Compendium of Nutrition Intervention Coverage Indicators & Questions for Household Surveys

Version: July 2021

Data DENT

Data for Decisions to Expand Nutrition Transformation

Project Note:

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Abbreviations

ANC	Antenatal care
BFHI	Baby-Friendly Hospital Initiative
CDC	Centers for Disease Control and Prevention
CMAM	Community Management of Acute Malnutrition
DataDENT	Data for Decisions to Expand Nutrition Transformation
DHIS2	District Health Information Software 2
DHS	Demographic and Health Surveys
EBF	Exclusive breastfeeding
EMLc	Model List of Essential Medicines for Children
GM	Growth monitoring
GMP	Growth monitoring promotion
ICDS	Integrated Child Development Services
IFA	Iron and folic acid
IMPROVE	Improving Measurement and Program Design
IYCF	Infant and young child feeding
LBW	Low birth weight
LMIC	Low- and middle-income country
LSMS	Living Standards Measurement Study
MICS	Multiple Indicator Cluster Survey
MNP	Micronutrient powder
MMS	Multiple micronutrients supplements
MUAC	Mid-upper arm circumference
NA	Not applicable
ORS	Oral rehydration solution
PMA	Performance Monitoring for Action
PNC	Postnatal care
RHF	Recommended homemade fluid
SMART	Standardized Monitoring and Assessment of Relief and Transitions
SPRING	Strengthening Partnerships, Results, and Innovations in Nutrition Globally
SQ-LNS	Small quantity lipid-based nutrient supplements
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAS	Vitamin A supplementation
WHO	World Health Organization

Introduction

Global and national commitments to end hunger and all forms of malnutrition have galvanized investments in delivery of high-impact nutrition interventions to women and young children through health systems and other platforms. Timely and high-quality data are needed to track progress towards national targets, the World Health Assembly 2025 global nutrition targets, and 2030 Sustainable Development Goals. However, insufficient data on coverage—defined as the proportion of individuals eligible for an intervention who actually receive it—is a common barrier to monitoring progress.[1] Moreover, coverage indicators can be inconsistently defined and collected within and across countries, reducing comparability and utility for decision-making.

Health systems continue to be the primary platform for delivering nutrition interventions in low- and middle-income countries (LMICs), and nutrition interventions are an integral part of achieving universal health coverage.[2] Many LMICs rely on a combination of large-scale household surveys (e.g. Demographic and Health Surveys [DHS], Multiple Indicator Cluster Surveys [MICS], Standardized Monitoring and Assessment of Relief and Transitions [SMART] surveys, national nutrition surveys) and administrative data (e.g. District Health Information Software 2 [DHIS2]) to support nutrition-related decision needs.[3]

Currently, the global nutrition community does not have a core list of indicators and indicator definitions for health sector nutrition interventions. In "Measuring the coverage of nutrition interventions along the continuum of care: time to act at scale," authors Gillepsie et al. proposed a set of nutrition-related coverage indicators for World Health Organization (WHO)-recommended interventions across the health system continuum of care. Building off the list proposed by Gillepsie et al., this compendium aims to:

- Compile indicators and household survey questions for measuring coverage of nutrition interventions delivered through health systems;
- Provide indicator definitions and accompanying questions based primarily on those used by global household surveys programs, but also incorporate findings from recent coverage measurement research. Whenever feasible, we harmonized indicator definitions and questions with the recently updated DHS-8 core questionnaire; and
- Highlight considerations for adaptation or modification of indicators and questions, and tabulation.

The compendium is intended for use by stakeholders implementing large-scale nutrition surveys or looking to incorporate nutrition intervention coverage questions into other types of household surveys. This compendium is not intended to function as an authoritative guide on what to measure and report. For other nutrition relevant indicators, we have provided a list of survey measurement resources in Appendix 4. Guidance about collection of nutrition indicators through administrative systems including the DHIS2 is forthcoming from the United Nations Children's Fund (UNICEF).

[1] Gillespie S, Menon P, Heidkamp R, Piwoz E, Rawat R, Munos M, Black R, Hayashi C, Saha KK, Requejo J. Measuring the coverage of nutrition interventions along the continuum of care: time to act at scale. *BMJ Global Health*. 2019 May 1;4(Suppl 4):e001290.

[2] Heidkamp RA, Wilson E, Menon P, Kuo H, Walton S, Gatica-Domínguez G, Da Silva IC, Aung T, Hajeebhoy N, Piwoz E. How can we realise the full potential of health systems for nutrition?. *BMJ*. 2020 Jan 27;368.

[3] Gillespie S, Menon P, Heidkamp R, Piwoz E, Rawat R, Munos M, Black R, Hayashi C, Saha KK, Requejo J. Measuring the coverage of nutrition interventions along the continuum of care: time to act at scale. *BMJ Global Health.* 2019 May 1;4(Suppl 4):e001290.

What is an indicator?

An indicator is a measurable variable that functions as a proxy for something that cannot be measured easily or in some cases, is impossible to measure.[4] An indicator can be measured over time and across settings to reflect change. Coverage indicators have a numerator (the number of individuals in the specified population who receive the intervention) and a denominator (the number of individuals in the specified population who are eligible for the intervention). Within each intervention section, we specify numerators and denominators based on the populations that are generally considered eligible to receive the intervention. Ultimately, numerators and denominators need to be specified based on context-specific policies, programs, and priorities.

Have the indicators and survey questions in the compendium been validated?

There are multiple approaches to ensuring indicators and survey questions are valid and reliable. The concept of validity entails different components including how well an indicator reflects a given "truth". Validation studies exist for some indicators in which estimates from household surveys are compared to a gold standard (e.g. observation of receipt of services).[5] We are able to confirm that validation studies and other approaches to assess or improve reliability have been carried out for specific indicators and questions; in these cases we reference supporting documentation. However, for many indicators and questions used by global household survey programs it is unclear whether there have been efforts to validate or assess reliability.

Another important element is whether questions are comprehended by the respondent in the way that they are intended. The processes of pre-testing and cognitive testing across diverse survey contexts can provide useful information about how respondents understand questions, interpret meaning, and formulate responses. In 2019-2020 Data for Decisions to Expand Nutrition Transformation (DataDENT) and the Improving Measurement and Program Design (IMPROVE) project conducted cognitive testing research in India and Nepal to better understand comprehension of survey questions about nutrition interventions during pregnancy. We have adopted several recommendations from this work throughout the compendium. The studies documented cognitive challenges with survey questions that are long, particularly those that include multiple concepts in the question stem (e.g. question stem specifies the intervention, the type of provider and the time period). There was generally easier comprehension with a temporal anchor (e.g. "during pregnancy") rather than a time period anchor (e.g. "in the last six months").[6]

Translations can also alter the meaning of questions and it is important to always apply methods such as back translation and cognitive testing to ensure that translations retain the intent of the question.

[4] Habicht JP, Stoltzfus RJ. What do indicators indicate? Am J Clin Nutr. 1997 July;66(1).

[5] Munos MK, Blanc AK, Carter ED, Eisele TP, Gesuale S, Katz J, Marchant T, Stanton CK, Campbell H. Validation studies for population-based intervention coverage indicators: design, analysis, and interpretation. *J Glob Health*. 2018 Dec;8(2).

[6] Results of this cognitive testing have not been fully released yet. Contact Sunny Kim (sunny.kim@cgiar.org) or Andrew Thorne-Lyman (athorne1@jhu.edu) to learn more about this work.

Guidance on how to use cognitive testing to improve questionnaire design is available from multiple sources.[7,8]

Should we include all questions and indicators in our survey?

As stated in the introduction, this compendium is not intended to function as an authoritative guide on what should or should not be measured. It is important to thoughtfully prioritize which data to collect. Interviewer and respondent fatigue can reduce data quality if a questionnaire is too long.

Not all indicators and questions are relevant across all settings. Choose the indicators and questions aligned with the programs and policies currently implemented in your context and/or those being considered for implementation (i.e. to establish a baseline). Certain interventions, like public provision of complementary foods for children 6-23 months, may only be implemented in specific subnational areas. Questions about the source or location of the intervention may not be relevant if the intervention is provided at a single type of location (e.g. public facilities only) and/or for which distinguishing provider is not a priority. Appendix 3 includes examples of indicators and questions that reflect the source or location of the intervention.

Within each intervention section, we have specified screener questions that must be asked for specific indicators. For example, birth history needs to be established before posing questions to women with a birth in the previous two years.

Can the indicator definitions and survey questions be adapted?

Yes, both indicators and questions can be adapted to better fit the intended use of data. However, it is important to first consider whether changes will impact comparability with national data from other sources and/or across countries. Whenever possible it is good to prioritize common indicator definitions that promote harmonization.

In adapting indicator definitions and questions, survey designers should reflect on who is eligible to receive an intervention in the population they are surveying and how related indicators are framed. For example, maternal nutrition interventions may be reported for all births, only live births, stillbirths, and among women receiving antenatal care (ANC). Select the denominator that allows for comparability with other ANC-related coverage indicators within your context.

It often is helpful to prepare a survey manual documenting all indicator and questionnaire adaptations which can be referred to by the survey team and those using the data.

How might survey design determine which indicators can be accurately measured?

There are many ways that the design of the survey (e.g. sampling approach) might influence the estimates derived from the recommended questions. If indicators with relatively narrow age groups (e.g. children 6-23 months, adolescent girls age 15-19 years) are included, there should be a sufficient number of

[7] Malapit HJ, Sproule K, Kovarik C. Using cognitive interviewing to improve the Women's Empowerment in Agriculture Index survey instruments: Evidence from Bangladesh and Uganda. IFPRI Discussion paper 1564. IFPRI. 2016 Oct.

[8] Muli-Kalavi J, Mannan H. Proceedings of the 5th Washington Group on Disability Statistics, Appendix 4: Cognitive Testing Interview Guide [Internet]; 2005 Sept 21-23; Rio de Janeiro, Brazil. [Cited 2021 June 21]. Available from: https://www.cdc.gov/nchs/data/washington_group/meeting5/WG5_Appendix4.pdf

observations for a representative sample. For some indicators it is important to determine whether questions will be asked for all or only select individuals in the household who meet inclusion criteria (e.g. if a mother has two children in the 6-23 month age range). We encourage survey designers to review The DHS Program's Guide to DHS Statistics and Sampling and Household Listing manuals and UNICEF's MICS-6 Sampling Tools if similar sampling approaches will be used. We highly recommend consulting a survey statistician as part of any population-based survey planning process.

