation of MMS available in-country*
 - *financing for MMS*



Thank
You



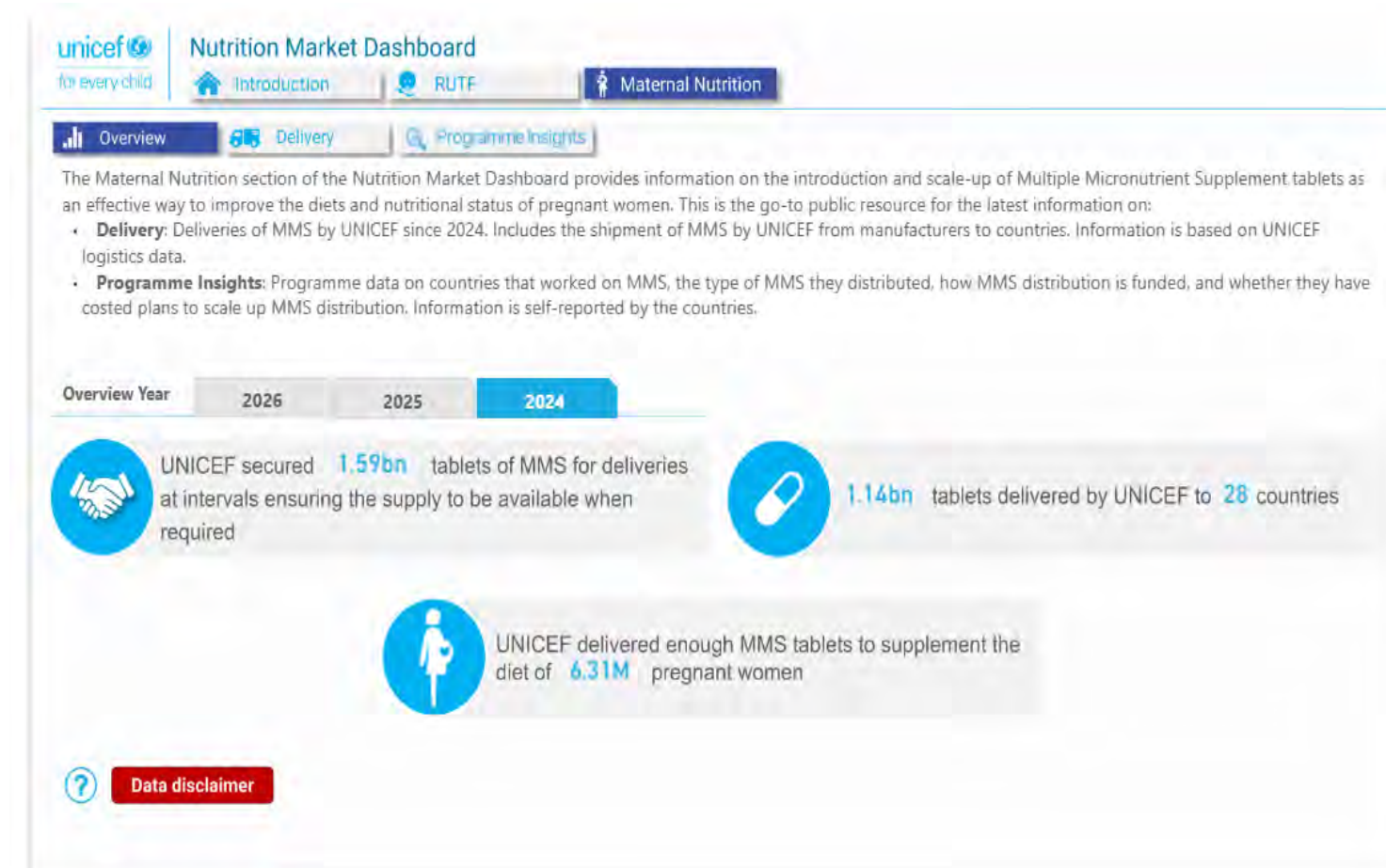
Additional Slides

How to Interact with NutriDash/Access the Data

- Link to access Nutridash:
<https://www.unicef.org/nutrition/nutridash>
- Link to access HMHB World Map of Activities:
- Link to access Nutrition Market Dashboard: [Nutrition Market Dashboard | UNICEF Supply Division](#)

Nutrition Market Dashboard: Delivery

- Provides an overview in tablets and bottles on:
 - quantities of MMS that UNICEF has available to be shipped to the countries
 - quantities ordered with suppliers
 - quantities released with from suppliers
 - quantities in transit
 - quantities arrived in country
 - quantities of MMS delivered to countries
 - number of women reached with MMS





EARLY CHILDHOOD NUTRITION

Children under 5 years who benefit from programmes for the prevention of stunting, wasting, micronutrient deficiencies and/or overweight and obesity

442M



Primary caregivers that received IYCF counselling

100M



SCHOOL-AGE CHILDREN

Children 5 to 19 years who benefit from gender responsive programmes for the prevention of anaemia and all forms of malnutrition

139M



Children 6-59 months who received 2 doses of vitamin supplementation annually

320M



Children 6-59 months who received multiple micronutrient supplementation (MNPs)

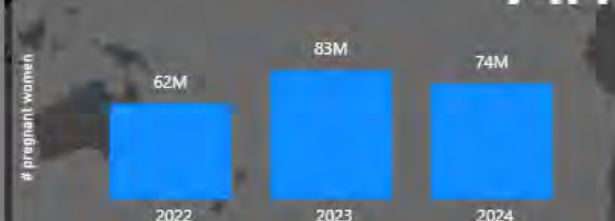
21M



MATERNAL NUTRITION

Pregnant women that received iron & folic acid

74M



CARE FOR CHILDREN WITH WASTING

Children 6-59 months admitted for treatment of severe wasting

9M



Children under 5 years screened for wasting

252M



Pregnant women that received multiple micronutrients supplements

6M



Maternal Nutrition and Nutridash: An Overview

- More information for **programme planning/priority setting, supply forecasting and procurement and performance monitoring**

**Supplementation
with IFA or MMS**

Number of pregnant women reached with IFA or MMS

Government policies/plans

Government financing for programmes

Supplies and distribution (distribution platform, formulation used, cost, etc)

**Nutrition
Counselling**

Availability of nutrition counselling for pregnant women

Method of delivery of nutrition counselling

Government policies and financing for nutrition counselling

Number of pregnant women reached with nutrition counselling

**Healthy weight
gain monitoring**

Existence of healthy weight gain monitoring for pregnant women

Method of delivery of intervention

**Deworming/Malaria
a Prophylaxis**

Existence of deworming/malaria prophylaxis programmes for pregnant women

Method of delivery of intervention

**Screening for
malnutrition and
supplementation
with BEP**

Existence of BEP supplementation for pregnant women in emergency contexts

Number of women reached with BEP

NutriDash is UNICEF's Comprehensive Approach to Data

Nutridash is UNICEF's global monitoring system for maternal and child nutrition. It hosts the largest global database of national maternal and child nutrition programme data, covering over 125 countries.



Data Collection

Timely and consistent collection of programme data from national monitoring systems capturing essential nutrition information



Policy Integration

Evidence-based insights inform national nutrition strategies



Technical Guidance

Expert support on nutrition indicators and measurement standards; supports strengthening of national nutrition information systems and supply forecasting

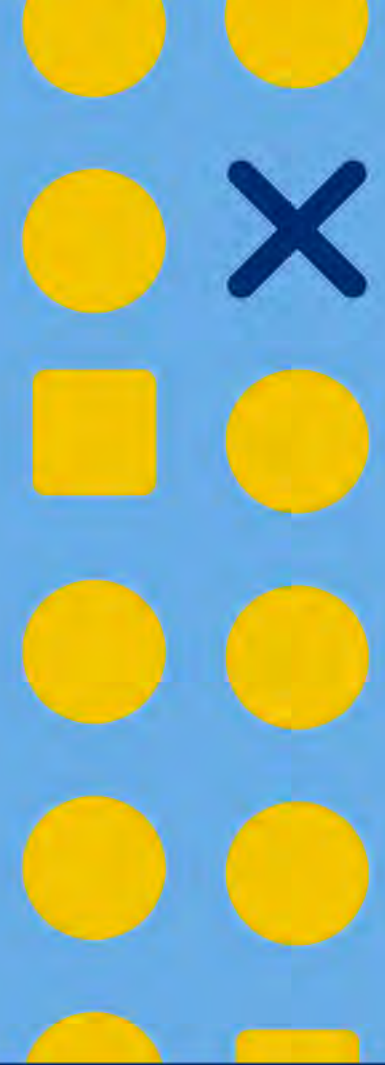


SDG Reporting

Monitoring progress towards 2030 Agenda sustainable development targets

UNWRA Monitoring Supply & Coverage During Scale-up

Masako Horino
UNWRA/JHU



Coverage of Antenatal Supplements during the Systems Trial in Jordan and

Establishment of MMS Surveillance System During Scale-up in Jordan, Lebanon and Syria



Masako Horino, DrPH, MPH, RD
Public Health Research Specialist at UNRWA
Affiliate, Department of International Health
Johns Hopkins Bloomberg School of Public Health

MMS Convening
Johns Hopkins Bloomberg Center
Washington DC
April 2026



United Nations Relief and Works Agency for Palestine Refugee in the Near East (UNRWA)

- Established by UN General Assembly in 1949
- Headquartered in Amman, Jordan
- Provides direct relief and social, educational and health services to ~6 million Palestine refugees in 5 “Fields of Operation”, **Gaza, West Bank, Jordan, Syria & Lebanon**
- Health care program includes antenatal and postnatal care to ~**100,000** pregnant women annually, including ~**20,000 in Jordan**
- High prevalence of multiple maternal micronutrient deficiencies and anemia reported among refugees over past 25 years
- Iron and folic acid (IFA): previous standard of antenatal care
- Systems trial of MMS vs IFA conducted in Jordan “Field”



UNRWA Antenatal MMS Systems Delivery Trial

Previous Standard of Care Regimen

Hb$\geq$10 g/dL	1 st TM: 1 tab folic acid (0.4 mg) daily 2 nd -3 rd TM: 2, 3 or 7 tabs ferrous fumarate (100 mg iron + 0.35 mg folic acid) per wk
Hb<10 g/dL	1 tab ferrous fumarate (100 mg iron + 0.35 mg folic acid) daily

Tested MMS Delivery Regimen

Hb$\geq$10 g/dL	1 tab UNIMMAP MMS daily
Hb<10 g/dL	1 tab UNIMMAP MMS daily + 1 tab ferrous fumarate

Folic Acid 0.4 mg



Ferrous Fumarate 310 mg



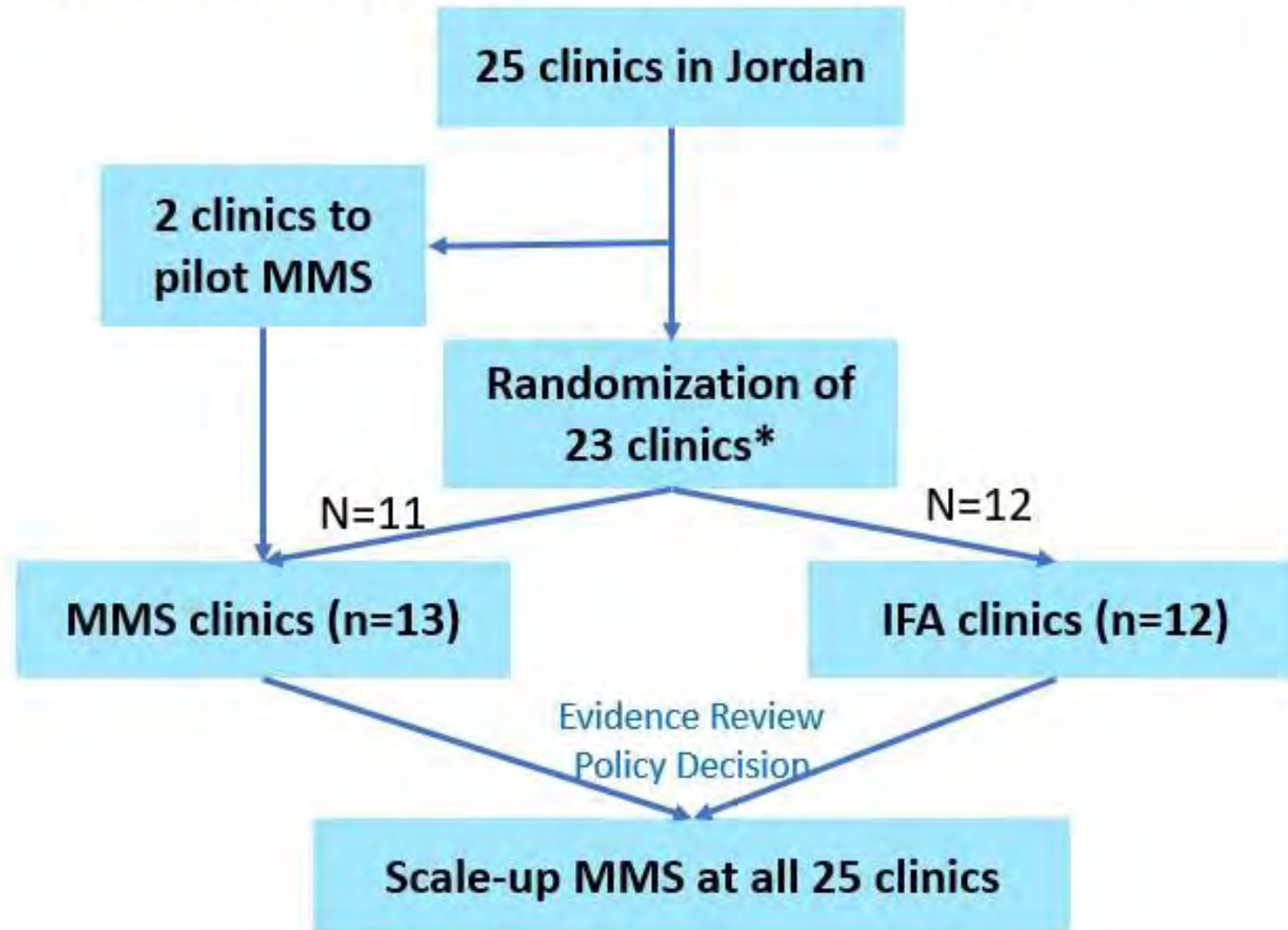
Both FA and IFA : 10-ct blister packs

MMS 180 tablets per bottle



Component	Amount
Vitamin A	800 μ m
Vitamin D	200 IU
Vitamin E	10 mg
Niacin	18 mg
Folic acid	400 μ m
Vitamin B1	1.4 mg
Vitamin B2	1.4 mg
Vitamin B6	1.9 mg
Vitamin B12	2.6 μ m
Vitamin C	70 mg
Zinc	15 mg
Iron	30 mg
Selenium	65 μ m
Copper	2 mg
Iodine	150 μ m

UNWRA Systems Trial in Jordan: March-December 2023



* Two clinics switched assignment on pragmatic grounds

Initial Coverage of Antenatal Supplements by MMS vs FA/IFA Clinics

Among Women Hb ≥ 10 g/dL, by Trimester of Registration

March to December 2023

Prescriptive Practice	1 st Trimester		2 nd Trimester	
	n	%	n	%
MMS Clinics (N=9754)				
No MMS prescribed	267	4.0	136	4.8
MMS only	6270	94.8	2634	93.2
MMS + Folic acid or IFA	80	1.2	56	2.0
FA/IFA Clinics (N=5574)				
No IFA prescribed	309	7.8	149	10.1
Folic acid only	3144	79.1	52	3.5
IFA daily or 2-3 weekly	521	13.1	1267	86.3

Key Findings: **93-95%** of MMS women received MMS daily exclusively as per SOP

70-86% of IFA women received FA or IFA regimen as per Technical Instruction

8-27% of IFA women did not receive IFA at registration

Key Findings from Implementation Trial in Jordan

- Coverage was improved with MMS
- Acceptability among clinicians and pregnant women was higher with MMS
- MMS recipients reported feeling healthier and improved appetite
- MMS reduced constipation by 50%
- Adherence to supplements improved with MMS than IFA
- Mid-pregnancy Hb distribution was higher in MMS than IFA clinics
- Cost-savings to both pregnant women and health system

Scaling-up MMS within UNRWA Health System

Jordan Field

- MMS Training in July 2024
- All 25 clinics deliver MMS as of Sept. 2024
- Sustainability of MMS program

Syria Field

- All 22 clinics delivery MMS as of Dec 2025

Lebanon Field

- MMS being delivered as an emergency response
- Staff training and monitoring tools implemented

Gaza & West Bank

- Plans underway in 2026-27



Scaling-up MMS: New Opportunity & Challenge

Assess MMS Sustainability

- **Sustainability** = Reliably monitoring and achieving an adequate MMS coverage (i.e, high fidelity) within usual resources of the ANC system
- **Fidelity** = Ability of a program to reach expected performance per policy
 - Examples of operational benchmarks:
 - >90% coverage of all registered pregnant women with a 180-ct MMS bottle
 - $\geq 50\%$ of 1st trimester registrants receive a 2nd bottle in all clinics



Month/Year: January 2025

[illegible]

UNRWA's eHealth MMS Module

Profile	Outpatient	ACB	Child	Maternal	Specialists	History
---------	------------	-----	-------	----------	-------------	---------

Maternal

Obstetric History	PCC	PCC-FU	AnteNatal	AnteNatal_FU	PostNatal
Family Planning	Family Planning FU	Admission	Home Visit	Hospital	
Medical History	Medical History(AN & FP)	Referral	Ultrasonography		
Lab History	Phone Log				

Para	0	Gravida	1	EDD	12-Jun-2022	+RH	O+ ▼	TT Last Dose	20-Mar-2022
Date Of Registration	20-Mar-2022			LMP	05-Sep-2021	Husband	▼	TT Booster Dose	

Ultrasound Expected Delievery Date(EDD):

TEST STRIPS - COMBUR 3 Results: PH: No Result ▼ PROTEIN: No Result ▼ GLUCOSE: No Result ▼ Save

NITRITE COMBUR 9 FOR PREGNANT WOMEN AT FIRST REGISTRATION Results: SUGAR: No Result ▼ ALBUMIN: No Result ▼ NITRITE: No Result ▼ Save

FOLIC ACID IRON AND FOLIC ACID Value: 30 Tablet ▼

☒ VITAMINS

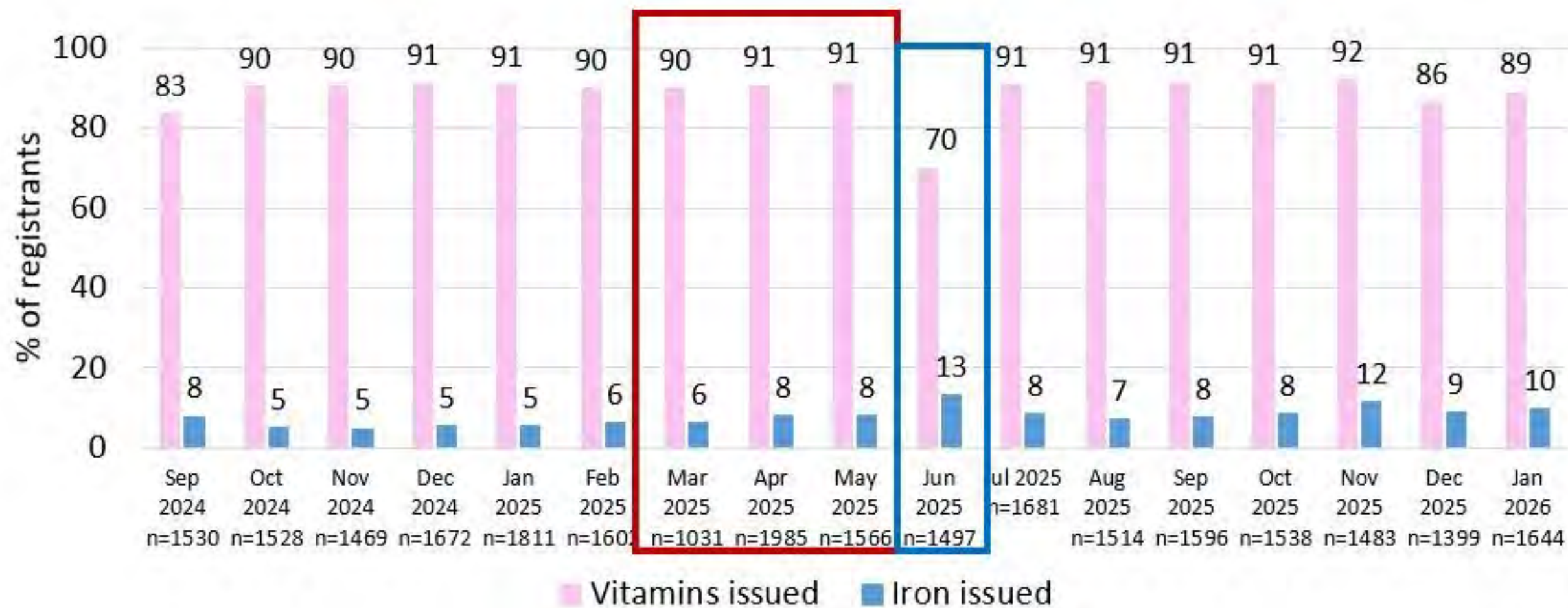
Dosage	Duration	Amount(Days)	Type
1X1	180	180	Tablet