How should questions be ordered in the questionnaire?

The compendium organizes indicators and questions by interventions across the life cycle. However, the placement of specific questions within a questionnaire will vary. It is important that any demographic or screener questions (e.g. maternal age, child's birth date) needed to identify eligible respondents are included before related questions. In some cases, it may be appropriate to integrate questions with a common stem into a single question with multiple parts (e.g. for nutrition interventions delivered during ANC). Within each intervention section, we have included notes on question order.

How should missing values and "don't know" responses be handled when calculating indicators?

Approaches to accounting for missing values and "don't know" responses when calculating indicators can vary based on indicator and context. In the compendium, each section lists suggestions on how to handle missing values and "don't know" responses. For indicators that are in the DHS-8, we list The DHS Program's approach.[9] We encourage you to develop an analysis plan that specifies how to account for these responses and to include this information in the survey report.

What stratification variables should I use when analyzing indicators?

Useful information can often be obtained by disaggregating indicators by other variables including gender, age, socioeconomic status, and geographic region. We list recommended stratification variables based on the intervention and those used in The DHS Program and UNICEF tabulation guides.

Should questions related to child interventions be directed to biological mothers or primary caregivers?

The compendium directs questions related to child nutrition interventions to primary caregivers rather than specifically to mothers. The DHS Program and MICS have different approaches to this—the DHS directs questions about children to mothers whereas MICS directs these questions to mothers or primary caregivers in cases where biological mothers are deceased or live in a different household. We encourage survey teams to decide which approach to use based on their context and to apply it consistently throughout the survey.

Can this compendium be used to guide collection of nutrition data from routine health information systems?

This compendium is specifically designed for household survey-based measurement of coverage of nutrition interventions delivered through the health system. Some content may be applicable to data collection with other platforms (e.g. administrative systems), however there are often unique issues related to how information is captured using different tools, particularly in specifying numerators and

[9] Croft, Trevor N., Aileen M. J. Marshall, Courtney K. Allen, et al. Guide to DHS Statistics. Rockville, Maryland, USA: ICF. 2018 Sept.

denominators. We recommend consulting measurement guidance specific to the intended data collection approach.

Will this compendium be updated?

We plan to update the compendium in 2022-2023 to reflect findings from ongoing measurement research. We welcome feedback from users. To share your experiences using the compendium and recommendations for improvement please visit www.datadent.org and send a message via the form on the contact tab.

Compendium Formatting

- INSTRUCTIONS TO INTERVIEWER are written as text in all capital letters.
- Brackets [ ] indicate alternative tabulations.
- In comparison of indicators/questions to DHS and MICS sections, "NA"—not available—indicates no comparable indicators or questions exists.

Iron-containing supplementation for non-pregnant women and adolescent girls of reproductive age

Intervention description

The WHO recommends daily iron supplementation in menstruating women and adolescent girls[10] where the prevalence of anemia among this group is 40% or higher[11] and intermittent iron and folic acid (IFA) supplementation in menstruating women and adolescent girls where the prevalence of anemia among this group is 20% or higher.[12] The WHO's suggested scheme is daily supplementation for three consecutive months per year.[13] For intermittent supplementation, the WHO's suggested scheme is one supplement weekly for three months, followed by three months of no supplementation, and then resuming weekly supplementation.[14] Distribution strategies and delivery platforms for reaching non-pregnant women and adolescent girls vary across contexts where this recommendation has been operationalized.

Indicators

- **Given or bought *any* iron-containing supplement by non-pregnant women and adolescent girls of reproductive age**: Among non-pregnant women ages 15-49 years,[15] percentage who were *given or bought any* iron-containing supplements in the last 6 months
- **Counseling on use of iron-containing supplement to non-pregnant women and adolescent girls of reproductive age**: Among non-pregnant women ages 15-49 years, percentage who received counseling on taking iron-containing supplements from a healthcare provider in the last 6 months

Questions

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	Are you currently pregnant or have you been pregnant in the last 6 months?	Yes.....1 No .....2 Don't know 8	→End →End
Q2	In the last 6 months, were you given or did you buy any supplements that	Yes.....1 No 2	→3 →End

[10] Defined as non-pregnant women of reproductive age (15-49 years). If countries are implementing among younger adolescent girls 10-14 years of age, then this definition can be updated. See Consideration section below.

[11] Guideline: Daily iron supplementation in adult women and adolescent girls. Geneva: World Health Organization; 2016.

[12] Guideline: Intermittent iron and folic acid supplementation in menstruating women. Geneva: World Health Organization; 2011.

[13] Guideline: Daily iron supplementation in adult women and adolescent girls. Geneva: World Health Organization; 2016.

[14] Guideline: Intermittent iron and folic acid supplementation in menstruating women. Geneva: World Health Organization; 2011.

[15] If countries are implementing among younger adolescent girls 10-14 years of age, then this definition can be updated. See Consideration section below.

	contain iron? (SHOW CONTEXT-SPECIFIC EXAMPLES OF OPTIONS: TABLETS/SYRUP/MULTIPLE MICRONUTRIENT SUPPLEMENT.)	Don't know 8	→End
Q3	In the last 6 months, did a healthcare provider talk with you about tablets or syrup that contain iron?	Yes.....1 No .....2 Don't know 8	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women's age, and stratification variables of interest (e.g. rural/urban, socioeconomic status, education, and region). For these indicators, we recommend stratifying by age intervals based on a context's intervention target groups. A question on school attendance is recommended for adolescent girls in contexts where iron supplementation is delivered through schools. A school attendance question could ask about attendance during a specific recall period, current in-session attendance, or attendance rate at the cluster level. Accounting for school attendance is particularly important if a context has separate intervention strategies for in school and out-of-school adolescents.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Given or bought any iron-containing supplement by non-pregnant women and adolescent girls of reproductive age	Number of non-pregnant women age 15-49 years who were *given or bought* any iron-containing supplement in the last 6 months surveyed	Number of non-pregnant women age 15-49 years in the last 6 months surveyed	$\frac{\text{Q1} = 2 \textbf{ AND } \text{Q2} = 1}{\text{Q1} = 2} \times 100$
Counseling on use of iron-containing supplement to non-pregnant women and adolescent girls of reproductive age	Number of non-pregnant women age 15-49 years who received counseling from a HEALTHCARE PROVIDER about taking iron-containing supplements in the last 6 months surveyed	Number of non-pregnant women age 15-49 years in the last 6 months surveyed	$\frac{\text{Q1} = 2 \textbf{ AND } \text{Q3} = 1}{\text{Q1} = 2} \times 100$

Considerations

Specifying intervention design

Formulations: Depending on the context, may include iron-only supplements, IFA supplements, and multiple micronutrient supplements (MMS) with iron, or multiple micronutrient powders (MNP) with iron. Definition does not include iron delivered through biofortified, industrial or home fortified (i.e. "micronutrient sprinkles") foods. See note below regarding use of images and/or a "pill board".

Delivery: Depending on the context, iron-containing supplements can be: a) distributed at no cost—typically through facility or community-based distribution (e.g. schools); b) purchased by women at pharmacies and other retail outlets; or c) a combination of approaches.

Source of supplement: Refer to Appendix 3 for resources on how to ask about supplement source.

Age group: Proposed indicator definitions specify "non-pregnant women 15-49" which includes adolescent girls of reproductive age (15-19 years). There is limited guidance on nutrition indicators and questions for adolescents. The WHO defines adolescent girls as 10-19 years old; some contexts may deliver interventions to younger girls. Indicator definitions and survey sampling can be adjusted to reflect a lower age range. In contexts where iron is being targeted to adolescents through unique delivery platforms (e.g. schools), we recommend that indicators are tabulated separately for adolescent girls of reproductive age and all women of reproductive age. It is important that the survey sampling strategy allows for a sufficient number of adolescent girls of the specified age range to produce the desired level of representativeness (e.g. national; sub-national).

Consumption: Unlike questions on micronutrient supplementation during pregnancy (see related interventions sections) we have not included a question about the number of tablets consumed during a specified period. The variability in protocols makes it too difficult to specify a meaningful period and it is generally unclear what period supports valid recall.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked in the same section as other questions on interventions for non-pregnant women and adolescent girls of reproductive age. Q1 is intended to exclude lactating women with children <6 months. Refer to section "Iron supplementation to prevent postpartum anemia" to review a proposed indicator and question for postpartum iron supplementation.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among various micronutrient supplements and medications.

Counseling: For Q3, update providers listed in response items to fit the delivery context. Counseling may be provided by school-based health staff, community health workers, health promotion officers, or teachers.

Question testing & validation: To date this is not an indicator that is commonly collected in large-scale, multi-topic household surveys and as such, there has not been a great deal of testing or validation. Performance Monitoring for Action (PMA) 2020 national surveys conducted in Burkina Faso and Kenya included questions on iron-containing supplements among women/adolescents older than ten years of age who were not currently pregnant AND never having given birth. The PMA questions included: a) did

you receive/purchase iron-containing supplements in the last 30 days; b) whether the supplements were given or purchased; c) whether a healthcare provider wrote a prescription for the supplements or advised to purchase them; and d) whether supplement was taken in the previous day. Questionnaire is available here.

Recall period: Depending on the implementation context, the recall period for the indicator/questions may be adapted to reflect the actual delivery strategy. The six-month recall reflects the WHO recommendation for alternating three-month cycles on and off supplements.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Iron-containing supplementation for non-pregnant women and adolescent girls of reproductive age is not included in global indicator frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Given or bought any iron-containing supplement by non-pregnant women and adolescent girls of reproductive age	NA	NA
Counseling on use of iron-containing supplement to non-pregnant women and adolescent girls of reproductive age		

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Modification of DHS-8 Q232 "Are you pregnant now?"	Modification of MICS-6 CP1 "Are you pregnant now?"
Q2	Modelled after DHS-8 Q426 "During this pregnancy, were you given or did you buy any iron tablets or iron syrup?"	NA
Q3	NA	NA

Iron-containing supplements during pregnancy

Intervention description

The WHO recommends daily iron and folic acid (IFA) supplementation during pregnancy to prevent maternal anaemia, puerperal sepsis, low birth weight, and preterm births.[16] Intermittent IFA is recommended in settings where daily iron is not acceptable due to side effects or in populations where anaemia prevalence among pregnant women is less than 20%.