☐ Refer to a doctor

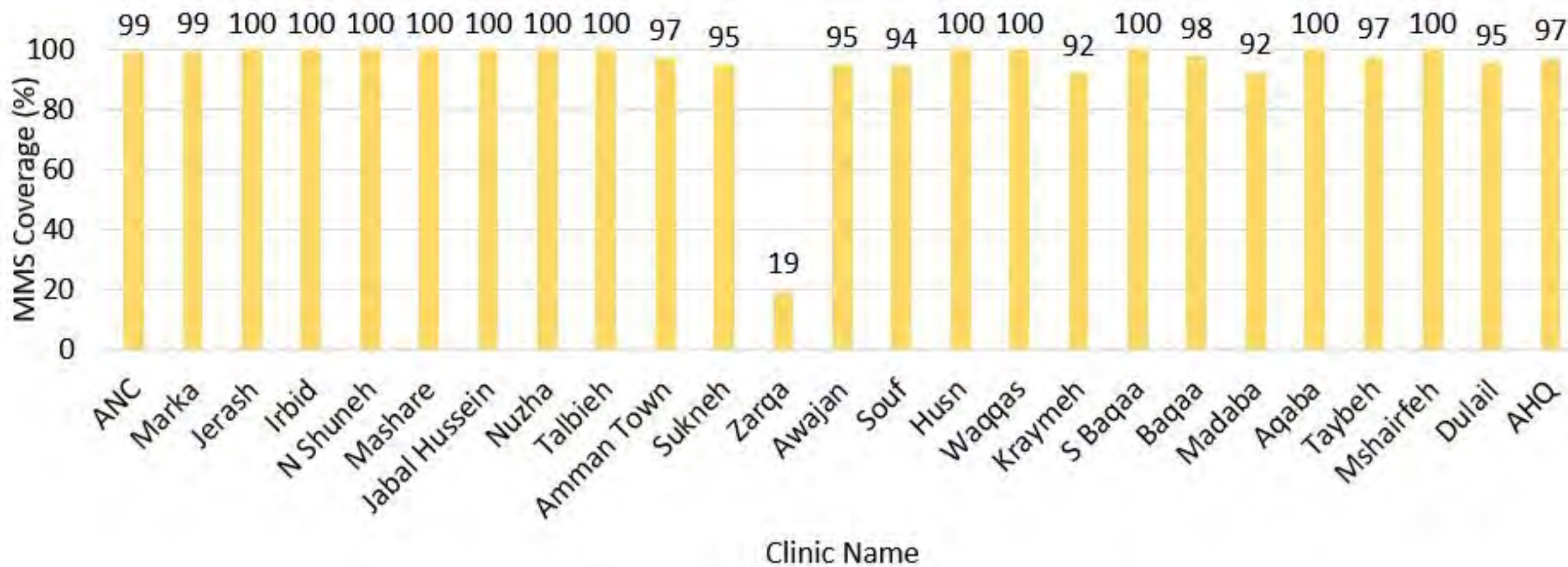
☐ None prescribed

Please Select ▼

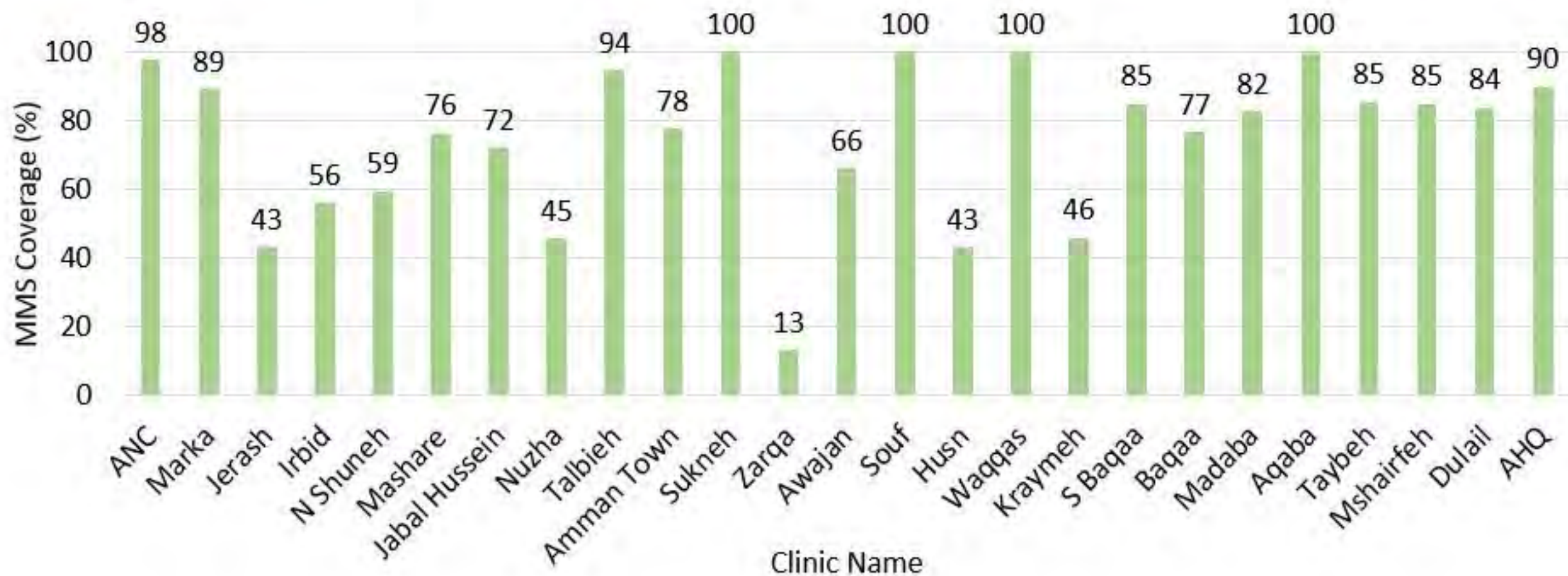
Coverage of MMS and IFA in 25 UNRWA clinics, Jordan during scaled-up MMS program period September 2024 thru January 2026 (N=26,546)



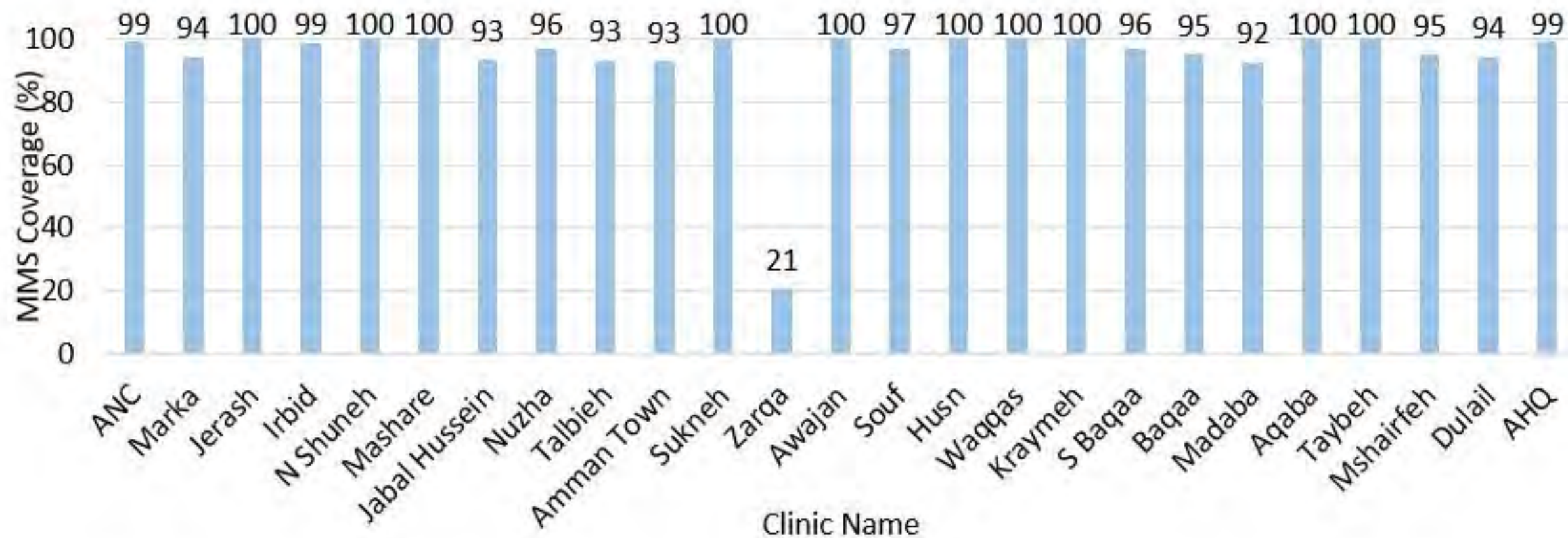
May 2025 Coverage of MMS in 25 clinics in Jordan



June 2025 Coverage of MMS in 25 clinics in Jordan



July 2025 Coverage of MMS in 25 clinics in Jordan



Percentages of 1st, 2nd and 3rd trimester registrants by number of MMS bottles received, 25 UNRWA clinics, Sepr 2024 to July 2025, Jordan (N=17,372)

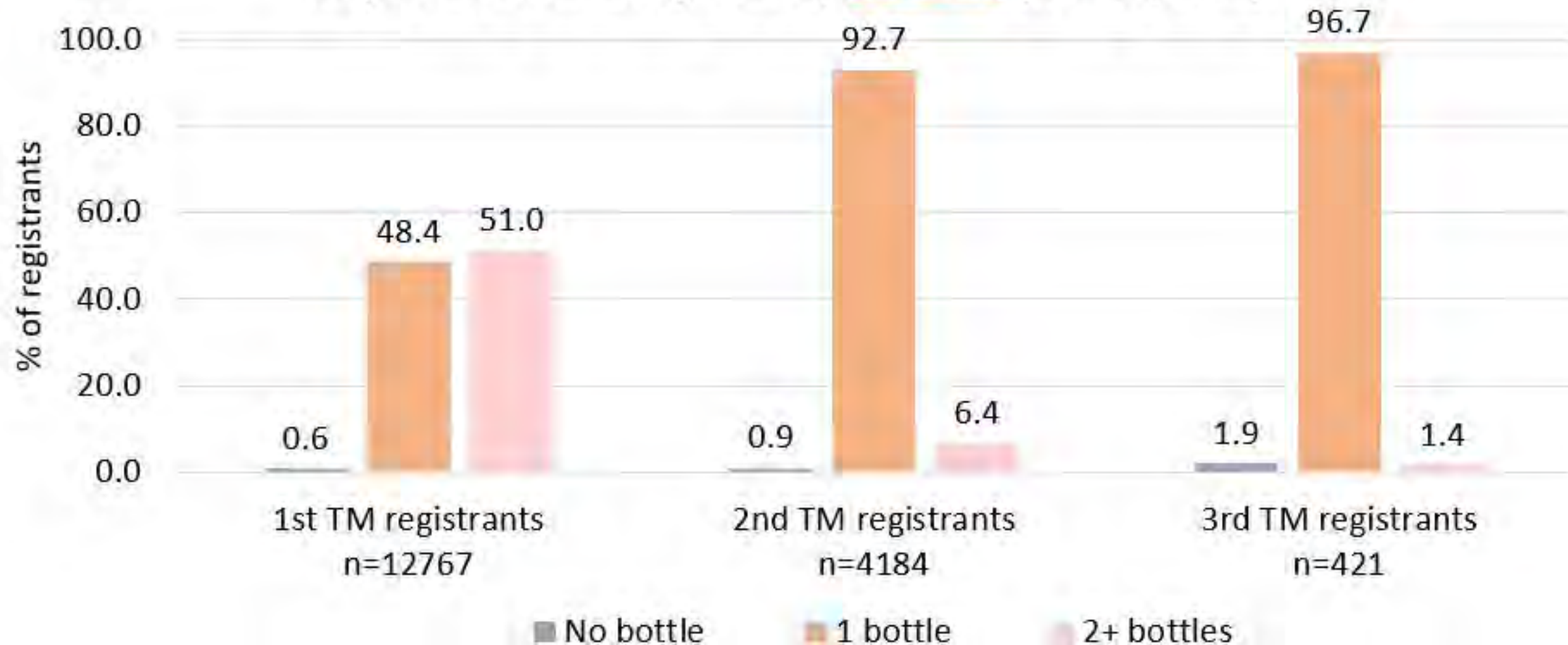


Illustration of Inventory Assessment in Amman New Camp Clinic in 2025

	Amman New Camp Clinic							
2025	No. Bottles Inventory 1st of month	No. Bottles received from Central Pharmacy	No. Bottles received from other clinics	No. Bottles distributed	No. New Registrants	No. Bottles sent to other clinics	No. Bottles discarded	No. Bottles Inventory end of month
January	1060	0	0	244	204	0	0	816
February	816	540	0	246	185	0	0	1110
March	1110	0	0	197	105	0	1	912
April	912	0	0	269	196	0	0	643
May	643	0	90	219	151	410	0	104
June	104	1600	0	175	125	40	0	1489
July	1489	0	0	265	195	0	0	1224
August	1224	0	0	223	158	0	0	1001
September	1001	0	0	220	172	0	0	781
October	781	0	0	222	145	0	0	559
November	559	0	0	195	148	0	0	364
December	364	360	0	221	138	0	1	502

Lessons Learned from Coverage and Supply Monitoring through MMS Surveillance

- Scale up MMS intervention with its surveillance system across 5 fields within the standardized health system
- Antenatal systems strengthening through surveillance
- Emerging programmatic definitions of fidelity and sustainability
 - Sustainability = Reliably monitoring and achieving excellent and adequate MMS coverage (i.e, high fidelity) within usual resources of the ANC system
 - Fidelity = consistently achieving, on average, >90% coverage of all registered pregnant women with a 180-ct MMS bottle, with instructions on use, of whom $\geq 50\%$ receive a 2nd bottle in all clinics
- Relevance beyond UNRWA to Ministries of Health
- Work in progress in sustainability assessment through MMS surveillance system

Supply Chain

Monitoring MMS Supply Across Transition & Scale-up: Country perspective

Otte Santika
Vitamin Angels

Hera Yusuf
Ministry of Health, Indonesia



Monitoring Supply Logistics Across Antenatal MMS Transition & Scale-up Country Perspective



Ministry of Health of the Republic of Indonesia





Antenatal MMS Scale-up in Indonesia

Progress

Launch of the National MMS Program

Bandung, 17 Oktober 2024



Status of National Scale-up

2.5 Million

Pregnant women received MMS

208 Districts/Cities

49,080

Health workers participated in MMS technical guideline training

153

Health workers participated in training on MMS IPC and MMS technical guideline

25

Health workers received orientation about the updated MCH Book

20

Health workers received orientation about pregnancy class

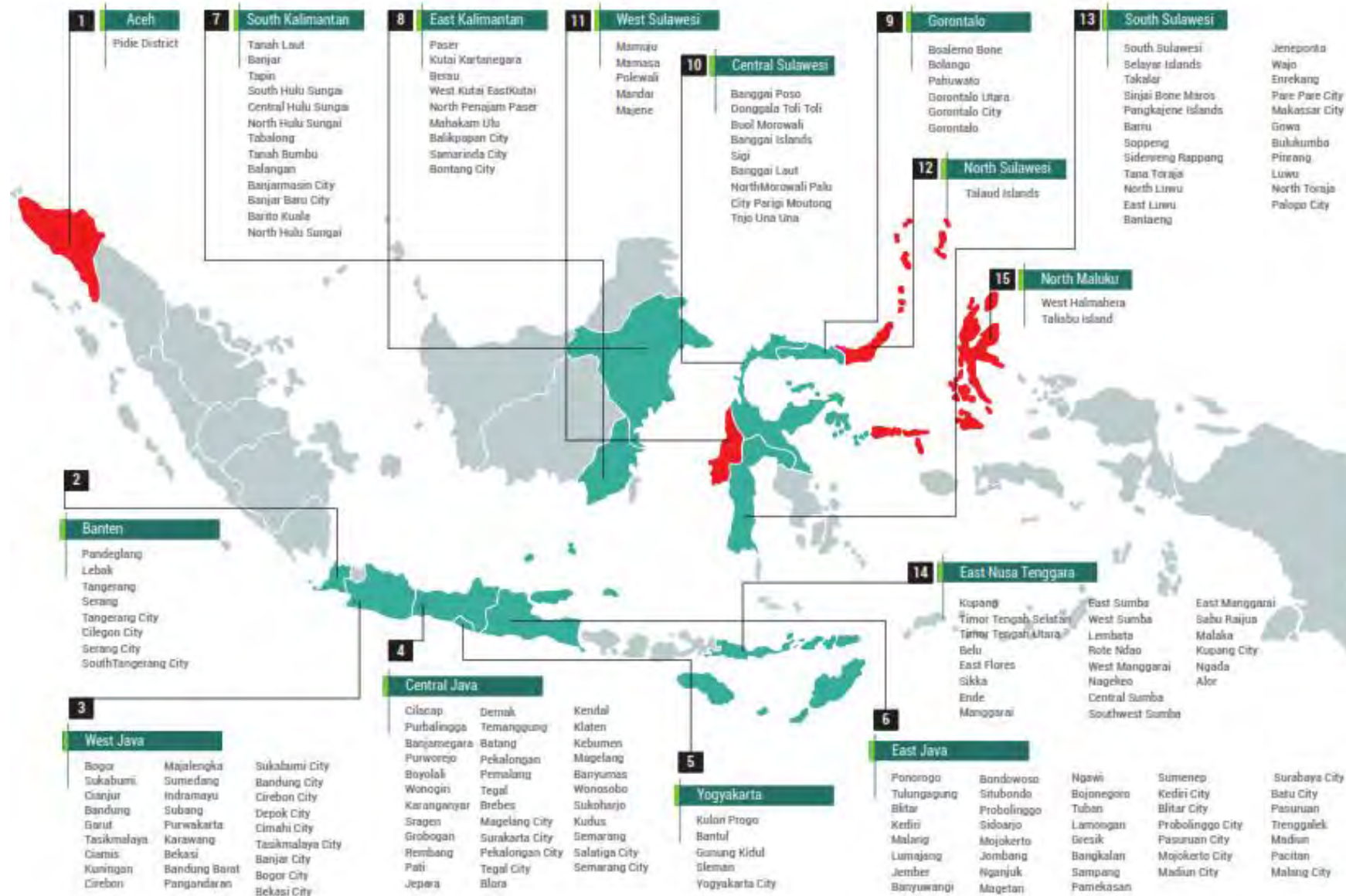
120

Health facilities received counseling tools and MMS technical guideline

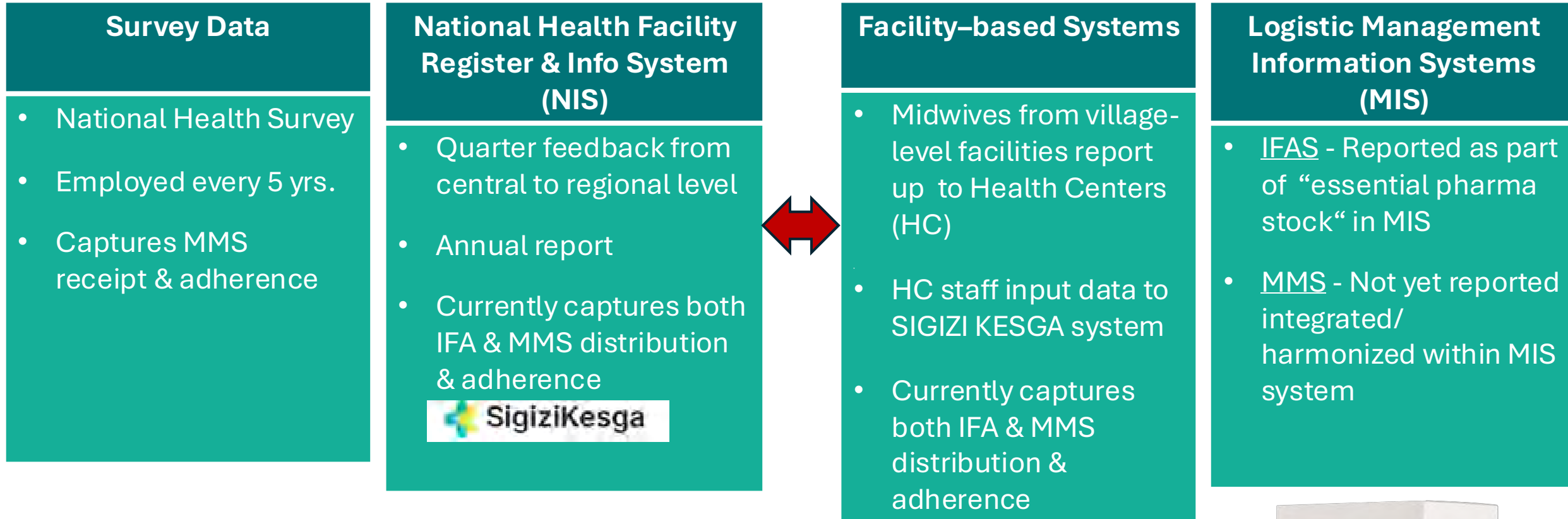


● Partial Coverage of MMS

● Complete Coverage of MMS

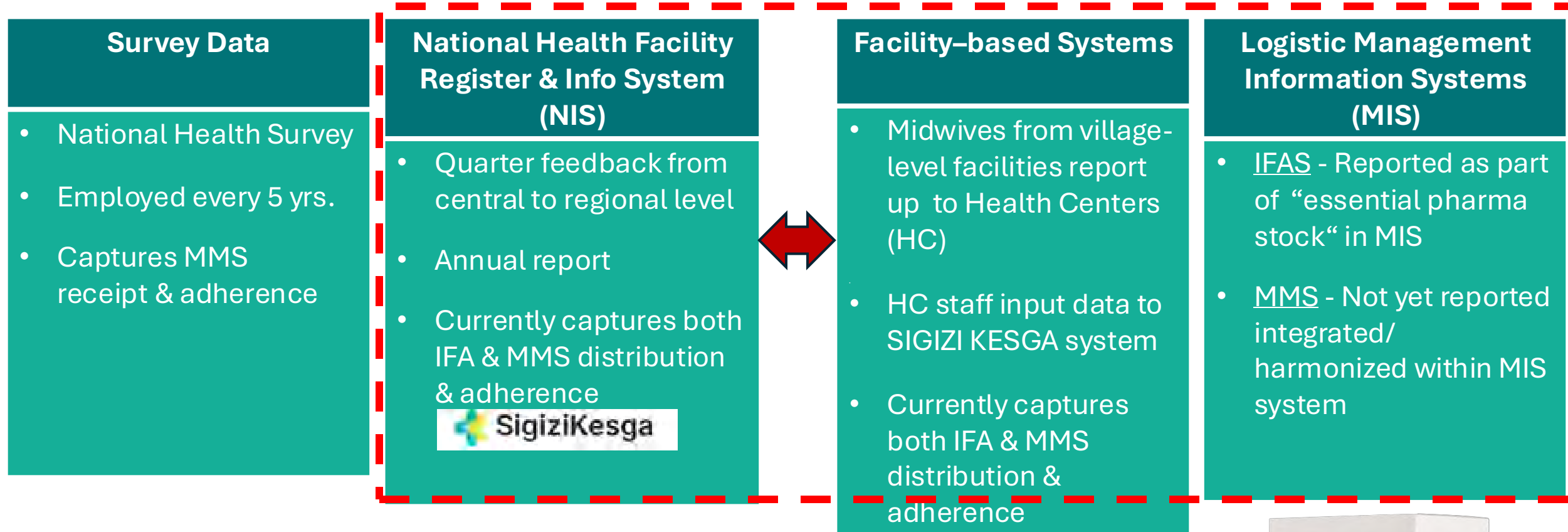


National Monitoring System in Indonesia



NIS is the primary source for IFA and MMS monitoring; collects data on pregnant women during ANC visits

National Monitoring System in Indonesia



NIS is the primary source for IFA and MMS monitoring; collects data on pregnant women during ANC visits

MENU LIST

 Application List ENTRY  Toddler  SHK  Pregnant mother List of Pregnant
WomenPregnant
Women's List
Delete (Recycle
Bin)Add Pregnant
WomenSearch for
pregnant women
by NIK Postpartum Mother  Breastfeeding Last TT Immunization History * No TT screening was performed 

Body Weight (kg)* 50

Height (cm) 136

Number of signatures given in this
examination (items)* 0Number of MMS given in this
examination (items)* 0Blood pressure * Select TD TFU Select TFU Fetal Presentation No Fetal Examination Performed Fetal Heart Rate * Not checked DJJ Ultrasound examination Not checked 

Blood type



MENU LIST

- Application List
- Target
- Toddler Indicator KIA
- Toddler Indicators Nutrition
- Indikator Rematri
- Pregnancy Indicators
- 2025 Indicators
 - Toddler Indicator - KIA
 - Toddler Indicators - Nutrition
 - Indikator Rematri
 - Pregnancy Indicators
 - Monthly report
 - Annual report
 - Entry List
 - PKM equipment
 - KAB Completeness
 - POSY equipment

Quarterly

4

Input By

Village

Search Data

Export Excel

Province	Number of target pregnant women	Percentage of pregnant women receiving and consuming nutritional supplements					Percentage of pregnant women with chronic energy deficiency			Percentage of pregnant women with KEK who receive and consume additional food							
		The number of pregnant women who received at least 180 MMS tablets until this month	The number of pregnant women who received at least 180 TTD tablets until this month	%	The number of pregnant women consuming at least 180 MMS tablets until this month	The number of pregnant women consuming at least 180 TTD tablets until this month	%	Number of pregnant women measured by LILA and/or BMI until this month	Number of pregnant women at risk of KEK/KEK until this month	%	Number of pregnant women in KEK receiving supplementary food until this month	%	Number of pregnant women with KEK consuming additional food until this month	%	Number of mothers giving birth this month	Number of pregnant women this month	Pregnant Women K1 Examination Access
[12]	[13]	[14]	[15]	[16]	[17]	[18]	[19]	[20]	[21]	[22]	[23]	[24]	[25]	[26]	[27]	[28]	[29]

Integration of antenatal supplements (IFAS and MMS) into MIS

Quarterly IFAS supply monitoring conducted by Directorate General of Pharmaceuticals using *Satu Sehat logistic e-application*

- Reports on 40 essential medicines delivered at Community Health Centers

IFA reported as 'Nutrition Medicines for Pregnant and Adolescent Women'

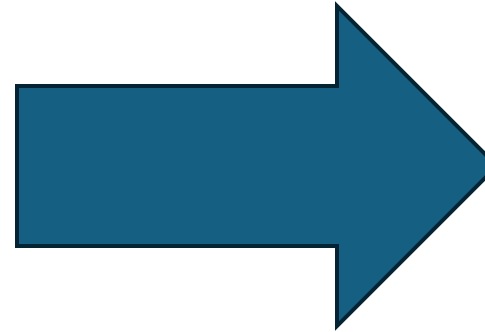
Current, as MMS is still sourced through donors...