Studies suggest that multiple micronutrients supplements (MMS) that include IFA may reduce the risk of low birth weight (LBW), preterm birth, and small size for gestational age compared to IFA supplementation alone. The current WHO recommendation is: "Antenatal multiple micronutrient supplements that include iron and folic acid are recommended in the context of rigorous research."[17] Furthermore, the WHO recommends implementation research to explore the impact of switching from IFA supplements to MMS in settings where MMS programs are being considered.[18] Several countries are pursuing scale-up of iron-containing MMS in place of IFA.[19] Counseling on iron-containing supplements during pregnancy is covered in the "Nutrition and breastfeeding counseling as part of antenatal care during pregnancy" section.

Indicators

- **Given or bought *any* iron-containing supplement during pregnancy**: Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were *given or bought any* iron-containing supplement during pregnancy for the most recent live birth and/or stillbirth
- **Consumption of *any* iron-containing supplement during pregnancy**: Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who *took any* iron-containing supplement during pregnancy for the most recent live birth and/or stillbirth
- **Consumption of *any* iron-containing supplements (number of days) during pregnancy:** Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who *took any* iron-containing supplements during pregnancy for the most recent live birth and/or stillbirth by number of days
- **Given or bought multiple micronutrients containing iron during pregnancy:** Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were *given or bought* multiple micronutrients containing iron during pregnancy for the most recent live birth and/or stillbirth
- **Consumption of multiple micronutrients containing iron during pregnancy:** Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who *took any* multiple micronutrients containing iron during pregnancy for the most recent live birth and/or stillbirth

[16] WHO wLENA. Daily iron and folic acid supplementation during pregnancy. Updated 2019 Feb 11.
[17] WHO eLENA. Multiple micronutrient supplementation during pregnancy. Updated 2020 Aug 19.
[18] WHO antenatal care recommendations for a positive pregnancy experience. Nutritional interventions update: Multiple micronutrient supplements during pregnancy. Geneva: World Health Organization; 2020.
[19] New York Academy of Sciences. Multiple Micronutrient Supplements in Pregnancy. [Cited 2021 July 15]

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	During this pregnancy, were you given or did you buy any tablets or syrup that contain iron? (SHOW CONTEXT-SPECIFIC EXAMPLES OF OPTIONS: TABLETS/SYRUP/MULTIPLE MICRONUTRIENT SUPPLEMENT)[20]	Yes.....1 No .....2 Don't know 8	→2 →End →End
Q2	Which type of tablets or syrup that contain iron were you given or did you buy? SELECT ALL THAT APPLY. (SHOW CONTEXT-SPECIFIC EXAMPLES OF OPTIONS: TABLETS/SYRUP/MULTIPLE MICRONUTRIENT SUPPLEMENT)[21]	Iron only.....1 Iron folic acid .....2 Multiple micronutrient supplement.....3 Don't know 8	
Q3	During the whole pregnancy, for how many days did you take the tablets or syrup that contain iron? (IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS.)	Days____ Don't know 998	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. those who attended ANC, rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Given or bought *any* iron-containing supplement during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed who were *given or bought any* iron-containing supplement during pregnancy for the most recent live birth	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q1} = 1}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$

[20] "This question must capture all types of iron-containing supplements, including, for example, multiple micronutrient supplements in countries where these types of iron-containing supplements are available. Adapt the question wording to reflect all types of iron containing supplements available in the country." (Note: this is a footnote in the DHS-8 core Woman's Questionnaire)

[21] This question should only be asked in locations with MMS programs.

Indicator	Numerator	Denominator	Calculation
	and/or stillbirth surveyed		
Consumption of *<u>any</u>* iron-containing supplement during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed who *took <u>any</u>* iron-containing supplement during pregnancy for the most recent live birth and/or stillbirth surveyed	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q1} = 1 \textbf{ AND } (\text{Q3} >= 1 \textbf{ OR } \text{Q3} = 988)}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$
Consumption of *<u>any</u>* iron-containing supplements (number of days) during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years who *took <u>any</u>* iron-containing supplements during pregnancy for the most recent live birth or stillbirth by number of days (none, < 60, 60-89, 90-179, 180+, don't know) surveyed	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	None: $\frac{\text{Q1} = 2 \textbf{ OR } \text{Q1} = 8 \textbf{ OR } \text{Q3} = 0}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ <60: $\frac{\text{Q1} = 1 \textbf{ AND } \text{Q3} < 60}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ 60-89: $\frac{\text{Q1} = 1 \textbf{ AND } \text{Q3} >= 60 \textbf{ AND } \text{Q3} < 90}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ 90-179: $\frac{\text{Q1} = 1 \textbf{ AND } \text{Q5} >= 90 \textbf{ AND } \text{Q3} < 180}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ 180+:

Indicator	Numerator	Denominator	Calculation
			$\frac{\text{Q1} = 1 \textbf{ AND } \text{Q3} >= 180}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ Don't know: $\frac{\text{Q1} = 8 \textbf{ OR } \text{Q3} = 998}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$
Given or bought multiple micronutrients containing iron during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed who reported being *given or bought* multiple micronutrient supplements containing iron during pregnancy of last birth for the most recent live birth and/or stillbirth surveyed	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q2} = 3}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$
Consumption of multiple micronutrients containing iron during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed who *took* multiple micronutrients containing iron during pregnancy for the most recent live birth and/or stillbirth surveyed	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q2} = 3 \textbf{ AND } \text{Q3} > 1 \text{ OR } \text{Q3} = 988}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$

Considerations

Specifying intervention design

Formulations: Depending on the context, may include iron-only supplements, IFA supplements, MMS with iron, or MNP with iron. If implementation context delivers folate separately from iron, consider asking a second set of questions about folate. See note below regarding use of images and/or a "pill board."

Delivery: Depending on the context, iron-containing supplements can be: a) distributed at no cost—typically through public and in some cases private facilities or at community-level; b) purchased by women at pharmacies and other retail outlets; or c) a combination of approaches.

Source of supplement: Refer to Appendix 3 for resources on how to ask about supplement source.

Consumption: We have included separate questions and indicators about the number of tablets consumed. See note below in "Question testing & validation" about concerns with recalling the number of supplements consumed.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked in the same section as other questions on interventions during pregnancy. Questions about micronutrient supplementation during pregnancy should not be asked only in the context of ANC, as micronutrients may be given/purchased outside of ANC.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for LIVE births only or ANY birth which includes stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among iron-containing supplements as well as other supplements and medications. When asking Q1 and Q2, the enumerator will both show the visual aid and read aloud names of supplements.

Question testing & validation: Approaches to defining coverage indicators and collecting data on iron-containing supplement coverage are largely unvalidated and vary by context. There is concern about the validity of recall for the specific numbers of supplements consumed.[22] Self-reporting of consumption is specifically subject to social desirability bias, where women may over inflate number of supplements consumed. Using secondary data, Kanyangarara et al. concluded poor accuracy of recalling receipt of IFA after one to two years.[23] The IMPROVE and DataDENT projects are currently completing a prospective study in Nepal to validate whether women can accurately recall services received during ANC, including

[22] Developing and validating an iron and folic acid supplementation indicator for tracking progress towards global nutrition monitoring framework targets. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO.

[23] Kanyangarara M, Katz J, Munos MK, Khatry SK, Mullany LC, Walker N. Validity of self-reported receipt of iron supplements during pregnancy: implications for coverage measurement. *BMC Pregnancy Childb*. 2019 Dec 1;19(1):113.

iron supplementation, when asked DHS-style questions. Despite uncertain validity, at present there is not an alternative approach to recommend for asking about number of days consumed. Additional research should be conducted to refine how to best capture and report on coverage of iron-containing supplements during the pregnancy.

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy-related questions in DHS-8.

Handling of missing values:

Indicator	Missing values	Don't know
Given or bought *any* iron-containing supplement during pregnancy	Both excluded from numerator and included in denominator	
Consumption of *any* iron-containing supplement during pregnancy	Excluded from numerator and included in denominator	Included in numerator and denominator
Consumption of *any* iron-containing supplements (number of days) during pregnancy	Excluded from numerator and included in denominator	Tabulated separately and included in denominator
Given or bought multiple micronutrients containing iron during pregnancy	Both excluded from numerator and included in denominator	
Consumption of multiple micronutrients containing iron during pregnancy	Excluded from numerator and included in denominator	Included in numerator and denominator

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Global indicator frameworks, country monitoring frameworks and household survey programs use different indicators to track IFA coverage. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Given or bought *any* iron-containing supplement during pregnancy	NA	NA
Consumption of *any* iron-containing supplement during pregnancy	(Identical)	

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Consumption of *any* iron-containing supplements (number of days) during pregnancy	(Nearly identical) Percent distribution of the number of days during which women age 15-49 with a live birth or stillbirth in the 2 years preceding the survey took iron-containing supplements during pregnancy for the most recent live birth or stillbirth.	NA
Given or bought multiple micronutrients containing iron during pregnancy	NA	
Consumption of multiple micronutrients containing iron during pregnancy	NA	

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Modification of DHS-8 Q426 – the compendium proposes "During this pregnancy, were you given or did you buy *any tablets or syrup that contain iron*" rather than "During this pregnancy, were you given or did you buy *any iron tablets or iron syrup*?" DHS-8 includes the footnote: "This question must capture all types of iron-containing supplements, including, for example, multiple micronutrient supplements in countries where these types of iron-containing supplements are available. Adapt the question wording to reflect all types of iron containing supplements available in the country."	NA
Q2	NA	
Q3	Identical to DHS-8 Q428	

Calcium supplementation during pregnancy

Intervention description

The WHO recommends daily calcium supplementation for pregnant women in populations with low dietary calcium intake, which reduces the risk of hypertensive disorders like pre-eclampsia. The current WHO recommendation is: "Pre-pregnancy calcium supplementation for the prevention of pre-eclampsia and its complications is recommended only in the context of rigorous research."[24] Hypertensive disorders are main causes of maternal mortality and preterm births; preterm birth increases likelihood of early neonatal and infant mortality.[25] Counseling on calcium supplementation during pregnancy is covered in the "Nutrition and breastfeeding counseling as part of antenatal care during pregnancy" section. The WHO states that stakeholders may start calcium supplementation at first ANC contact to improve compliance, while acknowledging there is no clear evidence on the timing for starting and required duration of supplementation.[26] Questions on multiple micronutrient supplements, which can include calcium, are in section "Iron-containing supplements during pregnancy."

Indicators

- **Given or bought *any* calcium-containing supplement during pregnancy**: Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were *given or bought any* calcium supplement during pregnancy for the most recent live birth and/or stillbirth
- **Consumption of *any* calcium-containing supplement during pregnancy**: Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who *took any* calcium
- **Consumption of calcium-containing supplements (number of days) during pregnancy:** Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who *took* calcium supplements during pregnancy for the most recent live birth and/or stillbirth by number of days

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	During this pregnancy, were you given or did you buy any tablets that contain calcium? (SHOW CONTEXT-SPECIFIC EXAMPLES)	Yes.....1 No .....2 Don't know 8	→2 →End →End
Q2	During the whole pregnancy, for how many days did you take the calcium supplements? (IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS.)	Days____ Don't know 998	

[24] WHO eLENA. Calcium supplementation during pregnancy to reduce the risk of pre-eclampsia. Updated 2019 Sept 17.

[25] Hofmeyr GJ, Lawrie TA, Atallah ÁN, Torloni MR. Calcium supplementation during pregnancy for preventing hypertensive disorders and related problems. *Cochrane Db Syst Rev* 2018; CD001059.

[26] WHO recommendation: Calcium supplementation during pregnancy for the prevention of pre-eclampsia and its complications. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO.

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. those who attended ANC, rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Given or bought *any* calcium-containing supplement during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed who were *given or bought* any calcium-containing supplement during pregnancy for the most recent live birth and/or stillbirth surveyed	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q1} = 1}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$
Consumption of *any* calcium-containing supplement during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed who took any calcium-containing supplement during pregnancy for the most recent live birth and/or stillbirth surveyed	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q1} = 1 \textbf{ AND } (\text{Q2} >= 1 \textbf{ OR } \text{Q2} = 988)}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$
Consumption of calcium-containing supplements	Number of women age 15-49 years with a live birth and/or	Number of women age 15-49 years with a live birth and/or	None:

Indicator	Numerator	Denominator	Calculation
(number of days) during pregnancy	stillbirth in the last 2 years who *took* calcium-containing supplements during pregnancy for the most recent live birth or stillbirth by number of days (none, < 60, 60-89, 90-179, 180+, don't know) surveyed	stillbirth in the last 2 years surveyed	$\frac{\text{Q1} = 2 \textbf{ OR } \text{Q1} = 8 \textbf{ OR } \text{Q2} = 0}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ <60: $\frac{\text{Q1} = 1 \textbf{ AND } \text{Q2} < 60}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ 60-89: $\frac{\text{Q1} = 1 \textbf{ AND } \text{Q2} >= 60 \textbf{ AND } \text{Q2} < 90}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ 90-179: $\frac{\text{Q1} = 1 \textbf{ AND } \text{Q2} >= 90 \textbf{ AND } \text{Q2} < 180}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ 180+: $\frac{\text{Q1} = 1 \textbf{ AND } \text{Q2} >= 180}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$ Don't know: $\frac{\text{Q1} = 8 \textbf{ OR } \text{Q2} = 998}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$

Considerations

Specifying intervention design

Formulations: Depending on the context, may include calcium-only supplements (tablets, powder packages) or in rare cases MMS that contain calcium. If latter applies, refer to the iron-containing supplement section for questions and indicators on MMS. See note below regarding use of images and/or a "pill board".

Delivery: Depending on the context, calcium can be: a) distributed at no cost—typically through public and in some cases private facilities or at community-level; b) purchased by women at pharmacies and other retail outlets; or c) a combination of approaches.

Source of supplement: Refer to Appendix 3 for resources on how to ask about supplement source.

Number consumed: Proposed questions ask about the number of days calcium supplements were taken and not the number of individual doses. To improve acceptability the WHO suggests dividing the recommended daily calcium dose of 1.0-2.0 g into multiple tablets taken at different times.[27]

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked in the same section as other questions on interventions during pregnancy. Questions about micronutrient supplementation during pregnancy should not be asked only in the context of ANC, as micronutrients may be given/purchased outside of ANC.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for LIVE births only or ANY birth which includes stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among supplements and medications.

Question testing & validation: PMA2020 national surveys conducted in Burkina Faso and Kenya included questions on calcium-containing tablets during pregnancy. The PMA questions include: a) did you receive/purchase a tablet containing calcium; b) whether an ANC provider wrote a prescription for the supplements or advised to purchase them; c) receipt of counseling on taking calcium during ANC; and d) the total number taken during the whole pregnancy. PMA2020 tabulated the percentage of women consuming calcium supplements for at least 30 days during pregnancy. Questionnaire is available here.

There are no known studies to validate recall of calcium consumption. Studies to validate recall of IFA consumption have called into question whether women can accurately recall the specific number of tablets/pills received and/or consumed during a completed pregnancy (see "Iron containing supplements during pregnancy" sub-section on "question testing & validation"). Additional research should be conducted to refine how to best capture and report on the quantity of supplements actually consumed during the pregnancy.

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy-related questions in DHS-8.

[27] ibid

Handling of missing values:

Indicator	Missing values	Don't know
Given or bought *any* calcium-containing supplement during pregnancy	Both excluded from numerator and included in denominator	
Consumption of *any* calcium-containing supplement during pregnancy	Excluded from numerator and included in denominator	Included in numerator and denominator
Consumption of calcium-containing supplements (number of days) during pregnancy	Excluded from numerator and included in denominator	Tabulated separately and included in denominator

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Calcium supplementation during pregnancy is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

No indicators or questions about calcium supplementation during pregnancy are included the DHS-8 or MICS-6 core questionnaires. However, the proposed questions are modelled after the DHS-8 core Woman's Questionnaire questions on iron-containing supplements during pregnancy.

Deworming during pregnancy

Intervention description

Intestinal worms (soil-transmitted helminths) infection can lead to internal bleeding, impaired nutrient absorption, and increased vulnerability to infectious diseases. Helminthiasis can be a major contributing factor to iron deficiency anemia; pregnant women are at particularly high risk given the increased micronutrient needs during pregnancy.[28] In settings where baseline prevalence of hookworm and/or *T. trichiura* infection is 20% or more among pregnant women and anaemia prevalence is 40% or higher among pregnant women, the WHO recommends deworming using a single-dose of albendazole or mebendazole after the first trimester.[29]

Indicators

- **Consumption of any deworming medication during pregnancy:** Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who took any medicine for intestinal worms during pregnancy for the most recent live birth and/or stillbirth

Questions and indicator calculation

Questions

Question for indicator is listed below.

Q1	During this pregnancy, did you take any medicine for intestinal worms? (SHOW CONTEXT-SPECIFIC EXAMPLES)	Yes.....1 No .....2 Don't know 8	→2 →End →End

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. those who attended ANC, rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Consumption of any deworming medication during pregnancy	Number of women age 15-49 years with a live and/or stillbirth in the last 2 years who took any medicine for intestinal worms during pregnancy for the most	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q1} = 1}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$

[28] WHO. Guideline: preventive chemotherapy to control soil-transmitted helminth infections in at-risk population groups. Geneva: World Health Organization; 2017. License: CC BY-NC-SA 3.0 IGO

[29] WHO eLENA. Deworming. [Cited 2021 July 15]

Indicator	Numerator	Denominator	Calculation
	recent live birth and/or stillbirth surveyed		

Considerations

Specifying intervention design

Formulations: Depending on the context, may include a single dose of either albendazole or mebendazole tablets. See note below regarding use of images and/or a "pill board".

Source of supplement: Refer to Appendix 3 for resources on how to ask about supplement source.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked in the same section as other questions on interventions during pregnancy.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for live births and/or stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among iron-containing supplements as well as other supplements and medications.[30]

Question testing & validation: The IMPROVE and DataDENT projects are currently completing a prospective study in Nepal to validate whether when asked DHS-style questions women can accurately recall services received during ANC, including deworming.[31] Q1 on taking medications to prevent worms during pregnancy is commonly used in large-scale surveys including in the DHS (see below).

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy-related questions in DHS-8.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Deworming during pregnancy is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

[30] Gillespie S, Menon P, Heidkamp R, Piwoz E, Rawat R, Munos M, Black R, Hayashi C, Saha KK, Requejo J. Measuring the coverage of nutrition interventions along the continuum of care: time to act at scale. *BMJ Glob Health*. 2019 May 1;4(Suppl 4):e001290.

[31] Results of this cognitive testing have not been fully released yet. Contact Sunny Kim (sunny.kim@cgiar.org) or Andrew Thorne-Lyman (athorne1@jhu.edu) to learn more about this work.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Consumption of *<u>any</u>* deworming medication during pregnancy	(Identical)	NA

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to DHS-8 Q429	NA
Q2	NA	

Low-dose vitamin A supplementation during pregnancy

Intervention description

This is a context-specific intervention and is not known to be commonly implemented. In non-deficient populations, vitamin A stored in the liver is usually a sufficient source during pregnancy and therefore supplementation is not recommended.[32] Excessive vitamin A intake during pregnancy has potential negative effects on the fetus, including birth abnormalities and defects.[33] The WHO recommends low-dose vitamin A supplementation for pregnant women in areas where vitamin A deficiency is a severe public health problem to prevent night blindness.[34] Recommended dosage is up to 10,000 IU per day or weekly dose of up to 25,000 IU. Single dose of more than 25,000 IU is not recommended due to unknown safety.[35] Questions on multiple micronutrient supplements, which can include low-dose vitamin A, are in section "Iron-containing supplements during pregnancy."