- Not yet reported in the *Satu Sehat logistic e-application*
- MMS supply monitoring still directly under Directorate of Family Health Services

Current MMS Supply Monitoring



MMS Supply
MoH Central Warehouse



MMS Supply
Facility-level (Health Center)
Warehouse

Original MMS Transition Scenario (Year 2024)

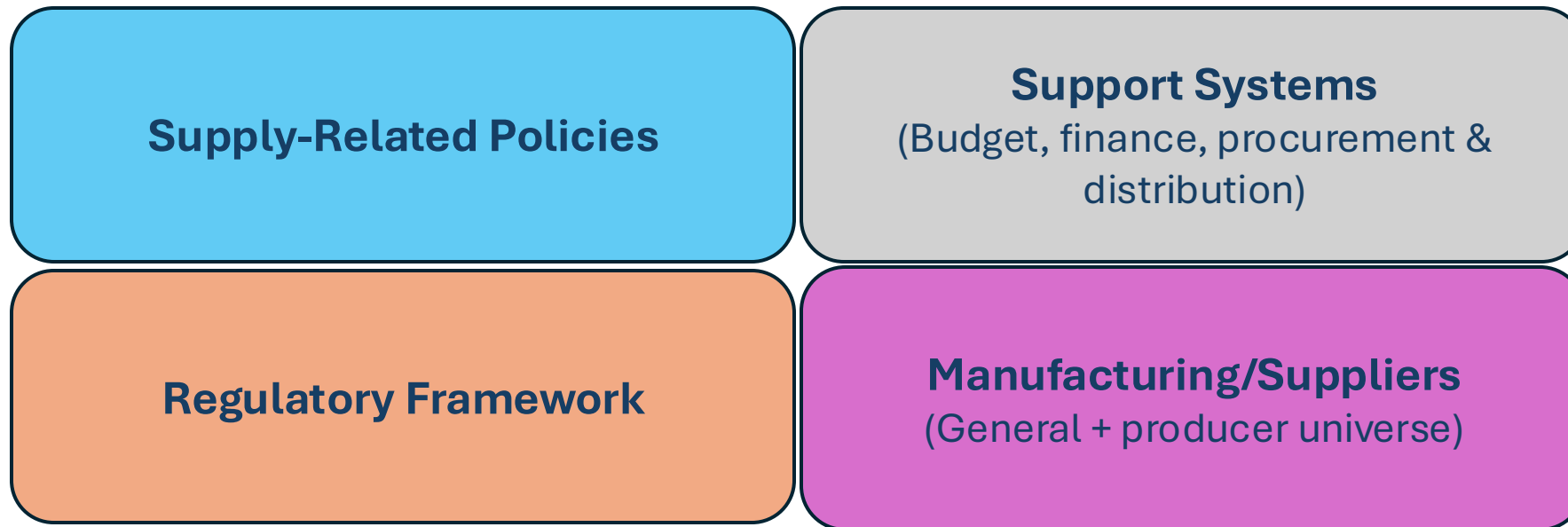
Year	MMS Need	Donated MMS	IFAS procured by Government	MMS procured by Government
2024	1,300,000	1,300,000	3,825,059	NA
2025	5,125,059	1,300,000	3,825,059	NA
2026	5,093,041	1,300,000	-	3,793,041
2027	5,061,223	-	-	5,061,223
2028	5,029,601	-	-	5,029,601
2029	5,037,176	-	-	5,037,176

Assumption:

- MMS can be registered and produced locally and made available in the Government's e-procurement system, while at the same time government budget is available.

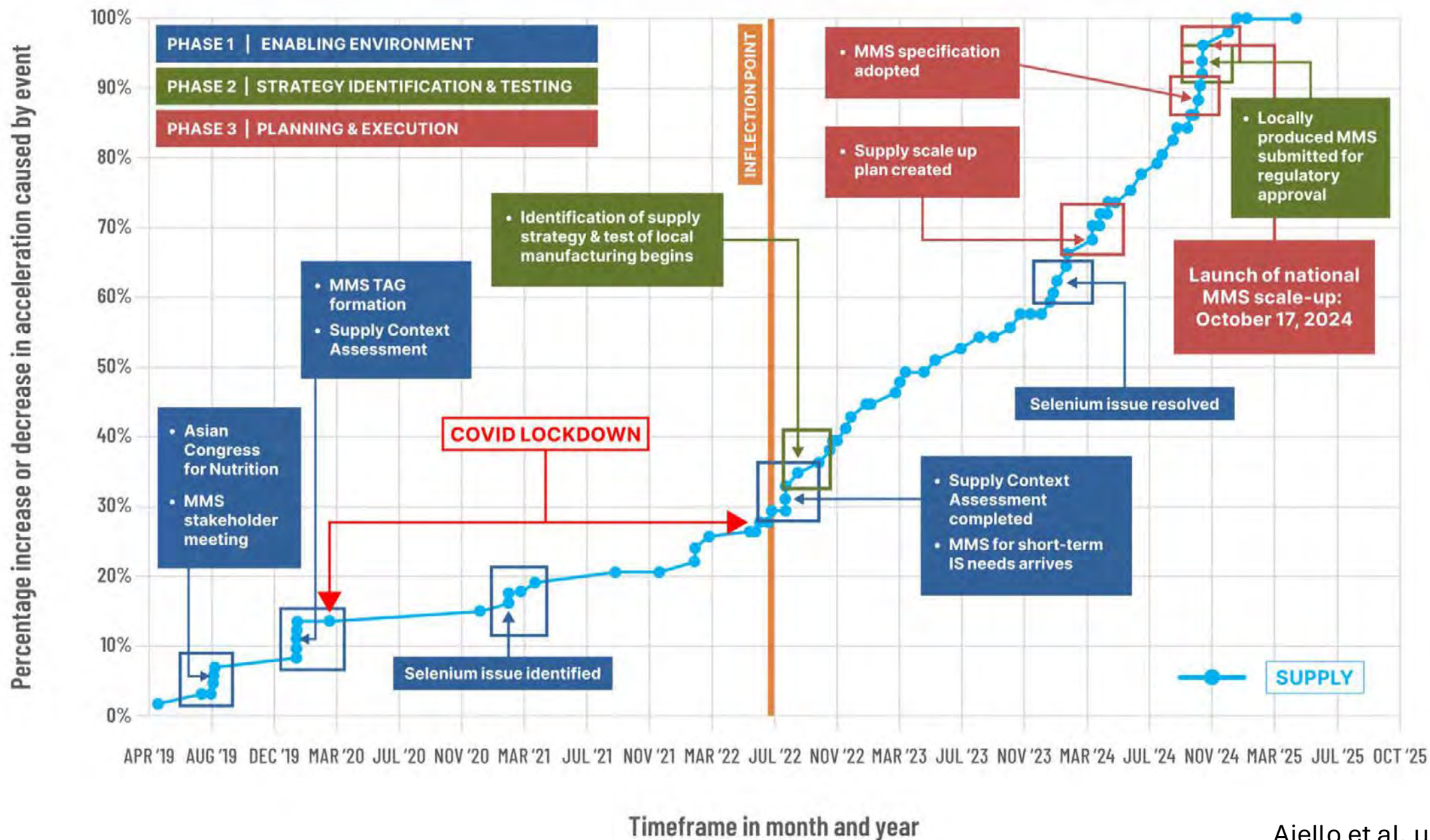
Using a Supply Context Assessment (SCA) to fully identify and facilitate resolution of supply issues

Supply Context Assessment (SCA) Tool: 4 modules

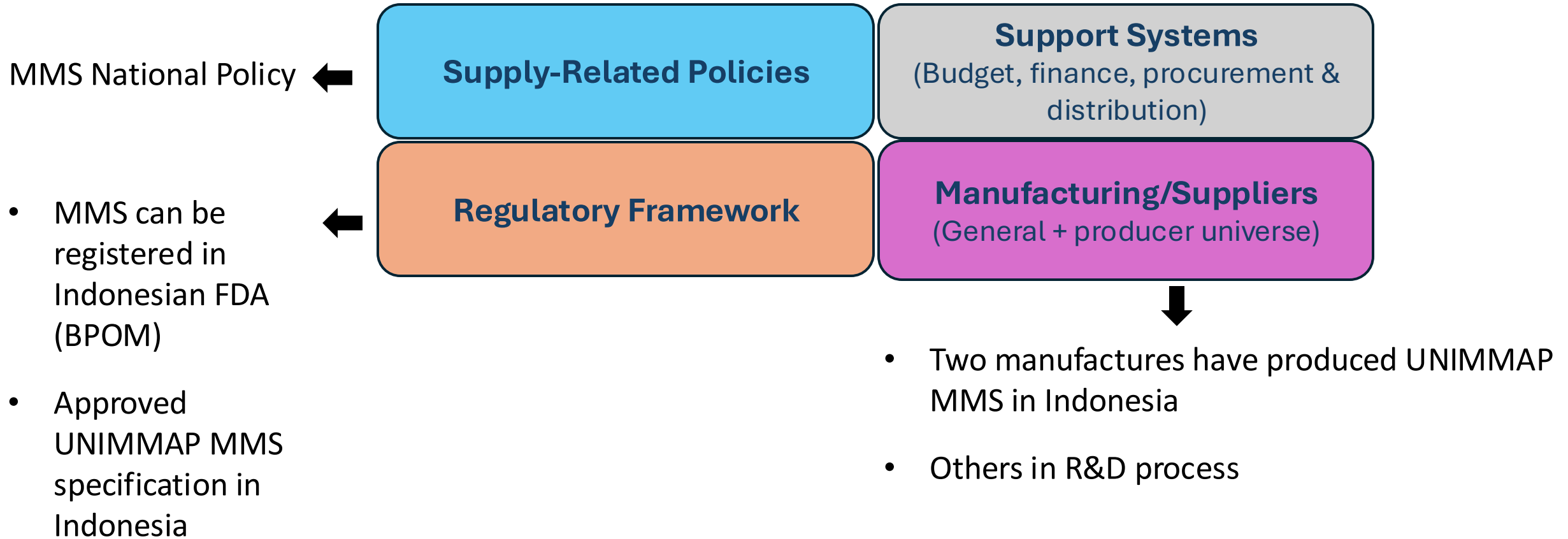


Ajello et al. under
reviewed

Cumulative enablement track for all key IS Phase 1-3 events

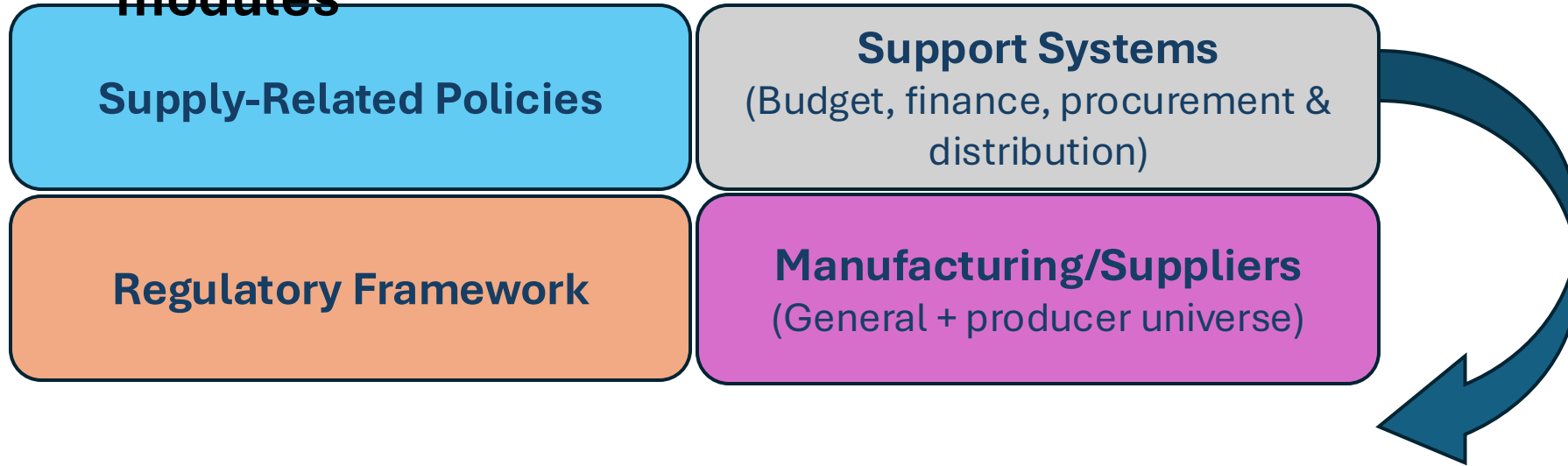


Supply Context Assessment (SCA) Tool: 4 modules



Ajello et al. 2026. Publication under reviewed

Supply Context Assessment (SCA) Tool: 4 modules



On-going steps:

- Improve ANC monitoring (during MMS transition), as well as needs assessments and forecasting
- Integrate MMS into the Ministry of Health's budgeting (including DOH), procurement, and distribution systems to support long-term sustainability.
- Ensure MMS is included in the national e-procurement system.

Updated MMS Transition Scenario (2026)

Year	MMS Need	Donated MMS	MMS procured by Government	IFAS procured by Government
2024	1,300,000	1,300,000*	NA	NA
2025	4,833,700	1,300,000*	NA	3,533,700
2026	4,930,385	1,870,000**	229,624	2,830,761
2027	4,901,348	700,000***	4,201,348	NA
2028	4,865,553	?	4,865,553	NA
2029	4,827,435	-	4,827,435	NA

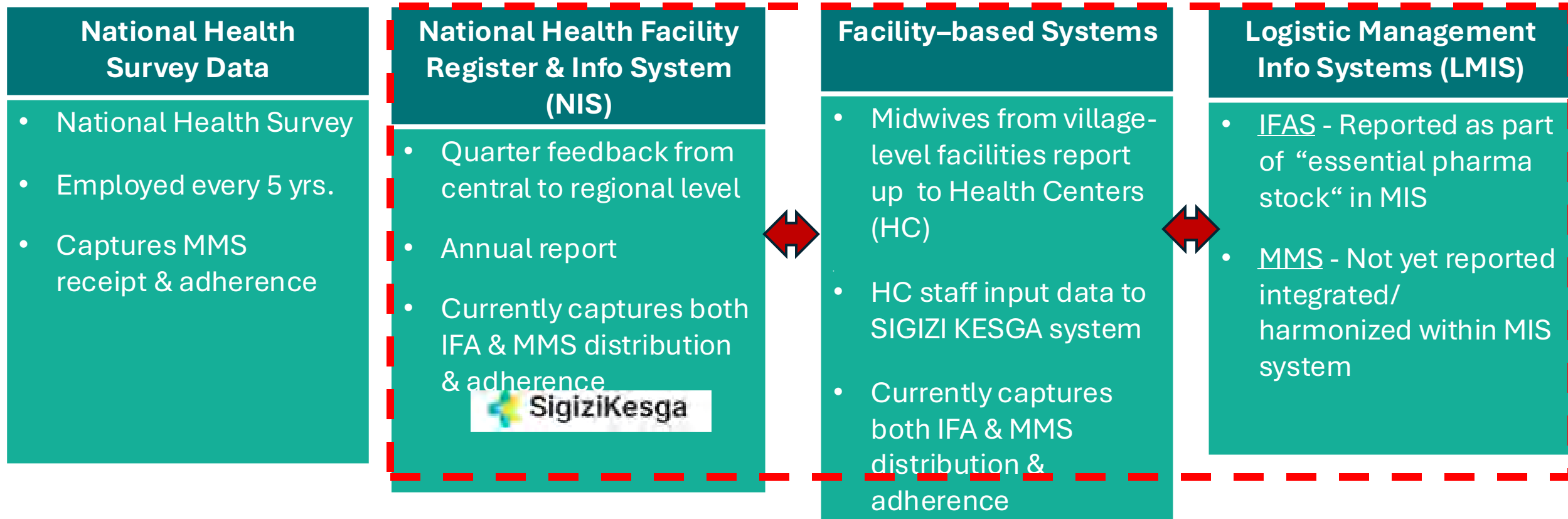
* Kirk Humanitarian

** Kirk Humanitarian and Danantara (Indonesia's second and largest sovereign wealth fund)

*** Vitamin Angels, not yet including other donors (e.g., Child Nutrition Fund, others)

Ongoing efforts & support needed from national and global partners

- **Add MMS** supply monitoring into Satu Sehat Logistic e-application → **LMIS**
- **Harmonize LMIS** with efforts to update/strengthen National Health Facility Register & Info System (NIS)



Terima Kasih



Supply Chain - Discussion

Monitoring Supply & Logistics During and After the Transition: Potential linkages to HMIS data

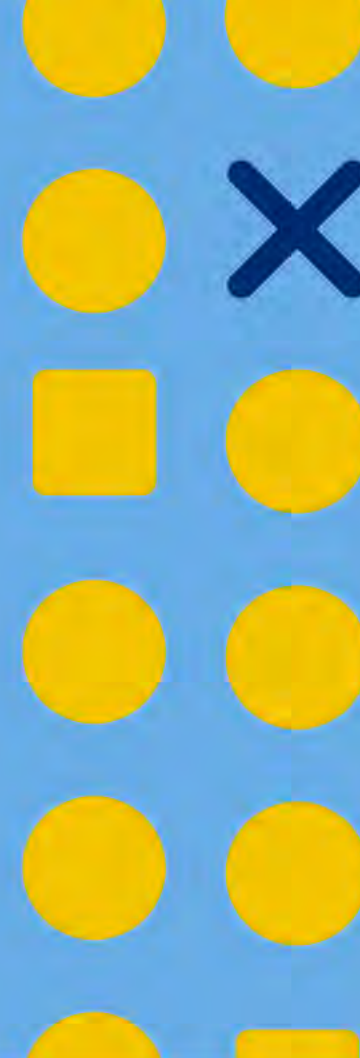
Sunny Kim
IFPRI

Melinda Munos
JHU

Implementation – Coverage, Quality, Adherence

Topic Introduction

Melinda Munos
JHU

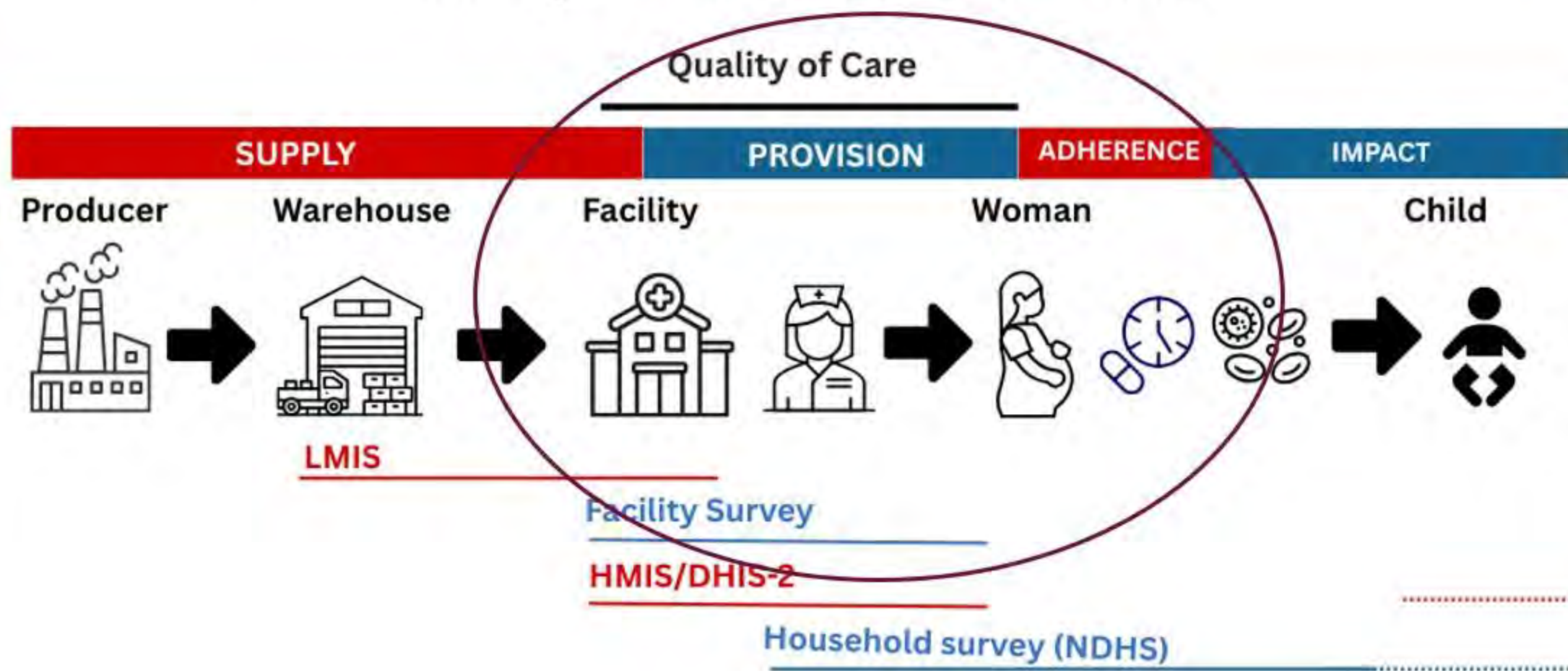


Session 3a Framing: MMS Measurement Issues - Coverage, Quality & Adherence

Melinda Munos, PhD



As MMS is rolled out, decision-makers need information on MMS provision and adherence



PROVISION

ADHERENCE

Facility

Woman



Provision of MMS

Supplement-taking behaviors

Quality of service provision

- Did women receive MMS?
- How much MMS did they receive?
- Which MMS did they receive?
- Did they receive counseling?
- What was the quality of counseling?

- When in pregnancy did women start taking MMS (initiation)?
- How much MMS did women take in pregnancy (adherence)?

How do we decide what data to collect from which source?



Frequency/Timing – Are data available when they are needed to make decisions?



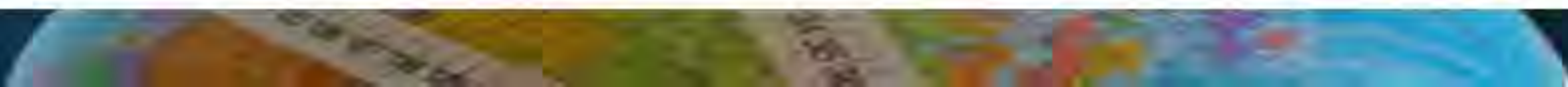
Cost/burden – Is the cost of the data collection (time/resources) “worth it”?



Constructs – Which constructs can be measured (coverage, quality, adherence)?



Accuracy/Utility – Is the data accurate enough to be useful?



How do we decide what data to collect from which source?



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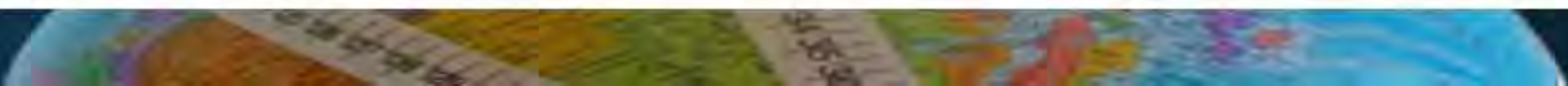


Accuracy/Utility – Is the data accurate enough to be useful?