Indicators

- **Given any low-dose vitamin A only supplements during pregnancy**: Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were given any low-dose vitamin A only supplements during pregnancy for the most recent live birth and/or stillbirth

Question(s) and indicator calculation

Questions

Question for indicator is listed below.

Q1	During this pregnancy, were you given a vitamin A only supplement? (SHOW CONTEXT-SPECIFIC EXAMPLES)	Yes.....1 No .....2 Don't know 8	→2 →End →End

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. those who attended ANC, rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

[32] Van Den Broek N, Dou L, Othman M, Neilson JP, Gates S, Gülmezoglu AM. Vitamin A supplementation during pregnancy for maternal and newborn outcomes. *Cochrane DB Syst Rev.* 2010(11).
[33] WHO. Adverse events following administration of vitamin A supplements. [Cited 2021 July 15]
[34] WHO eLENA. Vitamin A supplementation during pregnancy. Updated 2019 Feb 11..
[35] WHO. Vitamin A supplementation in infants and children 6–59 months of age guidance summary. Geneva, World Health Organization.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Given any low-dose vitamin A only supplements during pregnancy	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed who were *given* any low-dose vitamin A only supplements during pregnancy for the most recent live birth and/or stillbirth surveyed	Number of women age 15-49 years with a live birth and/or stillbirth in the last 2 years surveyed	$\frac{\text{Q1} = 1}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$

Considerations

Specifying intervention design

Formulations: Depending on the context, supplement formulation is generally a tablet. See note below regarding use of images and/or a "pill board".

Source of supplement: Refer to Appendix 3 for resources on how to ask about supplement source.

Questionnaire design & interview technique

Location in questionnaire: This question should be asked in the same section as other questions on interventions during pregnancy. Questions about micronutrient supplementation during pregnancy should not be asked only in the context of ANC, as micronutrients may be given/purchased outside of ANC.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for LIVE births only or ANY birth which includes stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among supplements and medications.

Question testing & validation: There are no known studies to validate the question proposed.

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy-related questions in DHS-8.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Low dose vitamin A supplementation during pregnancy is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

This question is not included the DHS-8 or MICS-6 core questionnaires. However, the proposed question is modelled after the DHS-8 core Woman's Questionnaire question on iron-containing supplements during pregnancy.

Nutrition and breastfeeding counseling as part of antenatal care during pregnancy

Intervention description

The 2016 WHO Antenatal Care for a Positive Pregnancy Experience Guidelines recommend counseling on nutrition (i.e. diet, supplement use) and physical activity for pregnant women. Nutrition counseling during pregnancy may promote optimal gestational weight gain, reduce risk of anaemia in late pregnancy, increase birthweight, and reduce preterm birth. Counseling on increasing daily energy and protein intake during pregnancy is particularly encouraged in undernourished populations.[36] Messages about reduction in workload and rest are commonly delivered in populations with women at risk of insufficient weight gain; in other populations, physical activity messages are intended to prevent excessive weight again and/or post-partum weight retention. The WHO 2018 "Guideline: counseling of women to improve breastfeeding practices" encourages breastfeeding counseling at a minimum of six time points starting during pregnancy and continuing through the child's first two years of life.[37] Questions on breastfeeding counseling during later time points are included in section "Breastfeeding counseling and support around delivery and postnatal care" and "Infant and young child feeding counseling for children 6-23 months."

Indicators

- **Counseling about maternal diet during pregnancy:** Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about maternal diet
- **Counseling about breastfeeding received during pregnancy:** Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about breastfeeding
- **Counseling about use of iron-containing supplements during pregnancy:** Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about taking iron-containing tablets
- **Counseling about use of calcium supplements during pregnancy:** Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about taking calcium supplements
- **Counseling about maternal physical activity and rest during pregnancy:** Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about physical activity and rest

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	Did you see anyone for antenatal care for this pregnancy?	Yes.....1 No 2	→2 →End

[36] WHO eLENA. Nutrition counselling during pregnancy. Updated 2019 Feb 11.

[37] WHO. Guideline: Counselling of Women to Improve Breastfeeding Practices. 2018. World Health Organization. Geneva.

Q2	As part of your antenatal care during this pregnancy, did a healthcare provider do any of the following:		
Q2a	Talk with you about which foods or how much food you should eat?	Yes.....1 No .....2 Don't know 8	
Q2b	Talk with you about breastfeeding?	Yes.....1 No .....2 Don't know 8	
Q2c	Talk with you about taking any tablet or syrup containing iron?	Yes.....1 No .....2 Don't know 8	
Q2d	Talk with you about taking calcium tablets	Yes.....1 No .....2 Don't know 8	
Q2e	Talk with you about staying active and getting adequate rest while pregnant?	Yes.....1 No .....2 Don't know 8	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Counseling about maternal diet during pregnancy	Number of women age 15-49 years who received ANC for their most recent live birth in the last 2 years and received information about maternal diet surveyed	Number of women age 15-49 years with a live birth in the last 2 years who received ANC for their most recent birth surveyed	$\frac{\text{Q2a} = 1}{\text{Q1} = 1} \times 100$
Counseling about breastfeeding received during pregnancy	Number of women age 15-49 years who received ANC for their most recent live birth in the last 2 years and received information about breastfeeding surveyed	Number of women age 15-49 years with a live birth in the last 2 years who received ANC for their most recent birth surveyed	$\frac{\text{Q2b} = 1}{\text{Q1} = 1} \times 100$

Indicator	Numerator	Denominator	Calculation
Counseling about use of iron-containing supplements during pregnancy	Number of women age 15-49 years who received ANC for their most recent live birth in the last 2 years and received information about taking iron-containing tablets surveyed	Number of women age 15-49 years with a live birth in the last 2 years who received ANC for their most recent birth surveyed	$\frac{\text{Q2c} = 1}{\text{Q1} = 1} \times 100$
Counseling about use of calcium supplements during pregnancy	Number of women age 15-49 years who received ANC for their most recent live birth in the last 2 years and received information about taking calcium supplements surveyed	Number of women age 15-49 years with a live birth in the last 2 years who received ANC for their most recent birth surveyed	$\frac{\text{Q2d} = 1}{\text{Q1} = 1} \times 100$
Counseling about maternal physical activity and rest during pregnancy	Number of women age 15-49 years who received ANC for their most recent live birth in the last 2 years and received information about physical activity and rest surveyed	Number of women age 15-49 years with a live birth in the last 2 years who received ANC for their most recent birth surveyed	$\frac{\text{Q2e} = 1}{\text{Q1} = 1} \times 100$

Considerations

Specifying intervention design

Delivery: Depending on the context, counseling on the specified topics is expected to be provided as part of ANC.[38] For consistency with DHS, all indicators and questions in this section specify "among those who received ANC". However, it is possible that counseling interventions are delivered to pregnant women outside of ANC (e.g. community-based delivery). You may adapt the indicator definitions and questions/response options based on the actual delivery strategy. Asking subsequent questions on place of contact and type of service provider can provide additional programmatic insight (e.g. to distinguish between formal and informal providers). However, research suggests that, in some contexts, respondents are not able to discern between specific provider types. See Choufani et al. for more guidance.[39]

[38] World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. 2016. World Health Organization. Geneva.

[39] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Matern Child Nutr*. 2020 Apr 15:e13001.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked in the same section as other questions on interventions during pregnancy, particularly ANC.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for LIVE births only or ANY birth which includes stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth.

Question testing & validation: In 2019-2020 DataDENT and IMPROVE conducted cognitive testing research in India and Nepal to better understand maternal comprehension of survey questions about nutrition interventions during pregnancy. Counseling topic areas covered by the questions included maternal diet, physical activity, iron and calcium supplement use and breastfeeding. In India, respondents had trouble understanding the phrasing "at least once" referring to the number of counseling episodes across pregnancy. Some respondents had trouble distinguishing receipt of counseling specifically during ANC compared to other times in pregnancy. Based on respondent feedback we adapted the DHS question about physical activity counseling to include "physically active or taking adequate rest".[40]

As part of the 2021 DHS-8 nutrition cognitive testing pilot, The DHS Program will test Q418 ("As part of your antenatal care during this pregnancy, did a healthcare provider do any of the following at least once: e) talk with you about which foods you should eat and f) talk with you about breastfeeding").

We recommend referring to Choufani et al. "Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design" for more guidance on measuring counseling interventions through household surveys.[41]

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy-related questions in DHS-8.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Counseling coverage is included in at least one global framework. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

[40] Results of this cognitive testing have not been fully released yet. Contact Sunny Kim (sunny.kim@cgiar.org) or Andrew Thorne-Lyman (athorne1@jhu.edu) to learn more about this work.

[41] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Matern Child Nutr*. 2020 Apr 15:e13001.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Counseling about maternal diet during pregnancy	The DHS indicator definition only accounts for counseling about which foods to eat. We have proposed including quantity of food in the indicator definition since counseling on both components is important.	NA
Counseling about breastfeeding received during pregnancy	Identical	
Counseling about use of iron-containing supplements during pregnancy	NA	
Counseling about use of calcium supplements during pregnancy	NA	
Counseling about maternal physical activity and rest during pregnancy	NA	

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to DHS-8 Q412	Slight modification to MN2 “Did you see anyone for antenatal care during your pregnancy with (name)?”
Q2	Identical to DHS-8 Q418 (current question in publicly available DHS-8 includes “at least once,” but this has officially been omitted)	NA
Q2a	Modification of DHS-8 Q418e “Talk with you about which foods you should eat?” to include diet quantity	
Q2b	Identical to DHS-8 Q418f “Talk with you about breastfeeding?”	
Q2c	NA	
Q2d	NA	
Q2e	NA	

Monitoring weight gain as part of antenatal care during pregnancy

Intervention description

Weight monitoring during pregnancy is important for prevention of LBW and birth complications, as well as excess weight gain which contributes to post-partum weight retention. Routine weight monitoring during pregnancy informs counseling on healthy eating and physical activity which are part of the WHO recommendations on antenatal care for a positive pregnancy experience.[42] It can also be used to target maternal protein energy supplementation where available.

Indicators

- **Weighed during at least 2 ANC visits:** Among women age 15-49 who had at least two or more ANC visits for their most recent live birth in the last 2 years, percentage that reported their weight being measured over at least two ANC visits
- **Counseling on weight gain during ANC:** Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about the amount of weight to gain (not too little or too much)

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	Did you see anyone for antenatal care for this pregnancy?	Yes.....1 No 2	→2 →End
Q2	How many times did you receive antenatal care during this pregnancy?	Number of times____ Don't know 98	
Q3	As part of your antenatal care during this pregnancy, did a healthcare provider do any of the following:		
Q3a	Weigh you?	Yes.....1 No .....2 Don't know 8	→3b →3c →3b
Q3b	Weigh you at two or more visits?	Yes.....1 No .....2 Don't know 8	
Q3c	Talk with you about the amount of weight you should gain (not too little or too much)?	Yes.....1 No .....2 Don't know 8	

[42] World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. 2016. World Health Organization. Geneva.

*These questions are part of the current DHS-8 core Woman's Questionnaire, but are not related to calculating the proposed indicators in this nutrition counseling section. They have been included to demonstrate where the suggested nutrition counseling questions should be included.

†Currently not part of the core and module DHS question, but proposed as part of this compendium.

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Weighed during at least 2 ANC visits	Number of women age 15-49 years who received ANC for their most recent live birth in the last 2 years and was weighed during at least two or more ANC visits surveyed	Number of women age 15-49 years with a live birth in the last 2 years who had at least two or more ANC visits for their most recent birth surveyed	$\frac{\text{Q3b} = 1}{\text{Q2} >= 2} \times 100$
Counseling weight gain during pregnancy	Number of women age 15-49 years who received ANC for their most recent live birth in the last 2 years and received information about the amount of weight to gain (not too little or too much) surveyed	Number of women age 15-49 years with a live birth in the last 2 years who received ANC for their most recent birth surveyed	$\frac{\text{Q3c} = 1}{\text{Q1} = 1} \times 100$

Considerations

Specifying intervention design

Delivery: Monitoring weight gain is part of the 2016 WHO Positive Pregnancy guidelines and considered an intervention specific to ANC given the required equipment (e.g. scales).[43] However, it is possible that counseling interventions are delivered to pregnant women outside of ANC (e.g. community-based delivery). Depending on the context, you may adapt the indicator definitions and questions/response options based on the actual delivery strategy. Asking subsequent questions on place of contact and type of service provider can provide additional programmatic insight (e.g. to distinguish between formal and informal providers). However, research suggests that, in some contexts, respondents are not able to discern between specific provider types. See Choufani et al. for more guidance.[44]

[43] World Health Organization. WHO recommendations on antenatal care for a positive pregnancy experience. 2016. World Health Organization. Geneva.

[44] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Matern Child Nutr.* 2020 Apr 15:e13001.

Location in questionnaire: These questions should be asked in the same section as other questions on interventions during pregnancy, specifically ANC.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for LIVE births only or ANY birth which includes stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth.

Question testing & validation: In 2019-2020 DataDENT and IMPROVE conducted cognitive testing research in India and Nepal to better understand maternal comprehension of survey questions about nutrition interventions during pregnancy. Counseling topic areas covered by the questions included weight gain during pregnancy. In India, respondents had trouble understanding the phrasing "at least once" referring to the number of counseling episodes across pregnancy. Some respondents had trouble distinguishing receipt of counseling specifically during ANC compared to other health center across pregnancy.[45]

We recommend referring to Choufani et al. "Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design" for more guidance on measuring counseling interventions through household surveys.[46]

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy-related questions in DHS-8.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Monitoring weight gain as part of ANC during pregnancy is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

[45] Results of this cognitive testing have not been fully released yet. Contact Sunny Kim (sunny.kim@cgiar.org) or Andrew Thorne-Lyman (athorne1@jhu.edu) to learn more about this work.

[46] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Matern Child Nutr.* 2020 Apr 15:e13001.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Weighed during at least 2 ANC visits	Weighed during at least 1 ANC visit is an indicator in the DHS-8 Supplemental Module on Maternal Health Care. Given intervention is monitoring weight gain during pregnancy, we have proposed an indicator reflecting weight measurement during at least 2 ANC visits.	NA
Counseling on weight gain during ANC	NA	

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to DHS-8 Q412	Slight modification of MN2 “Did you see anyone for antenatal care during your pregnancy with (name)?”
Q2	Identical to DHS-8 Q417	Identical to MN5
Q3	Identical to DHS-8 Q418 (current question in publicly available DHS-8 includes “at least once,” but this has officially been omitted)	NA
Q3a	Identical to DHS-8 Q418h (only in Supplemental Module on Maternal Health Care)	
Q3b	NA	
Q3c	NA	

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Breastfeeding counseling and support around delivery and early postnatal care

Intervention description

The WHO Global Strategy on Infant and Young Child Feeding (IYCF) recommends exclusive breastfeeding (EBF) during the first six months (unless advised otherwise for medical reasons) and continued breastfeeding for two years or beyond.[47] Breastfeeding counseling and support are effective to promote EBF and continued breastfeeding.

The 2018 WHO "Guideline: counseling of women to improve breastfeeding practices" encourages breastfeeding counseling at a minimum of six time points (antenatal, perinatal, neonatal, early infancy, late infancy, and early childhood).[48] The guidelines recommend multiple contacts with the mother starting in pregnancy and continuing through age two years. Breastfeeding counseling involves multiple actions including information sharing, discussion and hands-on support to observe, identify and address positioning and other breastfeeding problems experienced by the mother. The revised Baby-friendly Hospital Initiative (BFHI) (2018) outlines ten steps to promote breastfeeding in facilities including direct observation of feeding to improve positioning and attachment.[49] Active support can also be provided by health workers to help the mother initiate breastfeeding within one hour of delivery.

This section covers breastfeeding counseling and support at two critical points in early infancy—at delivery and in the early postnatal period (within two days of delivery). Questions on breastfeeding counseling during ANC and for children 6-23 months are included in the following sections "Nutrition and breastfeeding counseling as part of antenatal care during pregnancy" and "Infant and young child feeding counseling for children 6-23 months."

Indicators

At Delivery

- **Early initiation of breastfeeding**: Among the last live births in the 2 years preceding the survey, percentage where breastfeeding was initiated within one hour of birth
- **Physical assistance to support breastfeeding initiation**: Among the last live births in the 2 years preceding the survey, percentage where health worker helped the mother put her baby to breast for first time
- **Physical assistance to support breastfeeding initiation within one hour of birth**: Among the last live births in the 2 years preceding the survey, percentage where health worker helped the mother put her baby to breast for first time AND breastfeeding was initiated within one hour of birth

[47] WHO Global strategy on infant and young child feeding. 2001. World Health Organization. Geneva.
[48] WHO. Guideline: Counselling of Women to Improve Breastfeeding Practices. 2018. World Health Organization. Geneva.
[49] Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services – the revised Baby-friendly Hospital Initiative. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO.

Perinatal

- **Breastfeeding counseling during early postnatal care:** Among the last live births in the 2 years preceding the survey, percentage for whom counseling on breastfeeding was performed during the first two days after birth
- **Breastfeeding observation during early postnatal care**: Among the last live births in the 2 years preceding the survey, percentage for whom observation of breastfeeding to ensure correct technique was performed during the first two days after birth
- **Breastfeeding counseling with observation during early postnatal care**: Among the last live births in the 2 years preceding the survey, percentage for whom counseling on breastfeeding AND observation of breastfeeding to ensure correct technique were performed during the first two days after birth
- **Informed about access to breastfeeding support during early postnatal care**: Among the last live births in the 2 years preceding the survey, percentage for whom where to get help with breastfeeding was shared during the first two days after child's birth

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Around Delivery			
Q1	Did you ever breastfeed (NAME)?	Yes.....1 No 2	→2 →4
Q2	How long after birth did you first put (NAME) to the breast? IF LESS THAN 1 HOUR, RECORD '00' HOURS; IF LESS THAN 24 HOURS, RECORD HOURS; OTHERWISE, RECORD DAYS.	IMMEDIATELY..... 000 HOURS ..... (1) _____ DAYS..... (2) _____	
Q3	When you gave birth to (NAME), did a HEALTHCARE PROVIDER help you put the baby to the breast the first time you breastfed your baby?	Yes.....1 No .....2 Don't know 8	
Perinatal			
Q4	During the first two days after (NAME)'s birth, did any HEALTHCARE PROVIDER do the following:		
Q4a	Talk with you about breastfeeding?	Yes.....1 No .....2 Don't know 8	
Q4b	Observe that you are breastfeeding (NAME) correctly?	Yes.....1 No .....2 Don't know 8	

Q4c	Tell you where you could get help with breastfeeding?	Yes.....1 No .....2 Don't know 8	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Early initiation of breastfeeding	Number of women age 15-49 years with a live birth in the last 2 years surveyed who reported initiating breastfeeding within one hour of delivery	Number of women age 15-49 years with a live birth in the previous 2 years surveyed	$\frac{\text{Q2} = 000 \text{ or } \text{Q2}(1) = 00}{\text{Number of women age } 15-49 \text{ years with a live birth in the last 2 years surveyed}} \times 100$
Physical assistance to support breastfeeding initiation	Number of women age 15-49 years with a live birth in the last 2 years surveyed who had a health worker help the mother put her baby to breast for first time at delivery	Number of women age 15-49 years with a live birth in the previous 2 years surveyed	$\frac{\text{Q3} = 1}{\text{Number of women age } 15-49 \text{ years with a live birth in the last 2 years surveyed}} \times 100$
Physical assistance to support breastfeeding initiation within one hour of birth	Number of women age 15-49 years with a live birth in the last 2 years surveyed who had a health worker help the mother put her baby to breast for first time at delivery surveyed AND reported initiating breastfeeding within one hour of delivery	Number of women age 15-49 years with a live birth in the previous 2 years surveyed	$\frac{\text{Q1} = 1 \text{ AND } \text{Q2} = 000 \text{ OR } \text{Q2}(1) = 00}{\text{Number of women age } 15-49 \text{ years with a live birth in the last 2 years surveyed}} \times 100$