Introduction of MMS is an opportunity to address issues around IFA measurement
This is the focus of the next set of presentations

Session 3a: MMS Measurement - Coverage, Quality and Adherence

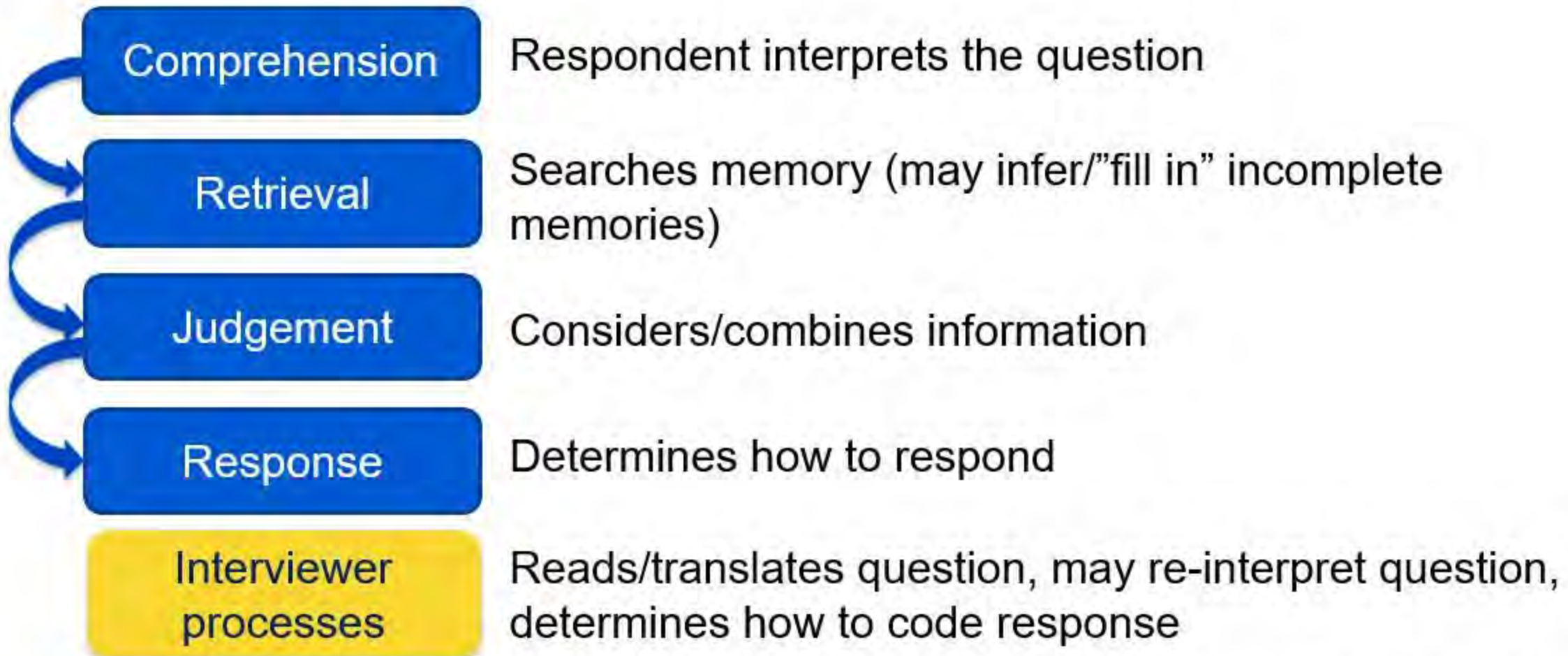
2:55 PM	Measuring MMS coverage & pill adherence: Evidence from research • <i>What makes for effective questions on adherence? CROWN Ethiopia</i> • <i>Validating MMS Adherence Measurement in Ethiopia Demo Program</i> • <i>DataDENT Formative Research in Ethiopia & Bangladesh</i> • <i>Nepal Validation of Survey Questions on Adherence - HKI/ECF</i> • <i>UNRWA Jordan Coverage & Adherence Validation</i>	D. Stephens (JHU) E. Keats (JHU) - remote S. Walton (JHU-DataDENT) S. Poudel (HKI) M. Horino (UNRWA/JHU)
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Assessing accuracy: Indicator validation studies



Cognitive interviewing uses qualitative methods to understand how people comprehend and respond to survey questions



Criterion validation studies quantify the type and degree of mis-reporting in survey responses

Gold standard

Observe or collect data on MMS provision/adherence

- Observed or documented provision
- Pill counts
- Bottle weights

Ask women about MMS provision and adherence

- Standard questions and reference periods
- Additional or modified questions and reference periods

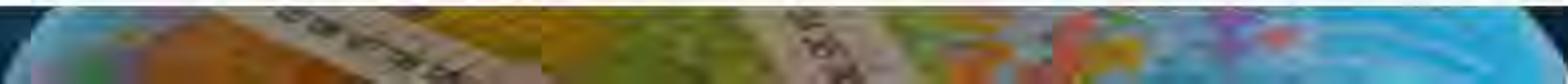
Compare observed to recalled provision and adherence

Cognitive interviewing and criterion validation are complementary

Cognitive interviewing studies develop and refine a set of possible survey questions



Criterion validation studies quantitatively test and compare survey questions



Quantitative validation analysis

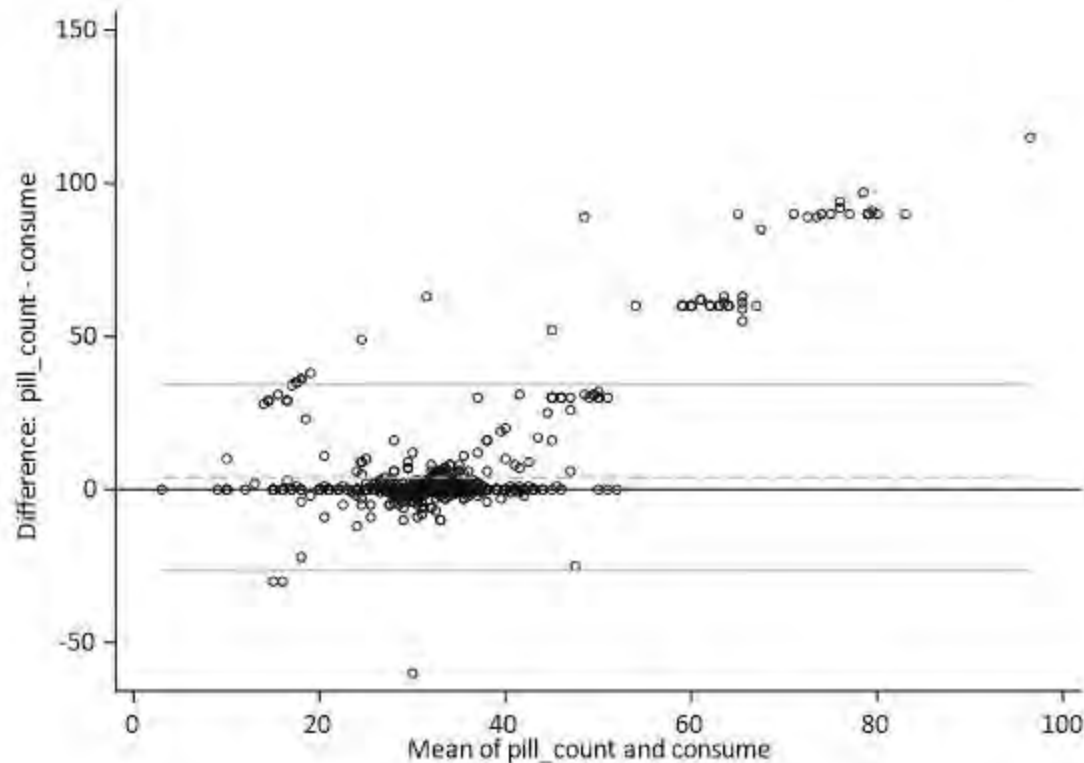
Two main approaches:

Continuous data: Bland Altman plots

Dichotomous data: Sensitivity, specificity, AUC (individual accuracy) and population accuracy



Continuous data (e.g., number of supplements consumed): Bland-Altman Plots



- Visualize the difference between paired measures vs. the average of the two measures
- Estimate mean difference
- Detect outliers, identify possible biases

Dichotomous data (e.g., adherent/non-adherent): Sensitivity, Specificity, and Area Under the Receiver Operating Curve (AUC)

Compare a woman's **classification (adherent/non-adherent)** based on **recall** to her "true" classification based on **pill count/bottle weight**

		Adherence based on pill count	
		+	-
Adherence based on recall	+	a (true positives)	b (false positives)
	-	c (false negatives)	d (true negatives)

KEY ASSUMPTION: The "gold standard" measure accurately classifies individuals

Sensitivity and Specificity

Sensitivity: proportion of individuals who truly received an intervention who were correctly classified as having received the intervention based on survey questions.

$$Sn = a / (a + c)$$

Low sensitivity → Under-reporting

Specificity: proportion of individuals who truly did not receive an intervention who were correctly classified as not having received the intervention based on survey questions

$$Sp = d / (b + d)$$

Low specificity → Over-reporting

Adherence based on pill count

+

-

Adherence
based on recall

+

-

a (true positives)

b (false positives)

c (false negatives)

d (true negatives)

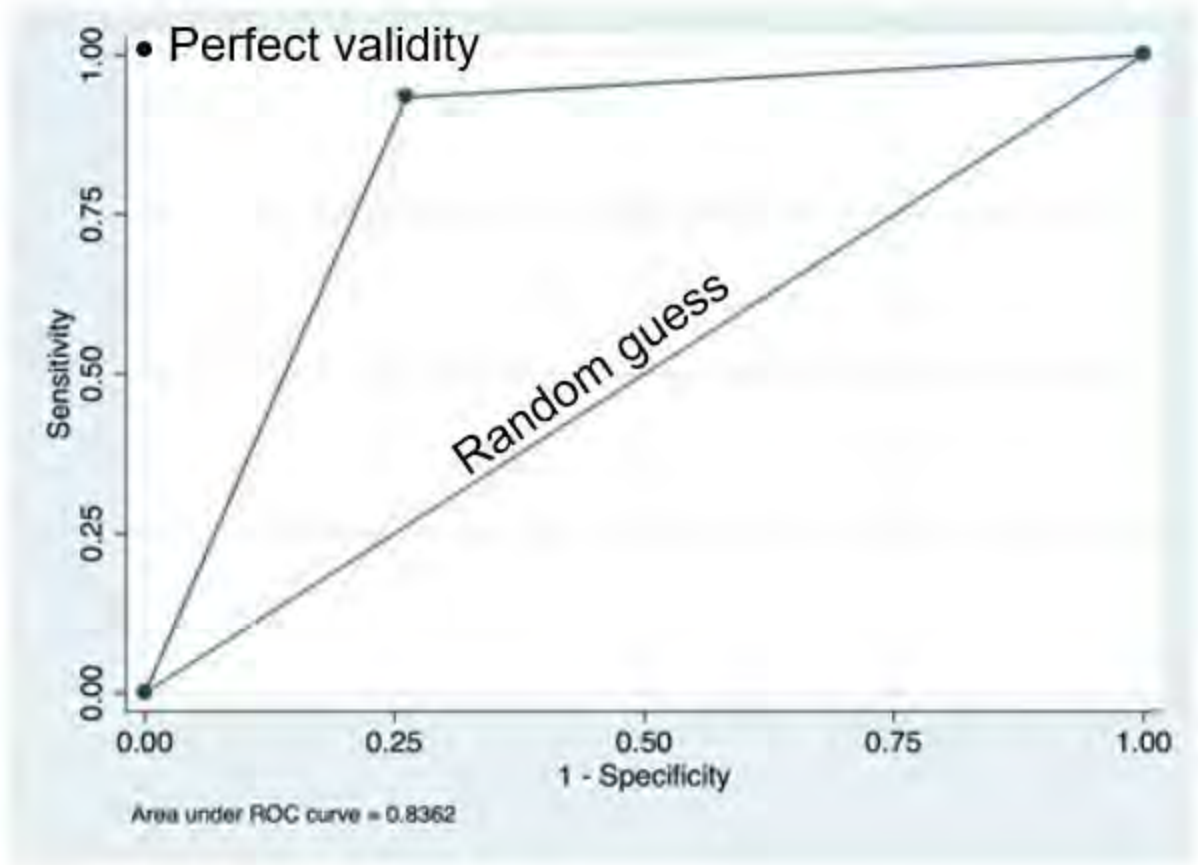
Area under the Receiver Operating Curve (AUC)

The probability that a test will correctly classify a randomly selected positive observation and a randomly selected negative observation

Calculated as the area under the curve of sensitivity plotted against (1 - specificity)

Range is [0,1], where 1 is perfect and 0.5 is equivalent to a random guess

For a single pair of sensitivity/specificity values, the AUC will be the mean of S_n and S_p



When is recall validity good enough?



All measures have some error



How do we decide what level of recall error is acceptable?

Consider the intended use of the data, and the alternatives

Would the error change the decisions you would make based on the data?

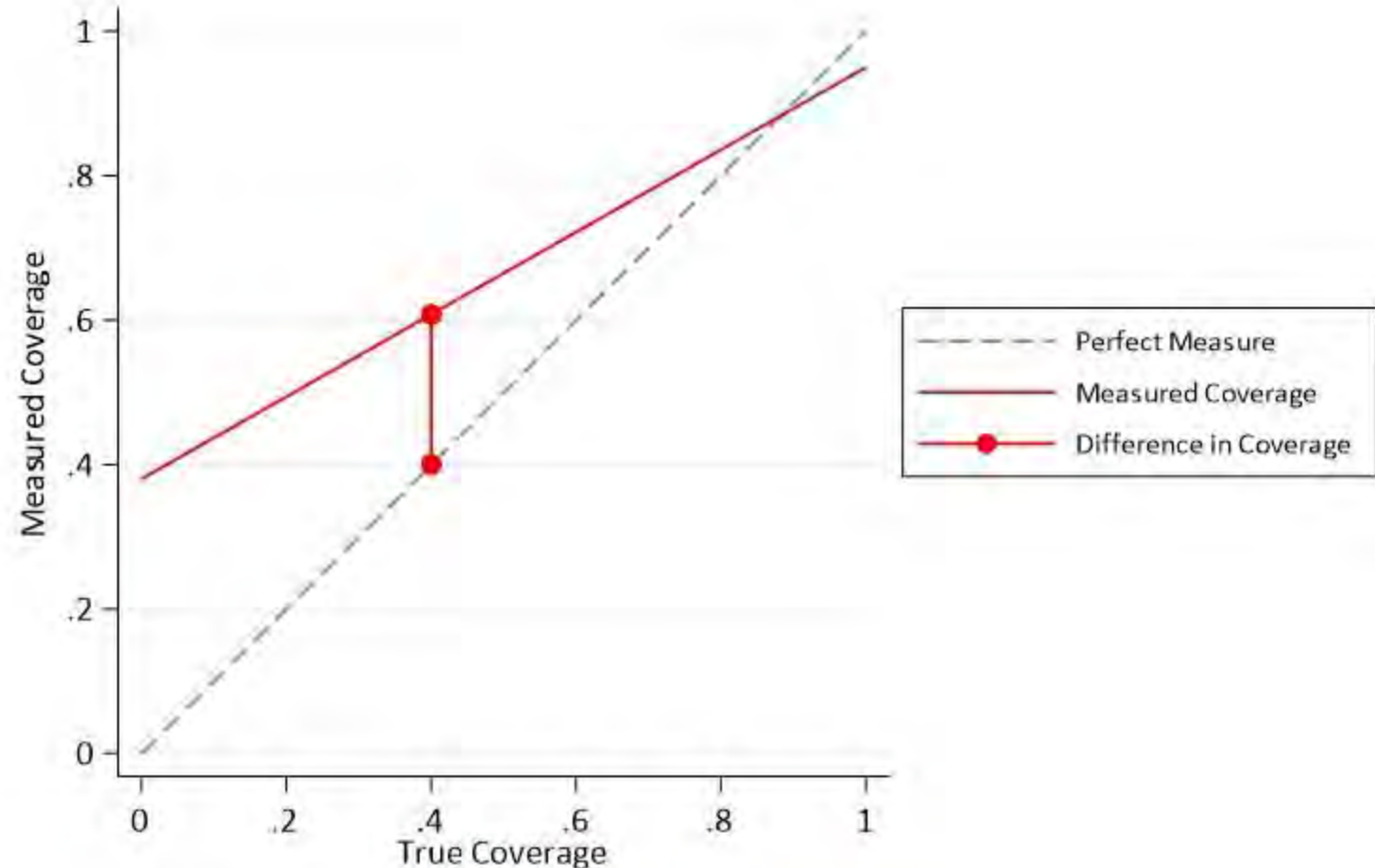
Are there ways to improve recall?



When is recall validity good enough?

- $Sn=95\%$ and $Sp=62\%$ for recalled adherence over entire pregnancy
- If 40% of women truly adherent to MMS
- Measured adherence would be 60% when surveying recently-delivered women
- 20 percentage point over-estimate

Thought experiment: How would an adherence estimate of 40% vs. 60% change your decision-making?
Is this an acceptable level of error?



Session 3a: MMS Measurement - Coverage, Quality and Adherence

2:55 PM	Measuring MMS coverage & pill adherence: Evidence from research • <i>What makes for effective questions on adherence? CROWN Ethiopia</i> • <i>Validating MMS Adherence Measurement in Ethiopia Demo Program</i> • <i>DataDENT Formative Research in Ethiopia & Bangladesh</i> • <i>Nepal Validation of Survey Questions on Adherence - HKI/ECF</i> • <i>UNRWA Jordan Coverage & Adherence Validation</i>	D. Stephens (JHU) E. Keats (JHU) - remote S. Walton (JHU-DataDENT) S. Poudel (HKI) M. Horino (UNRWA/JHU)
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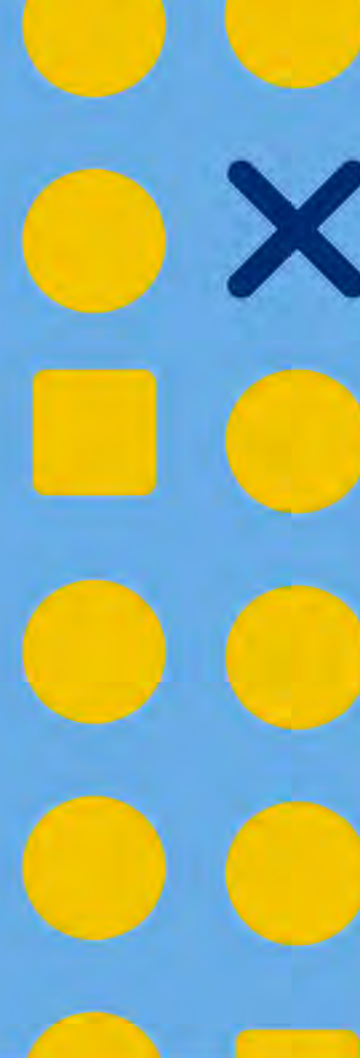
- How do women understand and respond to questions about MMS receipt and adherence?
- How accurately can women report on MMS receipt and adherence?
- How do question wording and recall period influence accuracy?
- How should we collect data on MMS receipt and adherence?



Implementation – Coverage, Quality, Adherence

Measuring Coverage and Adherence: Evidence from research

Daryl Stephens (JHU), Emily Keats (JHU), Masako Horino (JHU), Sasmita Poudel (Helen Keller International), Shelley Walton (JHU)



What makes for effective questions on adherence?

How question frames on frequency, uptake, and duration are understood by pregnant women in Ethiopia

Daryl Stephens and Rajiv Rimal

CROWN Project, Johns Hopkins University

21 April 2026



MMS Adherence Qualitative Study (MAQS)

- Study rationale: Identify early insights into experiences of pregnant women and healthcare workers when a new health product, multiple micronutrient supplements (MMS), is being introduced into the system
- Methods: 12 IDIs and 2 FGDs with pregnant and lactating women



Core Problems with MMS Recall

- Self-reported adherence depends on recall + interpretation
- Women do not typically track pills numerically
- Responses are often:
 - Estimated
 - Derived (e.g., multiplication, addition/subtraction)
 - Based on routine, not counts
- *“I do not know the exact total; it's just multiplication.”*

Recall-Related Questions from MAQS

- Which one of these is easiest for you to remember: last week, last month, entire pregnancy?
- When you think about how many pills you have taken, is it easier for you to remember how many days you have taken, or how many days you have not taken?
- When we ask this question to others, some people say that it is easier for them to think about how many pills they did not take -- that is, how many times they missed taking the pill. Other people find it easier to remember how many times they actually took the pill.
 - What about for you? Do you find it easier to remember how many pills you took or how many times you did not take the pill?

Question 1: Timeframe

- Short recall windows are consistently easier
 - **Last week:** most reliable
 - Last month: sometimes feasible
 - Since start / entire pregnancy: difficult

“Last week is easier... it is hard to forget.”

“Since I started... it is difficult for me to tell you.”

Question 2: “Taken” vs. “Missed” Pills

- No single dominant recall strategy
- Most participants:
 - Prefer recalling days taken
 - *“It’s easier to remember how many days I have taken.”*
- However, some:
 - Prefer recalling missed days
 - *“If I missed two or three days... it is simple to recall.”*
 - Cannot reliably recall either
 - *“I don’t remember the day I took or the day I didn’t take it.”*

Question 3: Facilitation of Recall

- Women reconstruct adherence in different ways
 - Routine: knowing they take every night
 - Counting: adding, subtracting, or multiplying based on when they were given MMS, when they started ANC, or visual cues from bottle
 - Counting overall missed doses
 - Events (fetal movement after taking, travel where dose was missed)

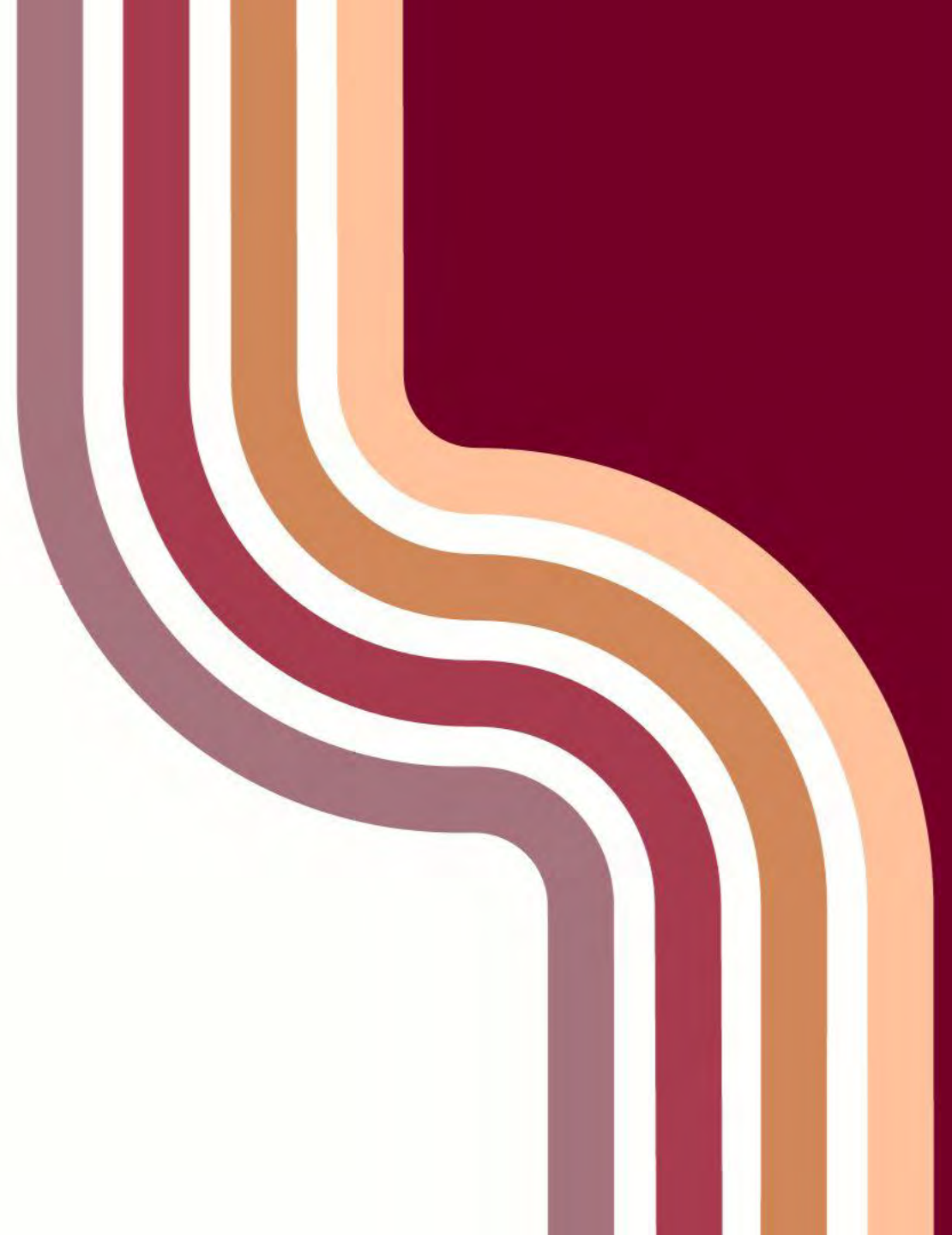
Important Distinction

- Different cognitive exercises involved in:
 - Taking the pill
 - All respondents appear to know one should take the pills daily
 - Part of their routine
 - (vs) Recalling having taken the pill
 - Missed days are
 - More salient
 - Contextualized (people remember certain events associated with missing – was sick, was traveling away from home, went to bed early, etc.)
 - Discrete time periods are easier (daily, weekly, monthly)
 - Longer the time period, more the difficulty in recalling

Implications for Monitoring MMS Adherence

- When focusing on days missed, prompt with events for better accuracy
 - When traveling
 - When there were disruptions in routine (e.g., festivals in the village, guest in the home, traveled elsewhere, etc.)
- Frame the behavior (of not taking the pill) in non-stigmatizing wording by “normalizing” positive and negative behaviors. For example, we said: *“some people take the pill every-day, without missing any day, while others miss some days. What has been the experience like for you?”*
- Opaqueness of MMS bottle a source of frustration for people wishing to monitor their intake or days missed. Consider clear(er) bottle

Thank you!