Indicator	Numerator	Denominator	Calculation
Breastfeeding counseling during early postnatal care	Number of last live births in the previous 2 years surveyed who received counseling on breastfeeding during the first 2 days after birth surveyed	Number of most recent live births in the previous 2 years surveyed	$\frac{\text{Q4a} = 1}{\text{Number of most recent live births in the last 2 years surveyed}} \times 100$
Breastfeeding observation during early postnatal care	Number of last live births in the previous 2 years surveyed who received observation of breastfeeding to ensure correct technique during the first 2 days after birth surveyed	Number of most recent live births in the previous 2 years surveyed	$\frac{\text{Q4b} = 1}{\text{Number of most recent live births in the last 2 years surveyed}} \times 100$
Breastfeeding counseling with observation during early postnatal care	Number of last live births in the previous 2 years surveyed who received counseling on breastfeeding AND observation of breastfeeding to ensure correct technique during the first 2 days after birth surveyed	Number of most recent live births in the previous 2 years surveyed	$\frac{\text{Q4a} = 1 \textbf{ AND } \text{Q4b} = 1}{\text{Number of most recent live births in the last 2 years surveyed}} \times 100$
Informed about access to breastfeeding support during early postnatal care	Number of last live births in the previous 2 years surveyed who received information on where to get help with breastfeeding during the first 2	Number of most recent live births in the previous 2 years surveyed	$\frac{\text{Q4c} = 1}{\text{Number of most recent live births in the last 2 years surveyed}} \times 100$

Indicator	Numerator	Denominator	Calculation
	days after birth surveyed		

Considerations

Specifying intervention design

Delivery: We have harmonized the period for postnatal care (PNC) (first two days after birth) to DHS-8 definitions. Similar to DHS, we propose that these questions are asked to all women regardless of delivery location.

Asking subsequent questions on place of contact and type of service provider may provide additional programmatic insight. However, research suggests that, in some contexts, respondents are not able to discern between specific provider types. See Choufani et al. article for more guidance.[50]

Women who deliver by caesarean section may not receive breastfeeding counseling around delivery and tend to have lower rates of breastfeeding initiation and duration.[51] Therefore in contexts with relatively high rates of caesarean deliveries, consider including a question about whether delivery was vaginal or caesarean. See DHS-8 core Woman's Questionnaire for recommended question.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked in the same section as other questions on interventions during delivery and early PNC.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for LIVE births only or ANY birth which includes stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth.

Question testing & validation: Questions about breastfeeding counseling during PNC have been validated and met criteria for high accuracy in Kenya.[52] Several initiatives have asked very similar questions as part of program evaluation surveys (e.g. Alive & Thrive in three countries) or nationally-representative surveys with minor variations in wording. PMA2020 national surveys conducted in Burkina Faso and Kenya included the first question on help with putting the baby to the breast at delivery. Questionnaire is available here.

[50] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Mater Child Nutr.* 2020 Apr 15:e13001.

[51] WHO. Guideline: Counselling of Women to Improve Breastfeeding Practices. 2018. World Health Organization. Geneva.

[52] McCarthy KJ, Blanc AK, Warren CE, Mdawida B. Women's recall of maternal and newborn interventions received in the postnatal period: a validity study in Kenya and Swaziland. *J Glob Health.* 2018 Jun;8(1).

DataDENT and IMPROVE conducted cognitive testing to validate maternal recall of IYCF counseling survey questions in India and Nepal. In Nepal, no local word exists for breastfeeding, so local translation needed to be "did you feed mother's milk to your baby." Furthermore, some women had trouble understanding "during the first two days after birth," and interpreted "observe" to mean that any person saw them breastfeeding—not necessarily breastfeeding correctly. As a result, we propose in this section that "breastfeeding correctly" is clearly specified in the question.[53]

We recommend referring to Choufani et al. "Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design" for more detail on measuring counseling interventions through household surveys.[54]

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy and delivery related questions in DHS-8.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here. The BFHI has standard indicators that use several approaches to define breastfeeding support. For facility-based monitoring, the BFHI guidance recommends using early initiation of breastfeeding as a sentinel indicator for Step 4: Facilitate immediate and uninterrupted skin-to-skin contact and support mothers to initiate breastfeeding as soon as possible after birth.[55] This is defined as "the percentage of term infants who were put to the breast within one hour of birth" and the recommended primary data source is clinical records. For national/subnational monitoring of protection, promotion and support of breastfeeding in facilities providing maternity and newborn services, WHO/UNICEF BFHI guidance recommends a clinical practice indicator "support with breastfeeding" defined as "the percentage of mothers who received support with learning to breastfeed after delivery." The recommended data source identified for this indicator is household surveys. To avoid confusion, we propose the indicator "**Physical assistance to support breastfeeding initiation**," which reflects breastfeeding support at delivery and, while not identical, is most aligned with the BFHI "support with breastfeeding" clinical practice indicator.

[53] Results of this cognitive testing have not been fully released yet. Contact Sunny Kim (sunny.kim@cgiar.org) or Andrew Thorne-Lyman (athorne1@jhu.edu) to learn more about this work.

[54] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Matern Child Nutr*. 2020 Apr 15:e13001.

[55] WHO, UNICEF. Implementation guidance: protecting, promoting and supporting breastfeeding in facilities providing maternity and newborn services: the revised baby-friendly hospital initiative. Appendix 4: Indicators for monitoring, World Health Organization. 2018; License: CC BY-NC-SA 3.0 IGO

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Early initiation of breastfeeding	The DHS-8 definition has an identical numerator, but the denominator is different (all children born in the 2 years preceding the survey regardless of whether child is living or dead at the time of the interview). The DHS denominator for this indicator has changed over time. The DHS-7 definition calculated this indicator based on last-born children who were born in the 2 years preceding the survey.[56]	Denominator is the most recent live-born children to women with a live birth in the last 2 years
Physical assistance to support breastfeeding initiation	NA	NA
Physical assistance to support breastfeeding initiation within one hour of birth	NA	NA
Breastfeeding counseling during early postnatal care	Identical	Modification of PN25c "During the first two days after birth, did any health care provider do any of the following either at home or at a facility: c) Counsel you on breastfeeding?"
Breastfeeding observation during early postnatal care	DHS does not specify *correct* breastfeeding	MICS does not specify *correct* breastfeeding
Breastfeeding counseling with observation during early postnatal care	DHS tabulates percentage of newborns receiving at least two signal functions of PNC but does not specifically tabulate counseling and observation	MICS tabulates % of newborns receiving at least two signal functions of PNC but does not specifically tabulate counseling and observation
Informed about access to breastfeeding support during early postnatal care	Identical to indicator in the DHS-8 Supplemental Module on Maternal Health Care	NA

[56] Croft, Trevor N., Aileen M. J. Marshall, Courtney K. Allen, et al. Guide to DHS Statistics. Rockville, Maryland, USA: ICF. 2018 Sept. See section for Initial Breastfeeding.

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to DHS-8 Q480	Identical to MICS-6 MN36
Q2	Identical to DHS-8 Q482	Nearly identical to MICS-6 MN37 (has “don’t know” as a response option)
Q3	NA	NA
Q4	Identical to DHS-8 Q473	Modification of PN25 “During the first two days after birth, did any health care provider do any of the following either at home or at a facility”
Q4a	Identical to DHS-8 Q473d	Modification of PN25c “Counsel you on breastfeeding?”
Q4b	Modification DHS-8 Q473e – original DHS question does not specify “correctly”	Modification of PN27 “Observe (name)’s breastfeeding?”
Q4c	Identical to DHS-8 Q473f (in Supplemental Module on Maternal Health Care	NA

Iron supplementation to prevent postpartum anemia

Intervention description

The WHO recommends the following interventions for contexts where prevalence of gestational anaemia is 20% or higher: (1) Oral iron or iron folic acid for 6–12 weeks following delivery.[57] Postpartum supplementation should begin as early as possible after delivery and to allow continuity of care the iron supplementation regimen (e.g. dose and whether consumed daily or weekly) should follow that used during pregnancy, or alternatively should be the same regimen used for non-pregnant women or adolescent girls. (2) In malaria-endemic areas, provision of postpartum IFA supplements should be implemented per context specific WHO recommendations in conjunction with measures to prevent, diagnose and treat malaria.[58,59]

It is not clear whether this intervention is implemented at public health scale in any national or sub-national contexts, however, given it is a WHO recommended intervention, a corresponding indicator is provided for those implementing this intervention and want to prioritize its measurement.

Indicators

- **Given or bought of any iron-containing supplement to prevent postpartum anemia:** Among women age 15-49 years with a live birth in the last 2 years and whose youngest child is between 6-23 months old on the day of the survey, percentage who were *given or bought* any iron-containing supplement within 3 months after most recent live birth

Questions and indicator calculation

Questions

Question for indicator is listed below.

Q1	During the first three months after (NAME)'s birth, were you given or did you buy any tablets or syrup containing iron? (SHOW CONTEXT-SPECIFIC EXAMPLE)	Yes.....1 No .....2 Don't know 8	→2 →End →End

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: women age, recent birth history, and stratification variables of interest (e.g. rural/urban, socioeconomic status, education, and birth order). Refer to Appendix 2 for more information on asking birth history and calculating the number of women with births in the last two years.

[57] Guideline: Iron supplementation in postpartum women. Geneva: World Health Organization; 2016. WHO considers a 20% or higher population prevalence of gestational anaemia to be a moderate public health problem.

[58] WHO eLENA. Iron supplementation with or without folic acid to reduce the risk of postpartum anaemia in malaria-endemic areas. Updated 2019 Feb 11.

[59] WHO eLENA. Iron supplementation with or without folic acid to reduce the risk of postpartum anaemia. Updated 2019 Feb 11.