Validating MMS Adherence Measurement Methods

Within Ethiopia's MMS Demonstration Program

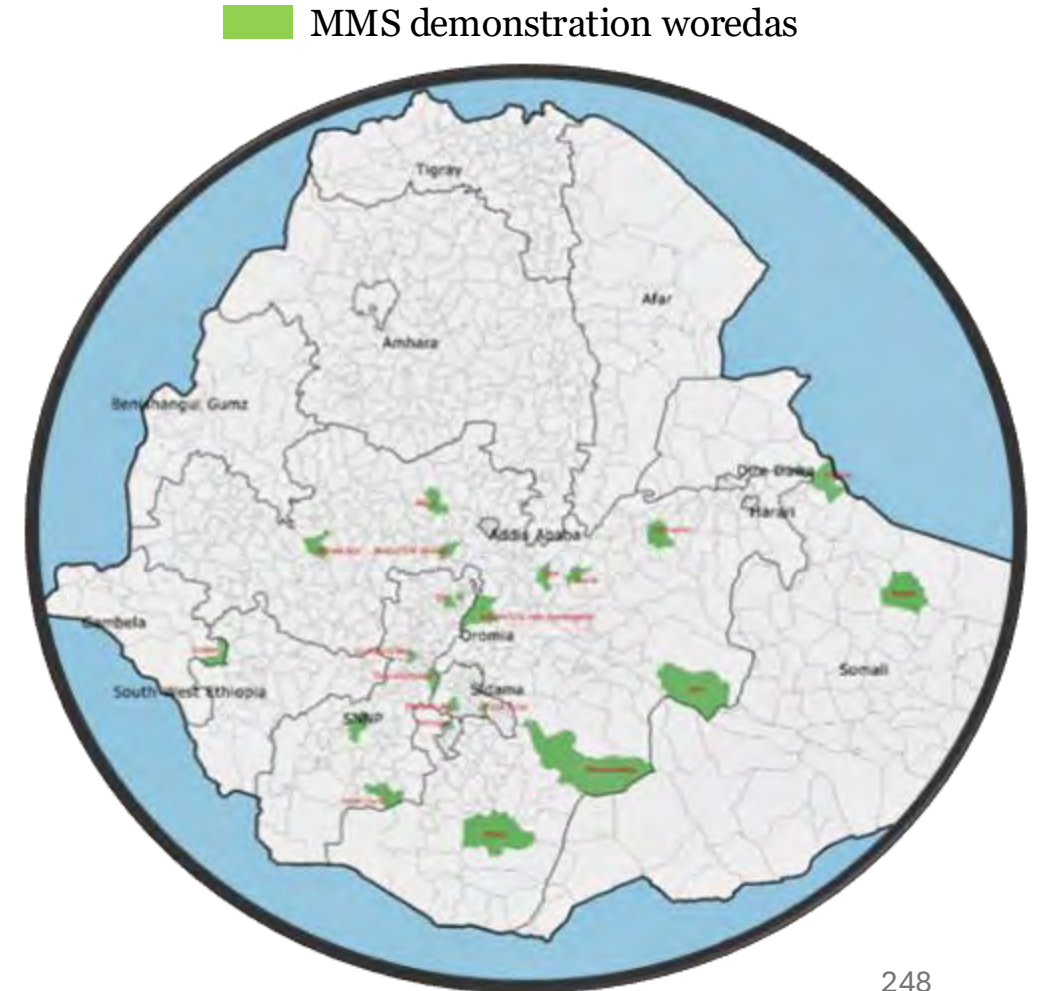
Emily Keats, PhD
Johns Hopkins Bloomberg School of Public Health
Dept. of International Health
Institute for International Programs



JOHNS HOPKINS
UNIVERSITY

Overall Study Aim

This study aims to determine best estimates of MMS adherence and the validity of key adherence measurement methods **within the MMS Demonstration Program in Ethiopia.**



Study Objectives

- 1) To estimate the validity of MMS adherence measurement methods, including recall-based methods and bottle weighing against the reference standard (rigorous pill counts).
- 2) To estimate adherence to MMS in Ethiopia's MMS program, as measured through the best available approaches and scalable approaches.



Adherence Measurement in Ethiopia

Results from a Validation Study

Validation Study Methods

Participants: Pregnant women <32 weeks gestational age

Location: 4 MMS districts

- Aleta Chuko, Bona Zuria, Duguna Fango, and Silti – representing Sidama, SNNP, and Central Ethiopia regions

Data Collection:

- July-August 2024
- Enrollment, at the Pregnancy Forum (with the assistance of the HEWs, PW brought their MMS bottle to the Forum)
- At home 30 days after enrollment

Sample Size: 213



Validation Study Methods

- After approximately 30 days (range: 27-31), a trained data collector visited the same pregnant women at home to:
 - (1) ask women questions about their MMS adherence since enrollment including the number of days they consumed MMS tablets and whether they shared or discarded any tablets
 - (2) count the number of MMS pills remaining in the bottle
 - (3) weigh the MMS bottle
- The MMS bottles provided were 100 tablets, and weighed 73.4 grams when full
- We assessed **change** in the counts and weight after 30 days



Validation Study Methods

Cutoffs:

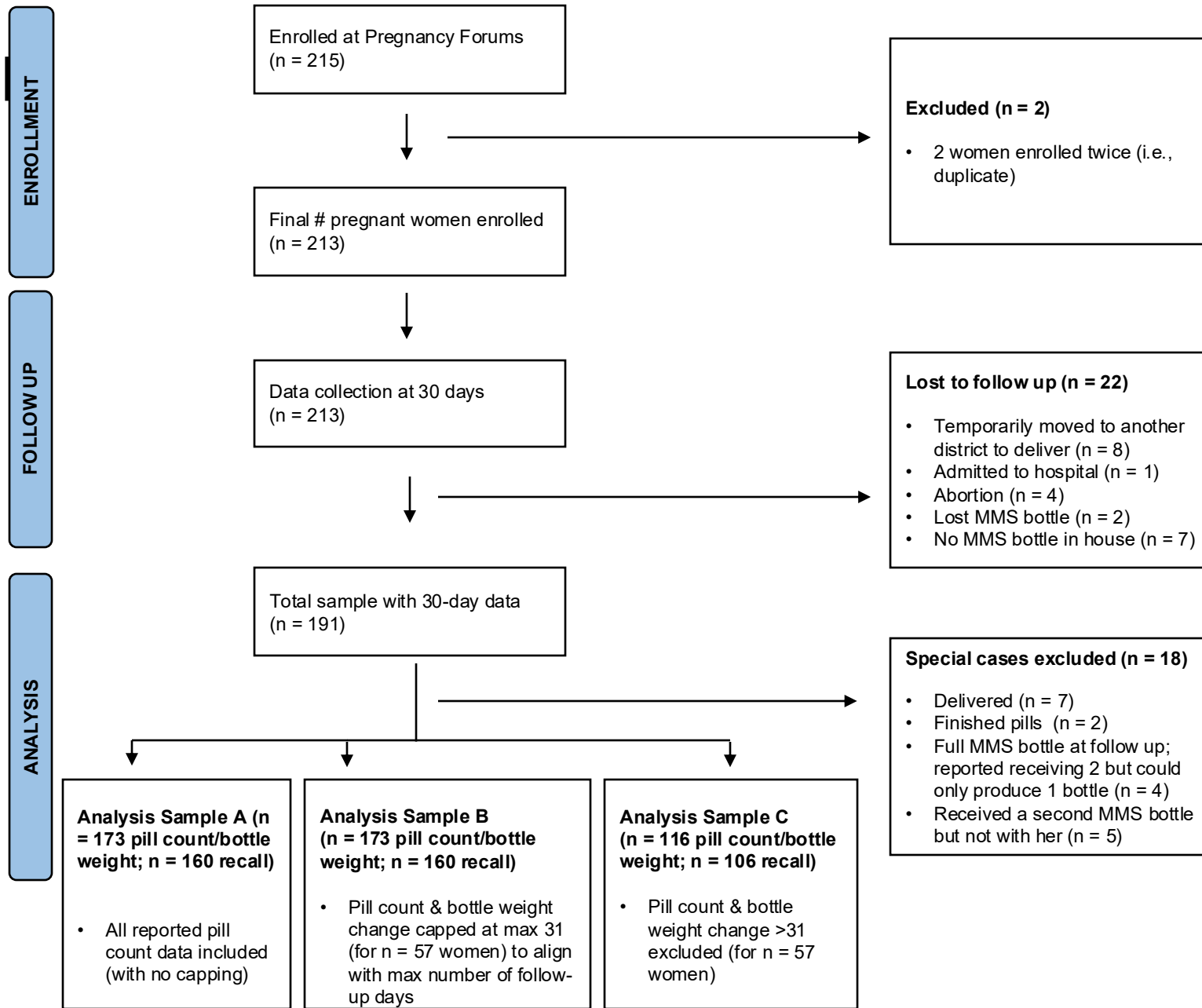
- For this analysis we classified women as adherent or non-adherent using various adherence thresholds (70%, 80%, 90%)
- Interpreted as X% of women took 70%/80%/90% of their MMS tablets over the 30-day follow up period

Analyses:

- Correlation/agreement between methods (correlation coefficients, Bland Altman analysis)
- Individual-level validity: sensitivity & specificity of recall questions and bottle weighing relative to pill counts
- Population-level validity: inflation factor (a measure of the extent to which recall/bottle weighing would over- or under-estimate adherence at the population level)



Flow Chart



Overview of Adherence Measure Results

Depending on follow up time (27-31 days), we would expect a pill count change of 27-31 over the approximately 30-day period, and a bottle weight change of 14.6-16.7 grams if women were taking 1 MMS tablet per day.

- Across the samples, women consumed on average 23-31 pills over the 30-day period
- Based on pill counts:
 - 5.2% of pregnant women had a pill count change between 0-9 (low)
 - 13.3% had a pill count change between 10-20 (moderate)
 - 50.3% had pill count change between 21-31 (high)
 - 31.2% had pill count change 31+ (excess)
- Bottle weights followed a similar pattern

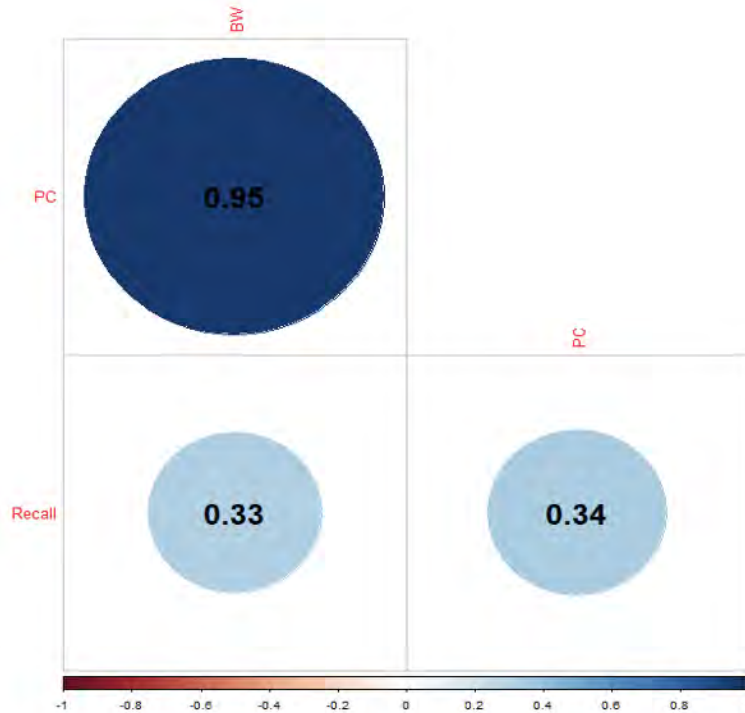
Overview of Adherence Measure Results

In terms of **recall**:

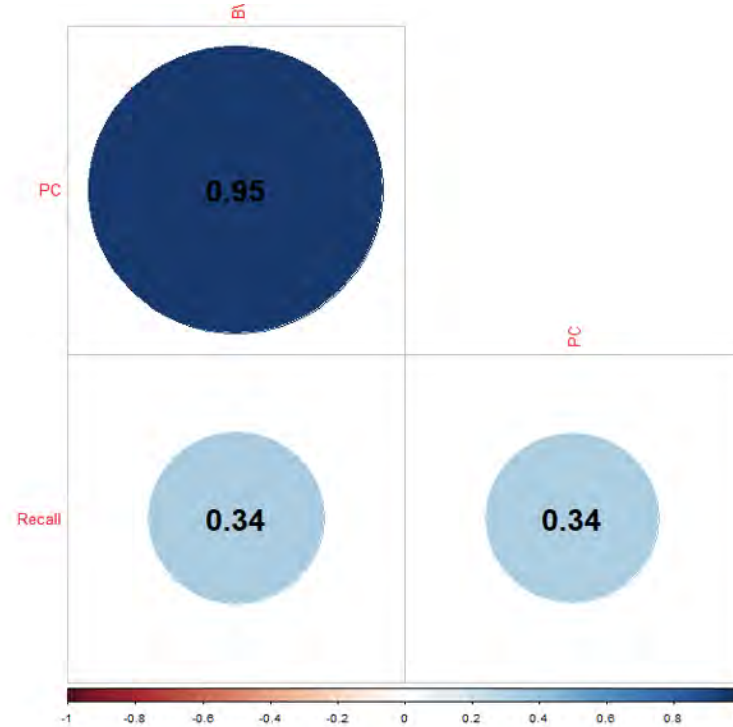
- The average reported consumption over the approximately 30 days was 28 days (IQR: 25, 28), and approximately 70.6% of women reported taking MMS for 27 or more days
- When asked about the frequency of taking pills (e.g., daily, a few times a week, most days of a week, more than once a day), 91.9% of women stated they took the pill daily

Validation Results: Correlation

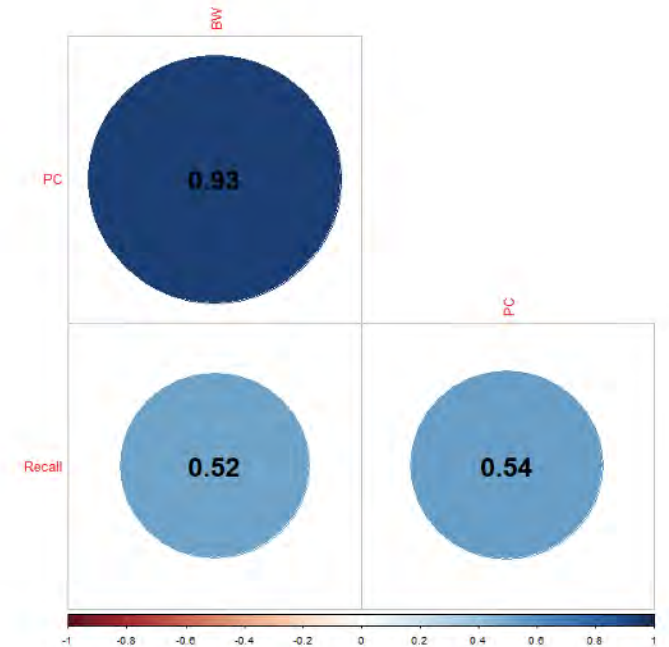
Sample A (max n=173, full sample – uncapped)



Sample B (max n=173, full sample – capped)

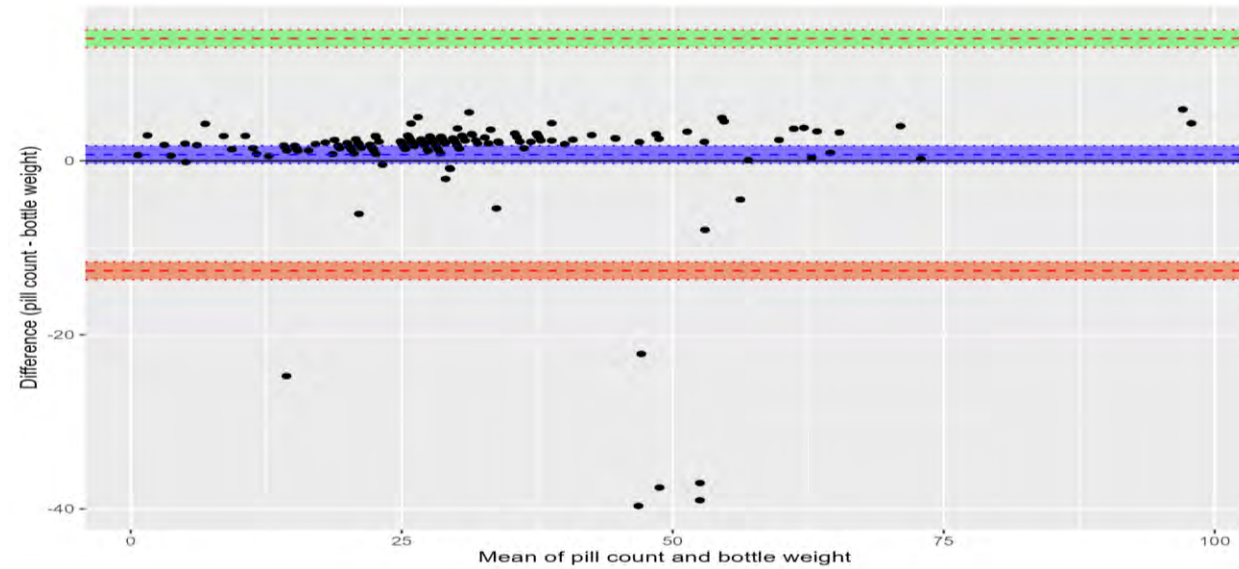


Sample C (max n=116, sub sample - clean)

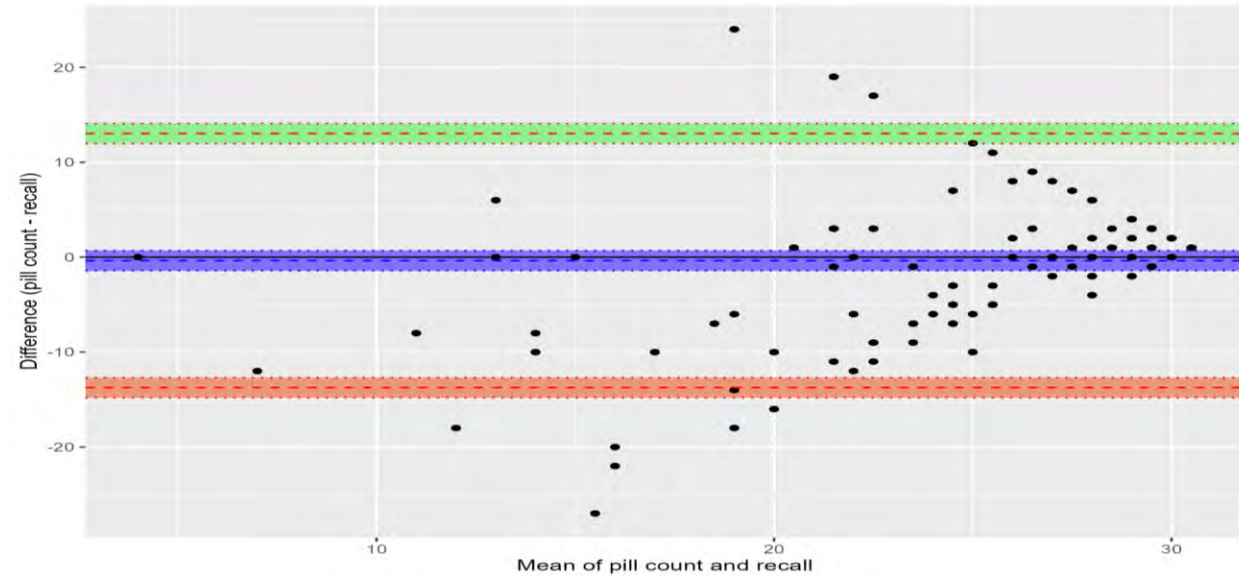


- Correlation between change in pill counts and change in bottle weights was very strong (0.93-0.95, $p < 0.001$)
- Correlation between both change in pill counts and change in bottle weights with recall were weak to moderate (ranging from 0.33-0.54 ($p < 0.001$ - 0.074))

Validation Results: Bland-Altman



- Comparing bottle weight to pill count, there is close agreement, with mean difference close to 0
- Slight underestimation of adherence when using bottle weight



- Comparing recall to pill count, the estimates are more spread apart, suggesting less agreement between recall and pill count
- Over estimation of adherence when using recall

Validation Results: Sensitivity/Specificity, PPV/NPV, Inflation Factor

- **Sensitivity / Specificity**

- Recall: sensitivity is relatively high for recall (85%-97%), specificity is quite low (27%-50%)
- Bottle weights generally had higher sensitivity (55%-96%) and specificity (93%-98%)

- **Positive / Negative Predictive Values**

- Recall: low to moderate PPV (64%-85%) and NPV (57%-87%)
- Bottle weight: moderate to high PPV (95%-99%) and NPV (70%-83%)

- **Inflation Factors**

- For all samples, inflation factors show that recall tends to overestimate true adherence by 11-44%
- Bottle weight underestimates true adherence by 3-14% at the 70% and 80% thresholds but underestimation is greater (21-43%) at the 90% threshold

- ▶ Multiple MMS bottles in the home
- ▶ Bottle weights impacted by external factors (e.g., bottles getting wet, labels being removed)
- ▶ Scale calibration and other challenges with the environment for bottle weighing/pill counting
- ▶ Time frame of recall
- ▶ Temporal nature of recall questions

Conclusions

1

Bottle weight measures have high correlation, sensitivity, specificity, and overall validity when compared to the reference standard of pill counts

2

Comparatively, recall measures have lower correlation and overall validity

3

Bottle weights can be used as an alternative to pill counts in future studies

4

Recall measures have promise in situations where bottle weighing may not be an option but require further study

Partnerships

- Johns Hopkins University (USA)
 - Nadia Akseer (PI), Melinda Munos, Hana Tasic
- Addis Ababa University (Ethiopia)
 - Seifu Hagos, Genet Kiflemariam, Hamid Hassen
- UNICEF Ethiopia
 - Stanley Chitekwe, Ramadhani Noor
- FMoH Ethiopia
 - Kidist Woldesenbet, Tadele Deres
- Children's Investment Fund Foundation
 - Abeba Ayele, Tarik Taye Birhanu, Kerri Wazny



ጤና ሚኒስቴር - ኢትዮጵያ
MINISTRY OF HEALTH-ETHIOPIA
የዜጎች ጤና ለሃገር ብልጽግና!
HEALTHIER CITIZENS FOR PROSPEROUS NATION!





Data for Decisions in Nutrition

Improving Household Survey Measurement of Maternal Micronutrient Supplementation: Formative Research in Ethiopia & Bangladesh

Shelley Walton – JHU BSPH

What can we do to improve household survey estimates of IFA/MMS coverage?

DataDENT supporting formative research to answer these questions:

1. To understand whether and how CPW and RDW in Ethiopia and Bangladesh differentiate between IFA, MMS, and calcium supplements?

2. To understand the cognitive processes women use to recall whether and how they adhered to their supplement regimen during pregnancy

3. To draft, test, and refine survey questions and visual aids.

Do the methods / questions & visual aids produce valid estimates?

New Data Collection



- Urban context: 1 Addis sub-city, Nifas Silk Lafto;
- ***Data collection completed June 2024***



- Bangladesh: Dhaka & Sylhet Districts
- ***Data collected in October 2024***

Research
Partner



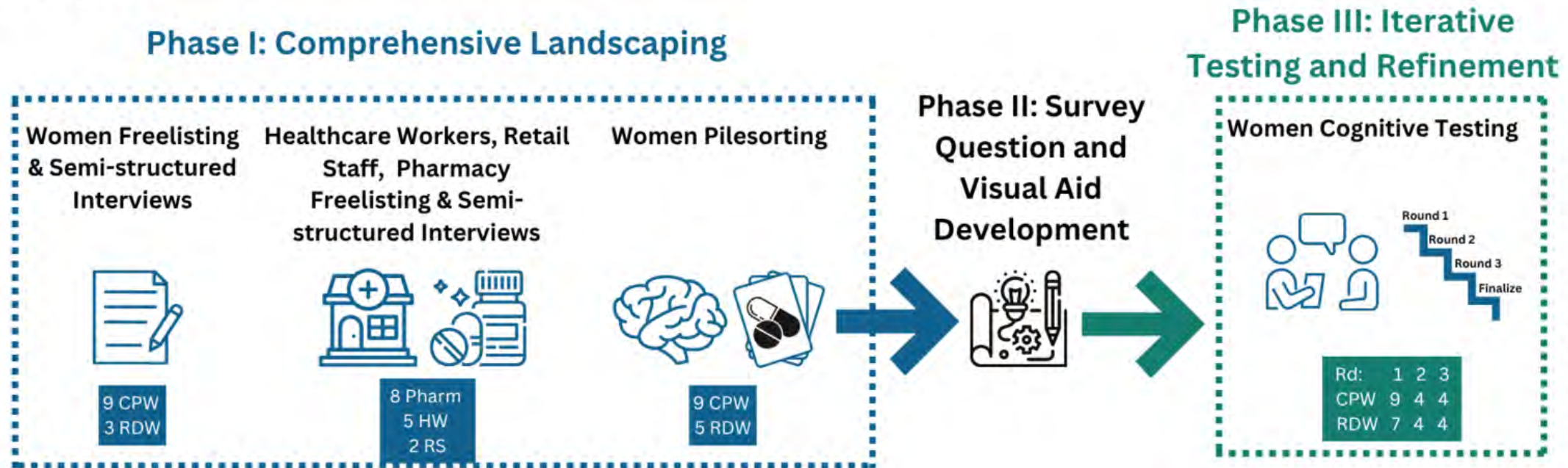
Research
Partner





Ethiopia Formative Research: multi-step design in urban context (Addis Ababa)

Ethiopia



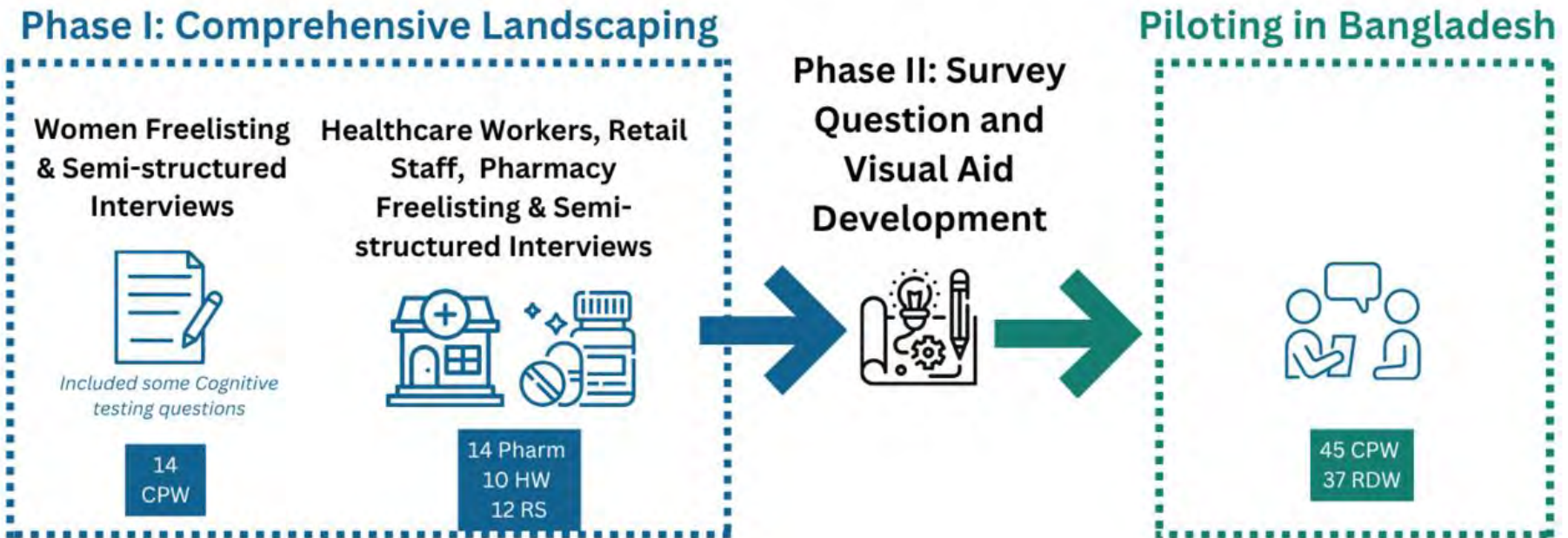
¹CPW = Currently pregnant women; RDW = Recently delivered women; Pharm = Pharmacy staff; HW = Healthcare worker; RS = Retail staff





Bangladesh Formative Research: modified design in Dhaka & Sylhet (urban & rural)

Bangladesh



¹CPW = Currently pregnant women; RDW = Recently delivered women; Pharm = Pharmacy staff; HW = Healthcare worker; RS = Retail staff



Results Summary

Phase I Results: Ethiopia and Bangladesh

Comprehensive Landscaping

- **Comprehensive landscaping:**
 - ET sites had **23** unique products; salient terms iron, prenatal, and vitamin.
 - BD sites had **135** unique products; salient terms iron, fullcare, and calcium.
- **Product differentiation:**
 - In ET and BD women differentiated supplements based on perceived purpose, packaging, color, and branding NOT micronutrient composition
 - English term “iron” was a catch-all used by women to describe supplements that contained other micronutrients (e.g. IFA, MMS) .
- **Adherence recall:**
 - In ET and BD women recalled supplement adherence by anchoring to routines, ANC visit timing, and blister pack completion
 - Often estimating intake in months or by number of full blister packs consumed.



Phase II Results: Survey Question and Visual Aid Design

- **Question design:**

- In ET, we adapted DHS-8 standard questions for recently-delivered women (RDW) & designed new questions for currently pregnant women (CPW)
- In BD, we made small adaptations to ET final questions

- **Visual aid design:**

- In Phase I we captured many images of products from retailers, pharmacies & clinics of product with diverse micronutrient content
- We tried to select 3 product images to represent each category of products (e.g., iron, prenatal, multiple micronutrient supplements, calcium)
- We always included the government / public sector formulation for IFA & the MMS products being piloted in countries – but it was challenging to select others given large number



Final Visual Aid Designs

Ethiopia



Bangladesh



Phase III Results: Iterative Testing and Refinement / Piloting

- **Use locally meaningful terms.**
 - Women consistently understood “**iron**,” but terms like “**folic acid**,” “**prenatal**,” and “**multivitamin**” were less clear,
 - We did not find a consistently understood unique term for MMS in either context.
- **Visual aids should reflect how women actually receive products**
 - Women identified supplements by **packaging and pill appearance**, so we revised to include all options: **blisters, bottles, and loose/repackaged pills**
- **Restructure recall questions to match women’s concept**
 - For RDW - asking the **number of months rather than days** was well understood; women could also answer about the month they started taking pills
 - For CPW – recall period of “last month” produced consistent responses in BD; in ET “last week” was more consistent



Final Question Set

QUESTION		RESPONSE OPTIONS
Blue text: RDW (last 2 years) Green text: CPW, Q2 country-specific text		
1. During [your last pregnancy this pregnancy] , were you given, or did you buy any tablet or syrup that contains iron? [SHOW VISUAL AID]		YES 1 NO 2 DON'T KNOW 8
2. During [your last pregnancy this pregnancy] were you given or did you buy any of the following? A. [BD - MMS TABLET OR FULLCARE] B. [BD - SUPPLEMENTS WITH MULTIPLE MICRONUTRIENTS?] [ET – IRON WITH MANY VITAMINS OR PRENATAL] C. [BD - IRON TABLET OR SYRUPS] [ET – IRON OR IRON FOLIC ACID] [SHOW VISUAL AID]		A-C. YES 1 NO 2 DON'T KNOW 8
3. During [your last pregnancy this pregnancy] , how many months pregnant were you when you first started taking [LIST PRODUCT IF Q2 = YES] ?		MONTHS [] DON'T KNOW 98
4. RDW a. During your last pregnancy , how many months did you take [LIST PRODUCT IF Q2 = YES]? b. During your last pregnancy , how many days in a usual WEEK did you take [LIST PRODUCT IF Q2 = YES]?	4. CPW c. How many days did you take the [LIST PRODUCT IF Q2 = YES] last MONTH?	4a. MONTHS [] DON'T KNOW 98 4b/c. DAYS [] DON'T KNOW 998
5. During [your last pregnancy this pregnancy] where did you get these [LIST PRODUCT IF Q2 = YES]? Anywhere else?		List modified from DHS-8 model woman's questionnaire (Q 427)

- We did NOT validate questions against a gold standard
- Questions need to be validated

Implications for measurement

- Tailoring survey questions to reflect women's approach to recall improves comprehension.
- If we want women to distinguish IFA vs. MMS for monitoring in surveys, national programs need to develop & actively promote very distinct branding for MMS product
 - Most women called IFA & MMS products “iron”
 - Categories of products are not understood → need to be either very specific (e.g. Fullcare) or very general
 - Women will NOT distinguish UNIMMAP vs. non-UNIMMAP products
- Posing survey questions to CPW is innovative but will have trade-offs in terms of sample size and comparability of data across time.
- Our approach to question design can be replicated by others; currently applying approach in Mali, Niger, and Nigeria



Access all of the results @ www.datadent.org



Brief



RESEARCH ARTICLE

Formative Research in Ethiopia and Bangladesh: Strengthening Household Survey Measures of Maternal Micronutrient Supplementation in Low- and Middle-Income Countries
[version 1]

Shelley Walton, Ellina Wood, Hanna Y Berhane, Firehiwot Workneh, Fiker Ferdaweke, Sk Masum Billah, Sharif Uddin Lotus, Melinda Munos, Sunny S Kim, Swetha Manohar, Phuong Nguyen, Syed Shehryar Azeem, Rebecca Heidkamp

Journal
Article



Thank you!
[www. dataident.org](http://www.dataident.org)





Multiple Micronutrient Supplementation (MMS)

Adherence Validation Study: Results

Sasmita Poudel, Helen Keller International - Nepal
(On behalf of the JHU and Helen Keller teams)

April 21, 2026



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BLOOMBERG SCHOOL
of PUBLIC HEALTH



Eleanor Crook
Foundation



Government of Nepal
Ministry of Health and Population
Department of Health Services
Family Welfare Division

Contents

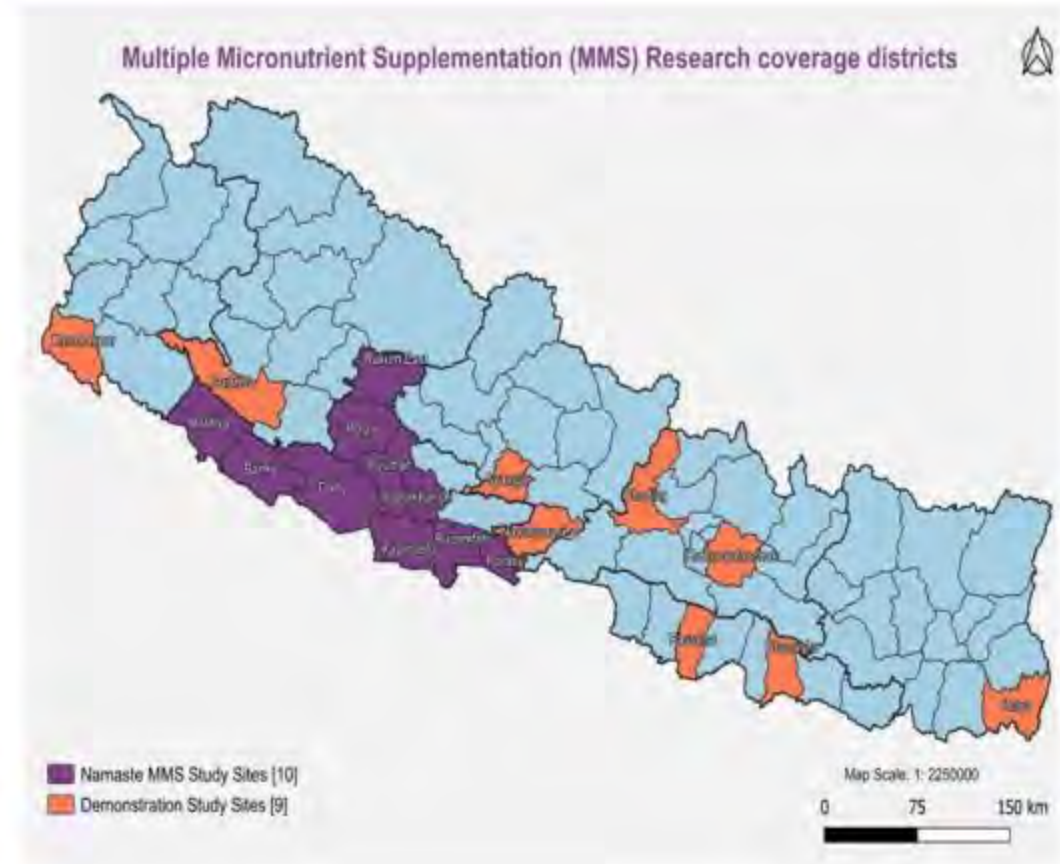
1. Study design and methods
2. Preliminary findings
3. Key Takeways
4. Recommendations



Study design and methods

The validation study was nested within the **NAMASTE MMS RCT** and the **Demonstration studies**

- The study aimed to quantitatively validate questions to measure MMS adherence
- Validation data (pill count and recall questions) were collected at 30d and 180d (post-birth) data points
- Both in NAMASTE MMS (RCT) and Demonstration study
 - Mobile phone interviews in Demonstration sample only



Data analysis

- Compared adherence by recall vs pill count (gold standard) for adherence measurement
- Used 75% and 90% adherence thresholds to estimate Sensitivity, Specificity, Area Under the ROC curve
 - Thresholds based on Smith et al. meta-analysis



Sample characteristics (RCT validation study)

- 🎂 **Age:** 24.5 years
- 📖 **Schooling:** 6–7 years (Mean)
- 🤰 **Primi-gravida:** ~36.4%
- 💰 **Wealth:** Spread across quintiles (15.7% - 20.8%)
- 🤰 **Number of previous pregnancies:** 1.9 (Mean)

Note: Groups were balanced across arms in most measured characteristics. Wealth, schooling varied across arms by at least 10 percentage points

📍 Study Arms:

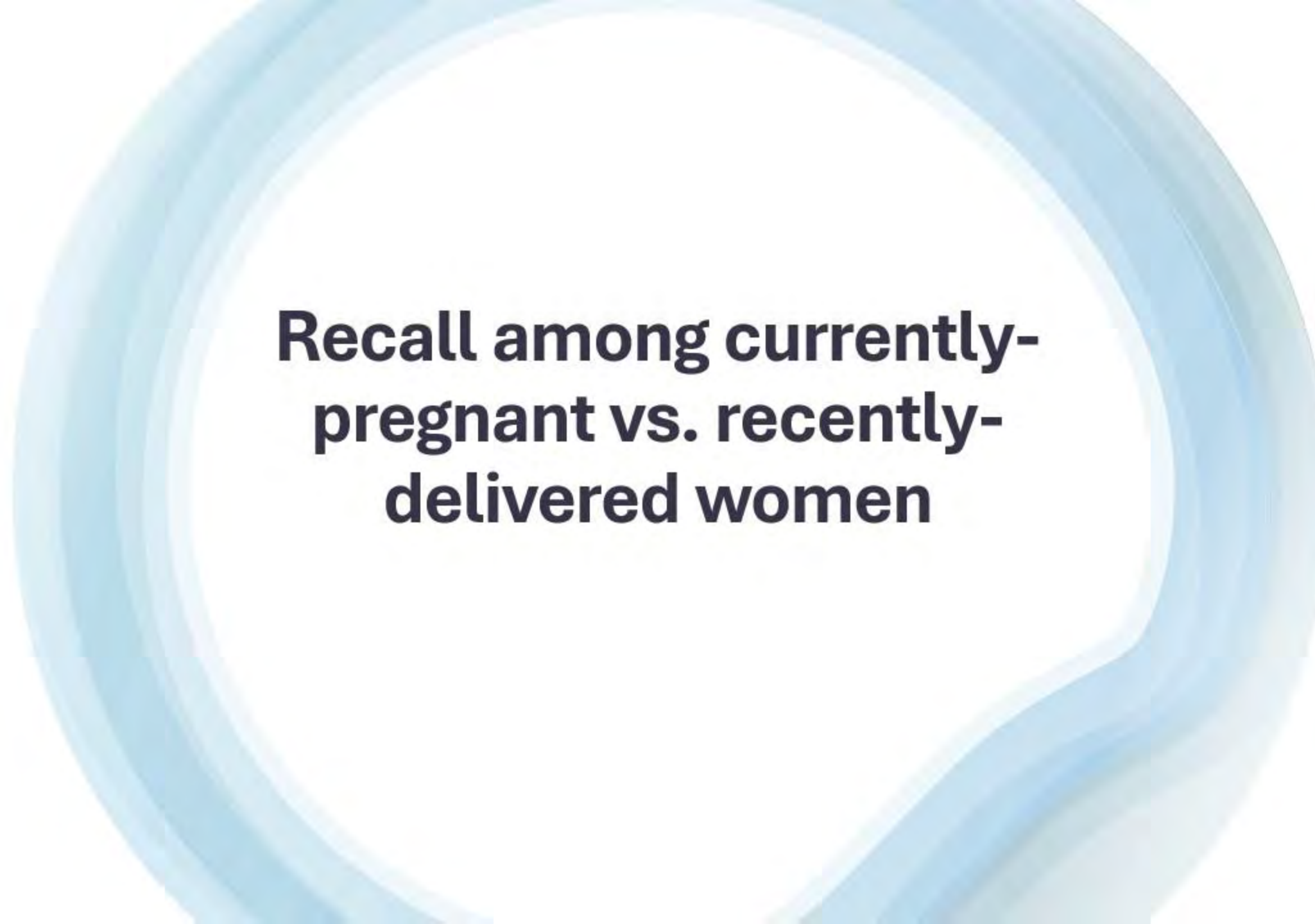
- IFA blister
- MMS blister
- MMS bottle



Sample characteristics (Demo/mobile phone study)

Characteristics	Currently pregnant (30-day)		Recently Delivered (180-day)	
	 Mobile	 In-person	 Mobile	 In-person
 Age (Years)	24.8	24.7	24.7	24.8
 Schooling (Mean)	9.3	9.1	9.2	9.2
 Primi-gravida (%)	46.3	43.5	44.4	43.4
 Previous pregnancies (Mean)	1.4	1.5	1.4	1.4
 Wealth quintile (%)	11.3 – 24.4 (Higher in lower quintiles)	18.6 – 20.7 (More evenly distributed)	15.9 – 21.9 (Slightly higher upper quintile)	19.4 – 20.4 (Evenly distributed)

Characteristics are largely comparable across mobile and in-person groups at both follow-up points.



**Recall among currently-
pregnant vs. recently-
delivered women**

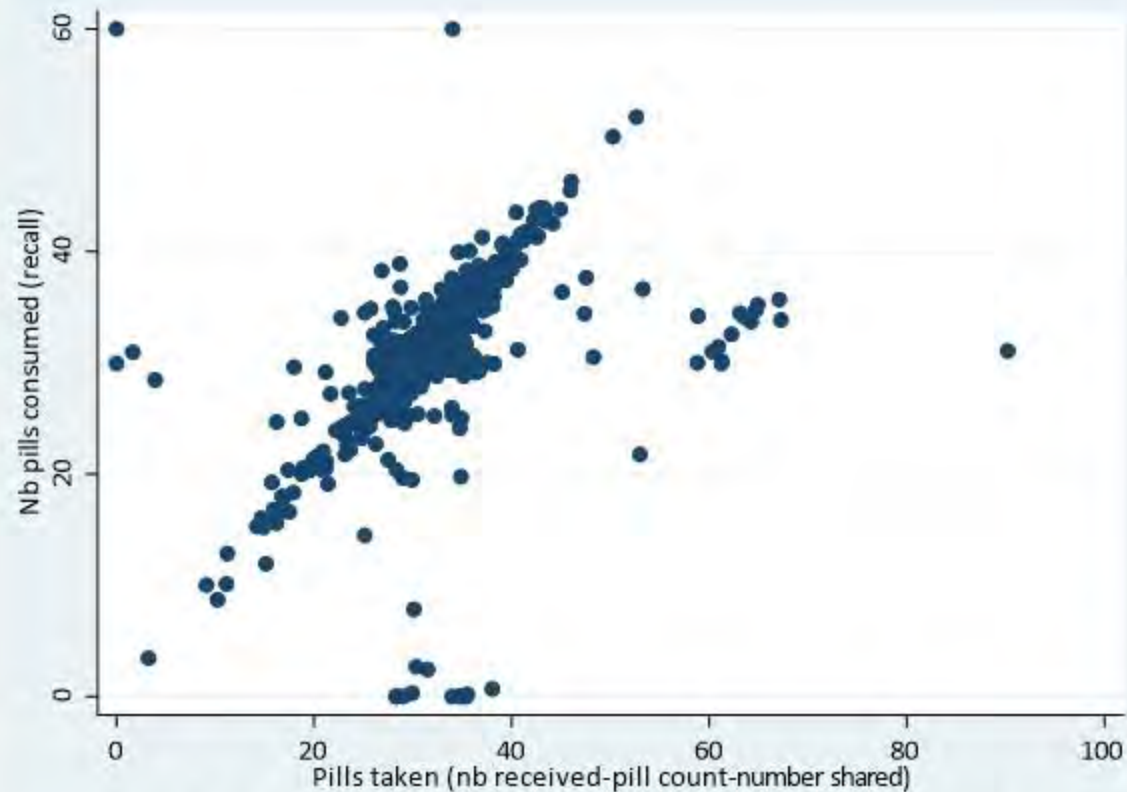
Validity of recalled number of supplements consumed (in-person interview, RCT)

Low Sn indicates
under-reporting

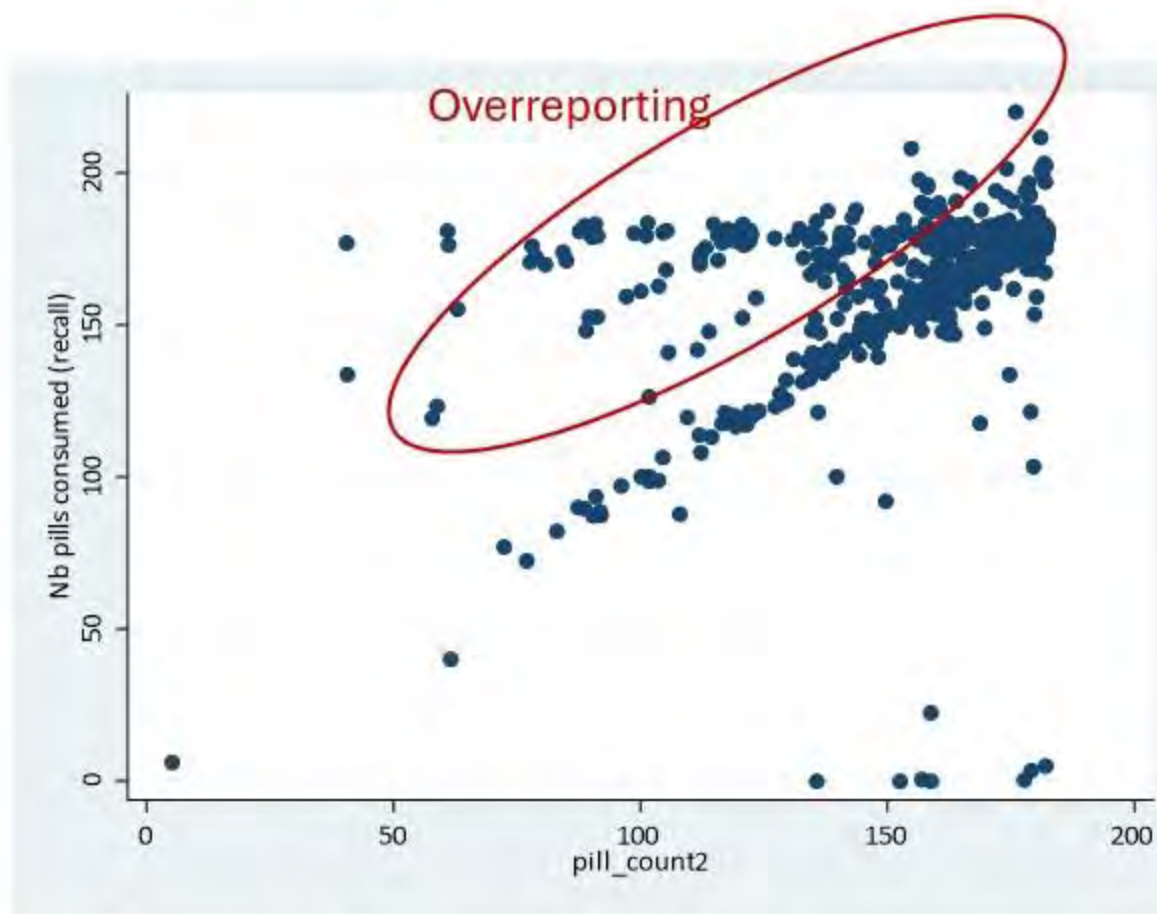
Low Sp indicates
over-reporting

	N	Sn	95% CI	Sp	95% CI	AUC	95% CI	Prevalence (true)
Adherence at 30 days (currently pregnant women)								
≥90% adherence	1104	93.9%	(92.1-95.3%)	85.5%	(79.3-90.4%)	0.897	(0.869-0.924)	84%
≥75% adherence	1104	97.2%	(96.0-98.1%)	81.0%	(69.1-89.8%)	0.891	(0.842-0.940)	94%
Adherence over entire pregnancy (recently-delivered women)								
≥90% adherence	1167	95.4%	(96.0-98.4%)	62.3%	(57.4-67.0%)	0.798	(0.774-0.823)	66%
≥75% adherence	1167	98.9%	(98.0-99.4%)	34.4%	(26.1-43.6%)	0.666	(0.624-0.709)	90%

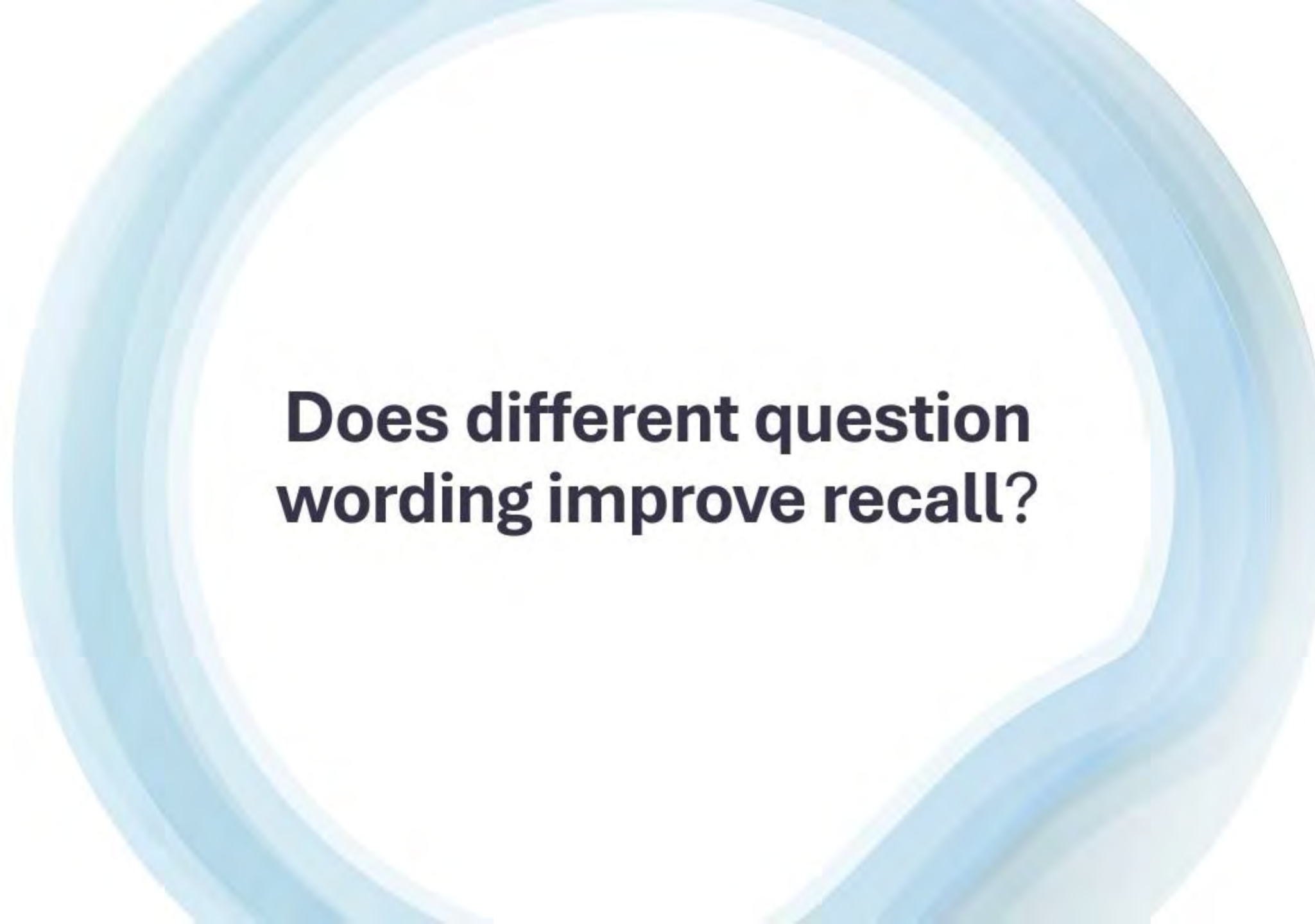
Number of recalled supplements taken vs. number of supplements taken based on pill count



Currently pregnant women



Recently-delivered women



**Does different question
wording improve recall?**

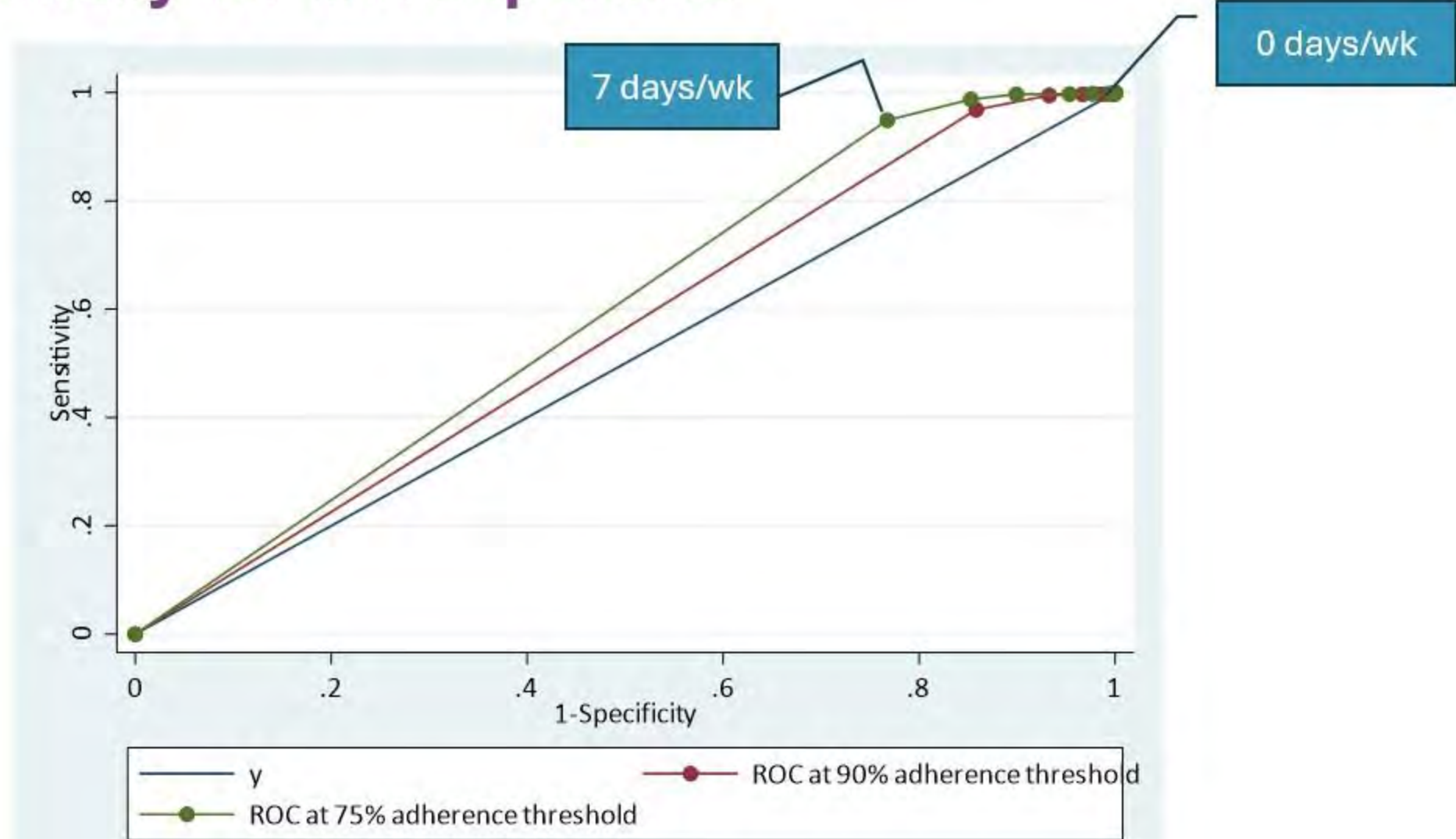
Validity of recalled number of supplements missed (in-person interview, RCT)

Low Sn indicates under-reporting

Low Sp indicates over-reporting

	N	Sn	95% CI	Sp	95% CI	AUC	95% CI	Prevalence (true)
Adherence at 30 days (currently pregnant women)								
≥90% adherence	1125	96.9%	(95.6-97.9%)	64.7%	(57.5-71.5%)	0.808	(0.774-0.843)	83%
≥75% adherence	1125	97.8%	(96.7-98.6%)	57.9%	(46-69.1%)	0.779	(0.722-0.835)	93%
Adherence over entire pregnancy (recently-delivered women)								
≥90% adherence	1218	97.0%	(95.6-98.1%)	21.4%	(17.6-25.5%)	0.592	(0.572-0.612)	64%
≥75% adherence	1218	99.7%	(99.2-99.9%)	14.8%	(9.3-21.9%)	0.573	(0.543-0.602)	89%

Receiver operating curve for usual number of days per week question: High sensitivity, extremely low specificity for all responses





**Do women accurately
report on adherence in
mobile phone interviews?**

Validity of recalled number of supplements consumed (mobile phone interview, Demo)

Low Sn indicates
under-reporting

Low Sp indicates
over-reporting

	n	Sn	95% CI	Sp	95% CI	AUC	95% CI	Prevalence (true)
Adherence at 30 days (currently pregnant women)								
≥90% adherence	109	92.6%	(85.3-97.0%)	66.7%	(38.4-88.2%)	0.796	(0.670-0.922)	86%
≥75% adherence	109	96.1%	(90.3-98.9%)	71.4%	(29.0-96.3%)	0.838	(0.656-1.000)	94%
Adherence over entire pregnancy (recently-delivered women)								
≥90% adherence	238	82.1%	(73.9-88.5%)	34.7%	(26.3-43.9%)	0.584	(0.529-0.639)	49%
≥75% adherence	238	92.7%	(88.2-95.8%)	12.1%	(3.4-28.2%)	0.524	(0.465-0.583)	86%

Key Takeaways

1

Asking women about the number of supplements consumed had good validity among currently-pregnant women

2

Asking about the number of supplements missed had poor validity among currently-pregnant and recently-delivered women

3

Asking about the number of days per week they took supplements had poor validity among currently-pregnant and recently-delivered women

4

Recalled adherence was much more accurate among currently pregnant women compared to recently-delivered women

Recommendations

1

In Nepal, HH surveys should not ask recently-delivered women to recall the number of supplements taken across pregnancy

Instead, ask currently pregnant women about supplements consumed in the previous month

This is a major shift in how adherence is measured that will require advocacy and technical support

2

This study shows the value of sequential cognitive interviewing and criterion validity studies to determine the best way to measure complex, high-priority indicators. It should be replicated in other implementation settings, particularly in other regions

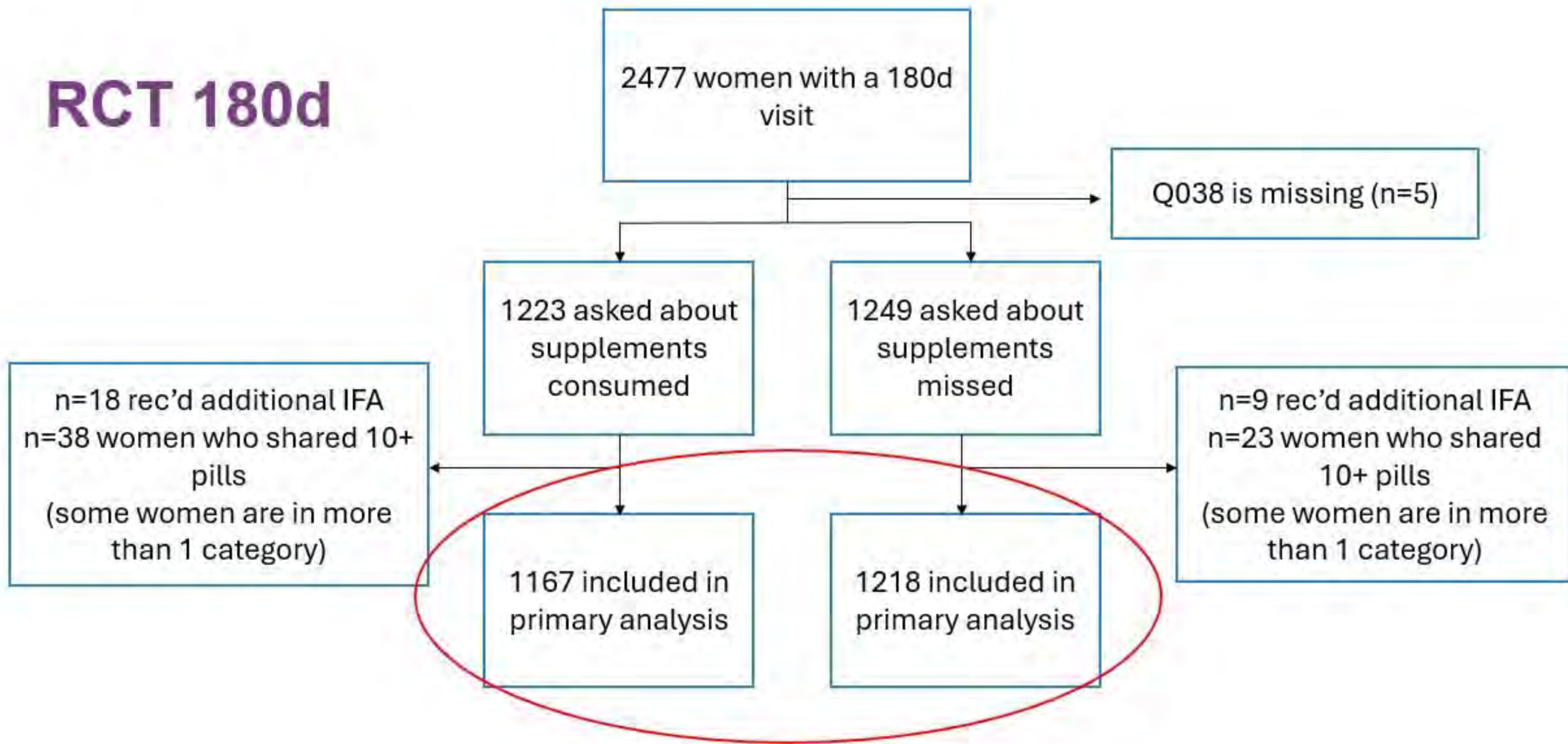


Any questions?

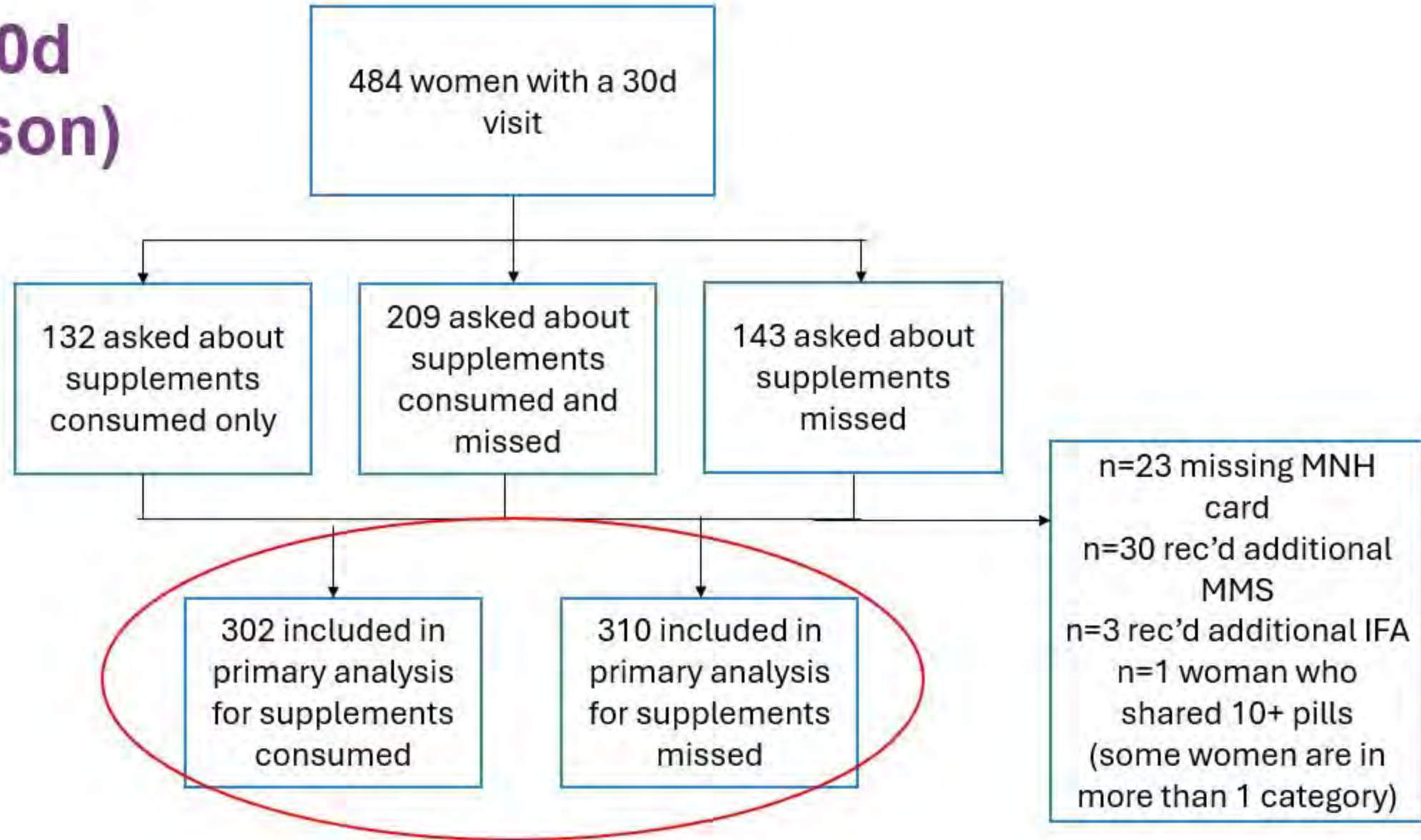
Thank You

NAMASTE-MMS team, Nepal

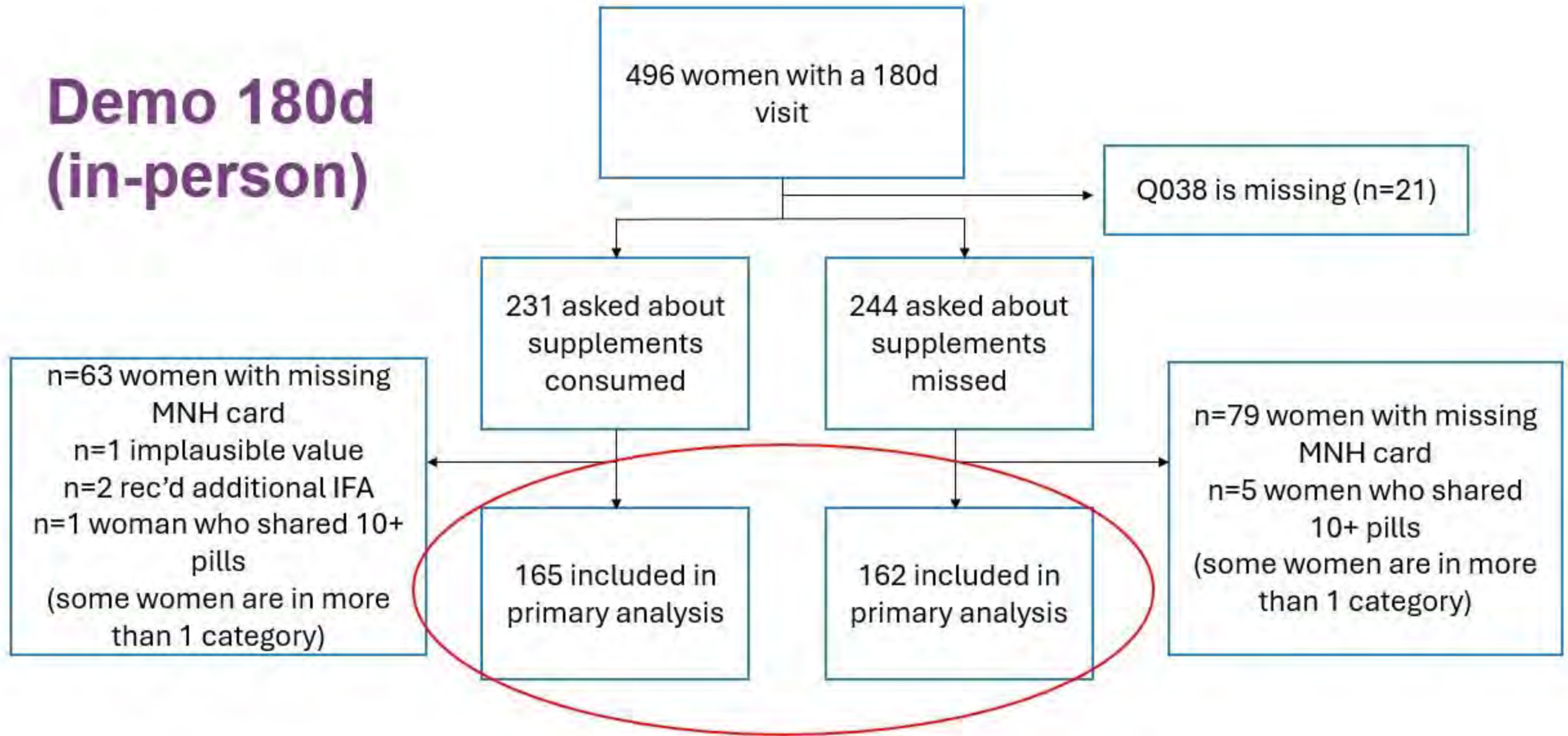
RCT 180d



Demo 30d (in-person)



Demo 180d (in-person)



Validating Recalled Adherence of MMS Use by Bottle Weight: Systems Trial in the UNRWA Antenatal Care System Serving Palestine Refugees in Jordan

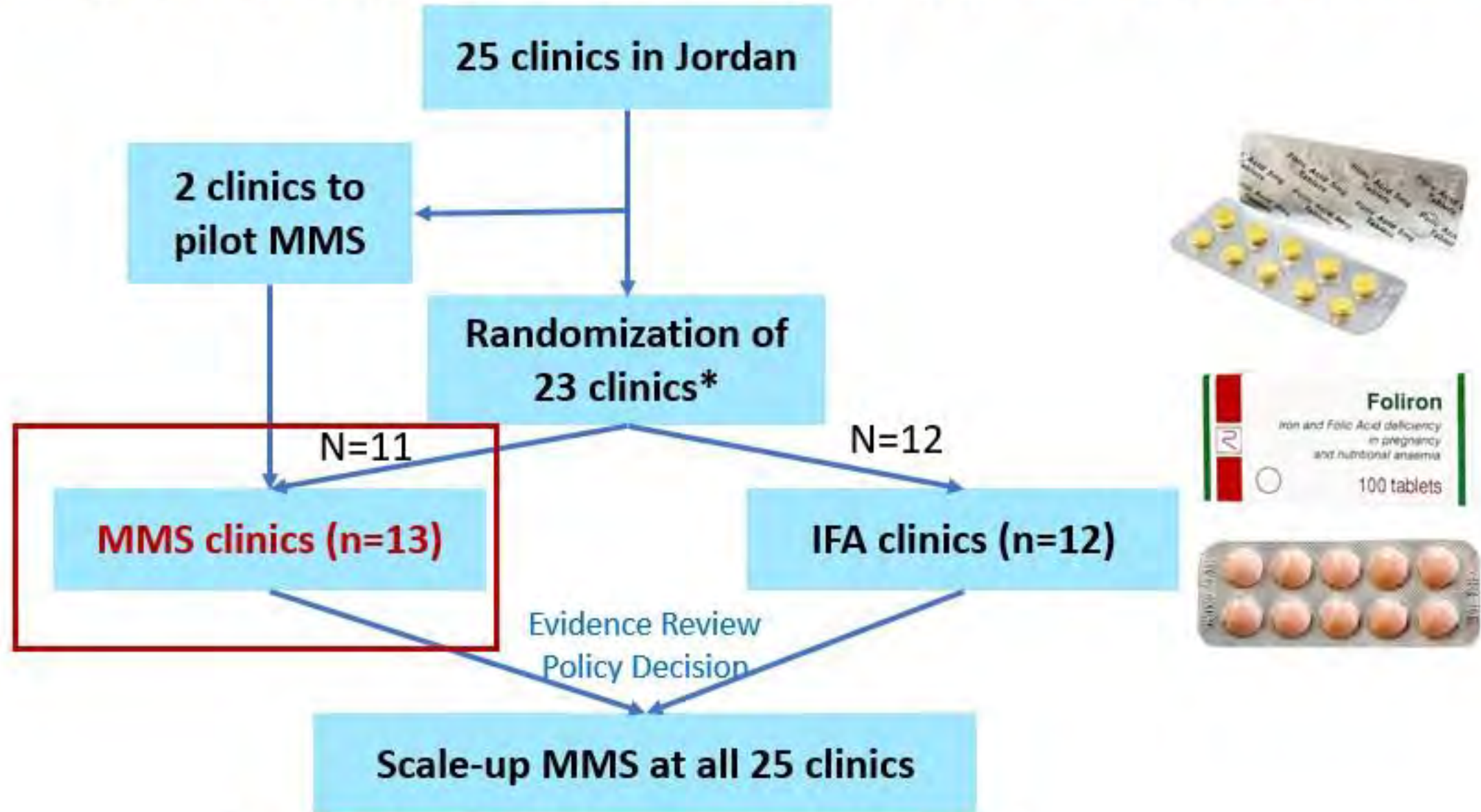


Masako Horino, DrPH, MPH, RD
Public Health Research Specialist at UNRWA
Affiliate, Department of International Health
Johns Hopkins Bloomberg School of Public Health

MMS Convening
Johns Hopkins Bloomberg Center
Washington DC
April 2026



UNWRA Systems Trial in Jordan: March-December 2023



* Two clinics switched assignment on pragmatic grounds



Registration Visit: MMS bottle issued

- Midwife provided a 180-ct bottle of UNIMMAP MMS, USP-certified, halal-compliant, with desiccant and child-proof cap
- Registrant instructed to take 1 tablet daily, keep cap closed when not in use, and asked to return with the bottle at each visit
- No reason given for requesting to see the bottle
- Additional dietary guidance given



Follow-up Visits: Adherence during previous interval assessed

- "Since the last visit, on ____, how many days did you miss taking "vitamin" tablets received from UNRWA?"
- Number of days missed recorded in eHealth
- Tablets taken based on recall = No. of days since registration – No. missed days recalled



unrwa
الأونروا



unrwa
الأونروا



الفيتامينات
أثناء الحمل

ما عليك القيام به:



1. استأني القابلة
عن الفيتامينات.



2. تناول حبة واحدة فقط
من الفيتامينات كل يوم.



3. لا تشارك في علبة
الفيتامينات الخاصة
بك مع الآخرين.



إذا كان لديك
أي أسئلة،
اتصلي بمسؤول
الرعاية الصحية
الخاص بك.



هاتف:

ماذا يجب أن أكل
عندما أتناول الفيتامينات؟



من المهم اتباع نظام
غذائي صحي ومتوازن
مع مجموعة متنوعة
من الأطعمة:

الخضار	👍
الفواكه	👍
اللحوم والأسماك والدواجن والبيض	👍
البقوليات مثل الفاصولياء البيضاء والعدس والمكسرات	👍
الحبوب الكاملة	👍
منتجات الألبان كالحليب أو قليلة الدسم	👍
قللي من الحلويات والأغذية المملحة والأغذية السريعة	👎
الحد من المشروبات المحلاة والكافيين	👎

Adherence Measurement Using Bottle Weight

- Weight components of a 180-ct MMS bottle:
 - ~111 g/ full bottle
 - 0.47 g/one tablet
 - 26 g for an empty bottle and a desiccant



- No. tablets removed from bottle
$$= [111 \text{ g} - \text{bottle weight (g)}] / 0.47 \text{ g}$$
- No. tablets taken based on recall
$$= \text{No. days in visit interval} - \text{No. recalled missed days}$$



Follow-up Visits: MMS bottle weighed

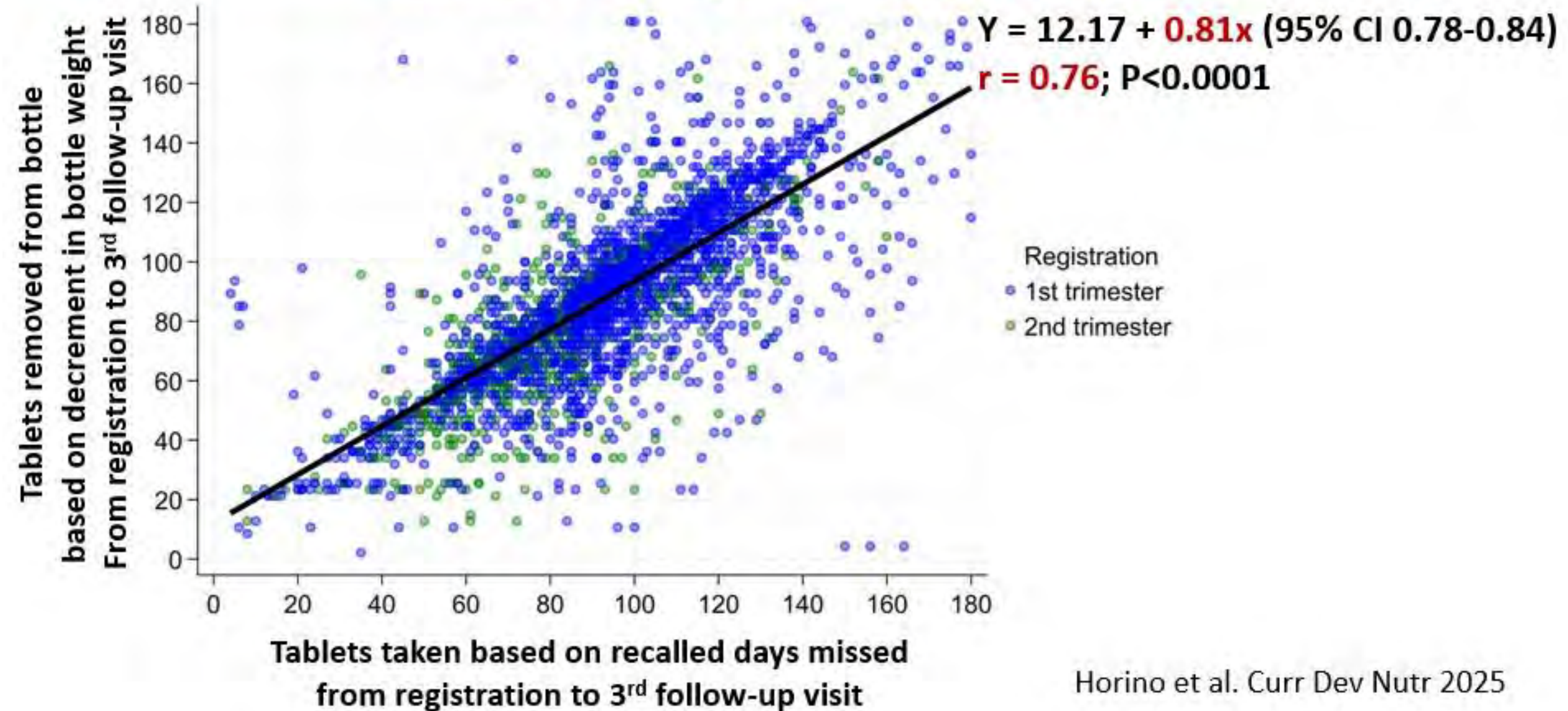
Recalled Days Missed Non-compliers vs Compliers

(all-trimester registrants (N=6899))

Recalled Days Missed	1 st follow-up visit %		2 nd follow-up visit %		3 rd follow-up visit %		4 th follow-up visit %	
	NC	C	NC	C	NC	C	NC	C
Number	1774	5125	1392	4405	1033	3497	732	2504
0-2	80.8	77.1	74.6	75.8	73.5	76.9	73.8	78.6
3-4	5.3	9.3	7.1	10.4	6.3	11.1	6.7	8.9
5-9	5.2	7.4	7.0	7.9	6.7	7.3	7.0	7.5
10-29	5.6	4.8	7.3	4.5	8.2	3.5	8.3	3.9
30+	3.1	1.4	4.1	1.3	5.3	1.3	4.2	1.0

Validity Assessment of Maternal Recall of MMS Days Missed

Registrants with Hb ≥ 10 g/dL, received one 180-ct bottle and returned with bottle to be weighed at 3rd follow-up visit, N=3,117



Lessons from Adherence Validation Study in Jordan

Strengths

- Prospectively measured recall of tablets used throughout pregnancy
- Recall validated by decrements bottle weight
- Strong linear relationship between tablets “removed” based on bottle weight and “taken” based on recall

Challenges

- Desire to recall more closely with prescriptive use
- Reporting bias due to short, patient visit (<5 min)
- Memory lapse over longer follow-up intervals



**THANK YOU!
SHUKRIA!**

Afternoon Break

Please help yourself to refreshments in Room 955.



Implementation - Discussion

What indicators and data sources should be used to monitor coverage, quality, and adherence?

Sunny Kim
IFPRI

Melinda Munos
JHU

Treatment

Setting the Stage

Filomena Gomes

Micronutrient Forum, Healthy Mothers, Healthy
Babies



Anemia treatment (in pregnancy)

1) How do we monitor anemia treatment?

- prevention indicators (e.g. coverage and actual use) and treatment indicators (e.g. # identified as anemic)

2) Should pregnant women continue to take MMS during anemia treatment?

3) How should we measure the use of different supplements - MMS and additional iron/IFA (and IV iron) - during anemia treatment?

- need to distinguish between prophylactic vs therapeutic supplementation?
- need to track treatment initiation and completion?



Use of MMS during Anemia Treatment in Pregnancy

MMS TAG guidance

21 April, 2026

Filomena Gomes, RD PhD

Senior Program Manager, Micronutrient Forum



**HEALTHY MOTHERS
HEALTHY BABIES**





Should pregnant women continue to take MMS during anemia treatment?

MMS TAG guidance, based on expert opinion, was developed to respond to this question:

1. MMS has benefits on maternal health and birth outcomes above and beyond IFA, particularly for women with anemia.
1. If a pregnant woman is diagnosed with anemia, WHO recommends 120 mg iron/day, until a woman's Hb $\geq$ 110 g/L. Other recent guidelines, e.g. FIGO 2025, recommend a lower dose (60-120mg)
2. Anemia is a complex condition with other nutritional (beyond iron) and non-nutritional causes: consider other context-specific preventative measures, e.g. deworming and intermittent preventive treatment of malaria
4. **For anemia treatment, additional iron interventions should be provided while daily MMS are continued as a preventive measure throughout pregnancy, as would be done with IFA**

In mild-moderate anemia*, this can be achieved with, e.g.

- 1 MMS (30 mg iron) + 1 iron/IFA supplement (60mg), providing 90 mg of iron
- 1 MMS (30 mg iron) + 2-3 x iron supplements (3 x 30mg), providing 90-120 mg of iron
- 1 MMS (30 mg of iron) + iron supplement (100 mg) = 130 mg of iron

Once hemoglobin concentration rises to normal, MMS alone can be resumed

* severe anemia should follow the local standard of care, which may include intravenous iron or packed cell transfusion



Sources:

Multiple Micronutrient Supplementation Technical Advisory Group (MMS TAG). 2023 Interim Guidance for Concurrent Antenatal Multiple Micronutrient Supplementation and Anemia Treatment in Pregnant Women. Washington DC: HMHB Consortium.





Benefits of continuing MMS during anemia treatment

1. MMS lowers the risk of adverse birth outcomes
2. Benefits are even greater in pregnant anemic women
3. MMS continues to provide iron, while also provides adequate amounts of vitamins A, B2, B6, B9, B12, C, D and E, and the mineral copper, which are needed for synthesis of hemoglobin and/or erythrocyte production
 - prevent other types of nutritional anemias beyond iron deficiency
 - improve the absorption and/or utilization of iron
4. This practice of continuing MMS during anemia treatment is recommended by major societies

"Those with iron deficiency anemia should be treated with supplemental iron, in addition to prenatal vitamins"

American College of Obstetricians and Gynecologists, 2021; "Anemia in Pregnancy"

"It is not recommended for pregnant women to use multiple micronutrient supplements containing more than 30 mg of iron, owing to side effects. In situations where higher doses of 60–120 mg of iron are required, rather than use multiple micronutrient supplements containing such a high dose of iron, additional iron tablets should be administered in order to achieve the desired daily iron dose"

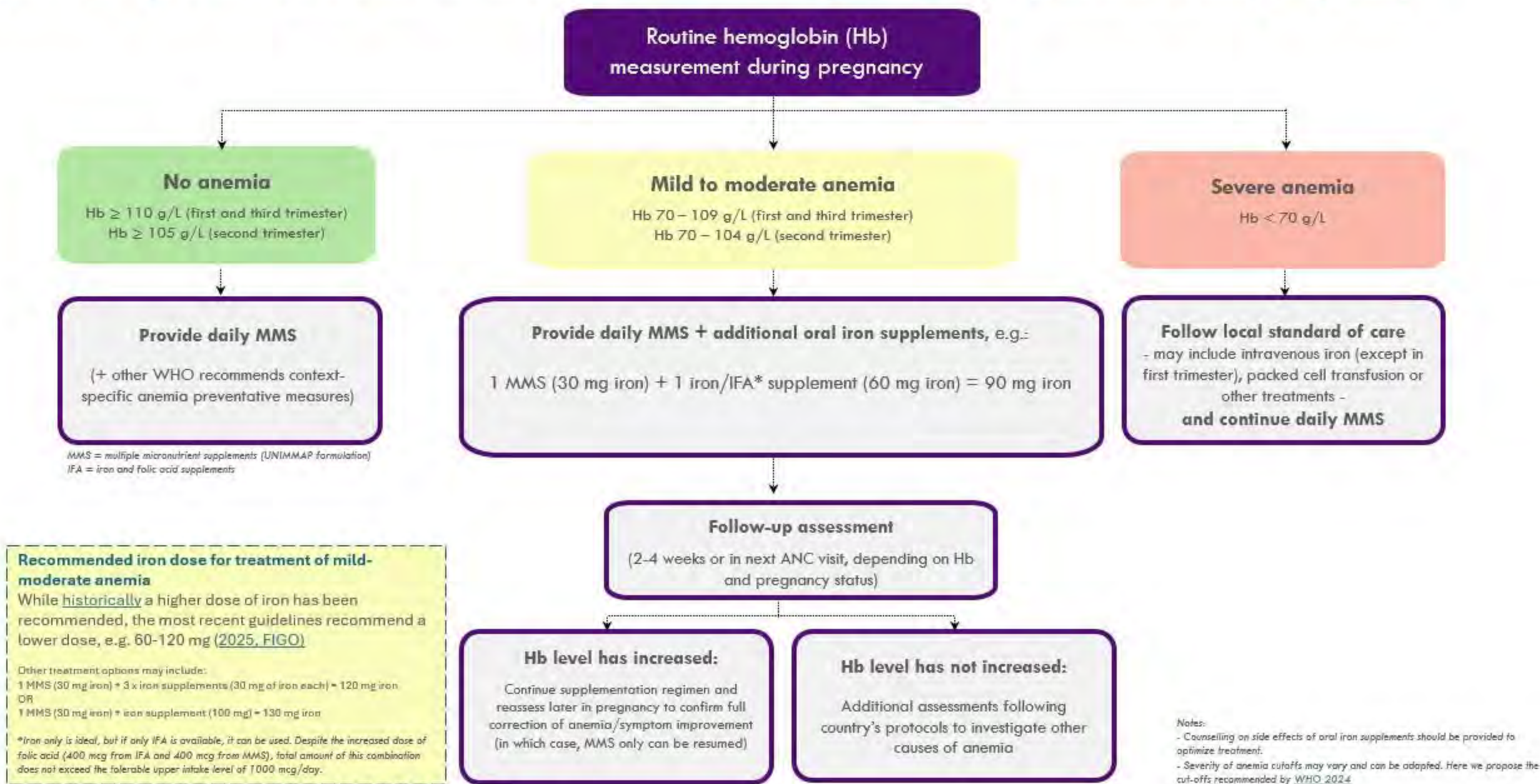
*"Oral iron is recommended as the first-line treatment for iron deficiency anemia at a dose of **60–120 mg** of elemental iron daily" FIGO good practice recommendations on anemia in pregnancy, 2025*

Sources:

- Multiple Micronutrient Supplementation Technical Advisory Group (MMS TAG). 2023 Interim Guidance for Concurrent Antenatal Multiple Micronutrient Supplementation and Anemia Treatment in Pregnant Women. Washington DC: HMHB Consortium.
- World Health Organization. 2017. "Nutritional Anaemias: Tools for Effective Prevention."
- Fishman S.M., P. Christian & K.P. West. 2000. The role of vitamins in the prevention and control of anaemia. Public Health Nutr. 3: 125–150
- ACOG. 2021. Anemia in Pregnancy: ACOG Practice Bulletin, Number 233. Obstet Gynecol. 2021 Aug 1;138(2):e55-e64.
- FIGO Committee on Childbirth and Postpartum Hemorrhage. FIGO good practice recommendations on anemia in pregnancy, to reduce the incidence and impact of postpartum hemorrhage (PPH). Int J Gynaecol Obstet. 2025 Oct 1. doi: 10.1002/ijgo.70529.



Operational guidance on the use of MMS during treatment of (iron deficiency) anemia during pregnancy





Recorded presentation: “Anemia monitoring in India: prevention & treatment”

Overall Architecture

- **HMIS:** Provides a macro view of coverage and program performance
- **RCH/ANMOL:** Enables individual-level tracking for maternal health (*ANC services and anemia status*)
- **RBSK:** Supports individual-level tracking for children (*Screening and treatment services*)

Collectively, these systems enable both:

- Monitoring of population-level coverage
- Tracking of beneficiaries across different life stages



Overall Architecture





Anemia Monitoring in India: Prevention & Treatment





Anemia treatment (in pregnancy)

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Treatment - Discussion

Monitoring anemia treatment: A common priority?

Sunny Kim
IFPRI

Melinda Munos
JHU

Filomena Gomes
MNF-HMHB

Day 1 Wrap Up

Martin Mwangi
MNF-HMHB