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Given or bought of any iron-containing supplement to prevent postpartum anemia	Number of women age 15-49 years with a live birth in the last 2 years and whose youngest child age 6-23 months who were given or bought any iron-containing within 3 months after childbirth surveyed	Number of women age 15-49 years with a live birth in the last 2 years and whose youngest child age 6-23 months surveyed	$\frac{\text{Q1} = 1}{\text{Number of women age } 15-49 \text{ years with a live birth and/or stillbirth in the last 2 years surveyed}} \times 100$

Considerations

Specifying intervention design

Formulations: Depending on the context, may include iron-only supplements, IFA supplements, MMS with iron, or MNP with iron. See note below regarding use of images and/or a "pill board".

Source of supplement: Refer to Appendix 3 for resources on how to ask about supplement source.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked in the same section as other questions on postpartum interventions.

Birth history: Birth history needs to be established before posing these questions to identify women with a birth in the previous two years. Surveys will vary in whether they report for LIVE births only or ANY birth which includes stillbirths. The indicator definition and calculation should be specified accordingly. For women with multiple births in the previous two years, 'this pregnancy' should refer to the most recent birth. For women with a live birth and stillbirth in the previous two years, data should be tabulated for most recent birth. The indicator definitions specify children 6-23 months to exclude women who have delivered in the past three months from the time of being surveyed.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among various micronutrient supplements and medications.

Question testing & validation: There are no known validations studies for either question proposed.

Recall period: The suggested recall period is the previous two years, consistent with recent updates to pregnancy and delivery related questions in DHS-8.

Handling of missing values:

Indicator	Missing values	Don't know
Given or bought of any iron-containing supplement to prevent postpartum anemia	Both excluded from numerator and included in denominator	

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Iron supplementation to prevent postpartum anemia is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

No indicators or questions about iron supplementation to prevent postpartum anemia are included the DHS-8 or MICS-6 core questionnaires. However, the proposed questions are modelled after the DHS-8 core Woman's Questionnaire questions on iron-containing supplements during pregnancy.

Infant and young child feeding counseling for children 6-23 months

Intervention description

Many countries implement interventions to promote age-appropriate IYCF practices**,** but few countries have population-based coverage data for IYCF promotion interventions.[60] In February 2019, the WHO released "Guideline: Counselling of Women to Improve Breastfeeding Practices," which encourages breastfeeding counseling at a minimum of six time points (antenatal, perinatal, neonatal, early infancy, late infancy, and early childhood).[61] WHO guidance on feeding children 6-23 months recommends introduction of diverse foods with increasing frequency for both breastfed and non-breastfed children.[62,63] Questions on breastfeeding counseling during ANC, at delivery and early postnatal periods are included in sections "Nutrition and breastfeeding counseling as part of antenatal care during pregnancy" and "Breastfeeding counseling and support around delivery and early postnatal care". The indicators and questions below are designed to assess coverage of IYCF counseling in late infancy and early childhood. They do not capture the total number of contacts in this period.

Indicators

- **Children 6-23 months whose primary caregiver received *any* IYCF counseling in the last 6 months:** Among children 6-23 months old, percentage with caregivers who talked with a healthcare provider about how or what to feed their child in the last 6 months
- **Children 6-23 months whose primary caregiver caregivers received *age-appropriate* IYCF counseling in the last 6 months:** Among children 6-23 months old, percentage with caregivers who talked with a healthcare provider and received age-appropriate information about how or what to feed their child in the last 6 months

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	In the last 6 months, did any healthcare provider talk with you about how or what to feed your child? [64]	Yes.....1 No .....2 Don't know 8	→2 →End →End

[60] Global nutrition policy review 2016-2017: country progress in creating enabling policy environments for promoting healthy diets and nutrition. Geneva: World Health Organization; 2018. Licence: CC BY-NC-SA 3.0 IGO.

[61] WHO. Guideline: Counselling of Women to Improve Breastfeeding Practices. Geneva: World Health Organization; 2018.

[62] PAHO/WHO. Guiding principles for complementary feeding of the breastfed child. Washington, D.C./Geneva, Switzerland: PAHO/WHO; 2003.

[63] WHO. Guiding principles for feeding non-breastfed children 6-24 months of age. Geneva, Switzerland: World Health Organization; 2005.

[64] Stem questions can be adapted based on context and measurement priorities. If interested in nutrition counseling delivered by specific types of providers (e.g. facility staff only) and/or context, modify question stems to include specific provider type and/or add follow-up questions. See related comment in Considerations.

Q2	What did they talk with you about? RECORD ALL MENTIONED.	BREASTFEEDING / NOT FEEDING WATER OR OTHER LIQUIDS BEFORE SIX MONTHS ..... A INTRODUCING SOFT OR SOLID FOOD WHEN THE BABY REACHES SIX MONTHS OF AGE ..... B GIVING A VARIETY OF FOODS..... C HOW OFTEN TO FEED FOODS..... D GIVING ANIMAL SOURCE FOODS (E.G. EGGS, MILK, MEAT, FISH).....E GIVING FRUITS AND VEGETABLES .....F NOT FEEDING SUGAR-SWEETENED BEVERAGES ..... G OTHER _____(SPECIFY)_____ X DON'T KNOW.....Z	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: child age in months (6-11 months; 12-23 months), child's sex, age of mother (15-19; 20-29; 30-39; 40-49) and other stratification variables of interest (e.g. rural/urban, subnational unit, socioeconomic status, and mother's education).

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Children 6-23 months whose primary caregivers received *any* IYCF counseling in the last 6 months	Number of children 6-23 months whose caregiver talked with a healthcare provider about how or what to feed their child in the last 6 months surveyed	Number of children 6-23 months surveyed	$\frac{\text{Q1} = 1}{\text{Number of children } 6-23 \text{ months}} \times 100$
Children 6-23 months whose primary caregivers received *age-appropriate* IYCF counseling in the last 6 months	Number of children 6-23 months whose caregivers talked with a healthcare provider about age-appropriate feeding (children 6-11 months: Q2 = A|B|C|D|E|F|G, children 12-23 months: C|D|E|F|G)	Number of children 6-23 months surveyed	$\frac{\text{Number of children age } 6-11 \text{ months where Q2} = \text{A\|B\|C\|D\|E\|F} + \text{Number of children age } 12-23 \text{ months where Q2} = \text{B\|C\|D\|E\|F}}{\text{Number of children } 6-23 \text{ months}} \times 100$

Indicator	Numerator	Denominator	Calculation
	in the last 6 months surveyed		

Considerations

Specifying intervention design

Delivery: There may be context-specific key messages. Messages can be adapted to include context-specific key messages. To facilitate both training and responses, we recommend that response options be kept to less than seven total.[65] Indicator calculation must be revised to reflect any changes. Asking subsequent questions on place of contact and type of service provider provides additional programmatic insight. However, research suggests that, in some contexts, respondents are not able to discern between specific provider types. See Choufani et al. article for more guidance.[66]

Primary caregiver vs. biological mother: In some settings, it will be a caregiver other than the biological mother who is primarily responsible for caring for the index child. The DHS and MICS have different approaches to address this—the DHS asks only about children of mothers interviewed while MICS directs questions about children under five to both mothers and primary caretakers in cases where biological mothers are deceased or live in a different household.[67] Questions should be modified depending on program design or context.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked with other child health and nutrition questions and with any questions on diet quantity and quality (e.g. food recall).

Question testing & validation: In 2021, the DHS Program is testing and validating Q1. Sufficient interviewer training time must be budgeted to allow interviewers to understand the core meaning of the messages Q2 and appropriately translate the meaning if needed. PMA2020 national surveys conducted in Burkina Faso and Kenya tested unprompted and prompted approaches towards asking about IYCF counseling topics. Questionnaire is available here.

Recall period: During enumerator training, emphasize that, when posing the question "in the last 6 months" does not refer to child age; it refers to the six months leading up to the survey.

Interview technique: For questions about specific messages, we recommend that interviewers use a "prompted" recall and ask directly about each message.[68] Some survey use "unprompted" or "open"

[65] Lisman JE, Idiart MA. Storage of 7+/-2 short-term memories in oscillatory subcycles. *Science*. 1995 Mar 10;267(5203):1512-5.
[66] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Matern Child Nutr.* 2020 Apr 15:e13001.
[67] UNICEF. MICS FAQ. [Cited 2021 July 15]

recalls to ask about specific messages. For comparable estimates, the same approach to posing the question must be used across surveys as the two approaches can yield meaningfully different estimates.[69]

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

IYCF counseling for children 6-23 months is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Children 6-23 months whose primary caregivers received *any* IYCF counseling in the last 6 months	Among women age 15-49 whose youngest child age 6-23 months is living with them, percentage who talked with a healthcare provider or community health worker about how or what to feed their child in the last 6 months, according to background characteristics	NA
Children 6-23 months whose primary caregivers received *age-appropriate* IYCF counseling in the last 6 months	NA	

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Modification of DHS-8 Q641 (omission "community health worker" from DHS question given countries are encouraged to customize this based on context)	NA
Q2	NA	

[69] Choufani J, Kim SS, Nguyen PH, Heidkamp R, Grummer-Strawn L, Saha KK, Hayashi C, Mehra V, Alayon S, Menon P. Measuring coverage of infant and young child feeding counselling interventions: A framework and empirical considerations for survey question design. *Matern Child Nutr*. 2020 Apr 15:e13001.

Public provision of complementary foods for children 6-23 months

Intervention description

In some settings, foods for young children are provided by clinical and/or community programs to prevent child undernutrition.[70] There is no WHO recommendation for provision of these foods in non-emergency settings,[71,72,73] but it is identified as an effective strategy to reach global nutrition targets.[74] Complementary foods can take on a variety of forms including staple food rations and specially-formulated fortified cereals or lipid-based products (e.g., small quantity lipid-based nutrient supplements [SQ-LNS]). For this indicator, we assume 1) foods are provided primarily based on child age criteria (i.e. 6-23 months) and not on screening for malnutrition, and 2) product includes both macronutrients and micronutrients. Coverage of wasting prevention programs that take a "blanket supplementary feeding" approach based on age and/or geographical targeting may fit these criteria, however, many blanket programs are only implemented during seasons with high risk of food insecurity. However, screening and severe or moderate wasting treatment programs do not fit these criteria. Questions on MNP for point-of-use fortification of foods consumed by children 6-23 months of age are included in section "Iron and multiple micronutrient powder supplementation to prevent micronutrient deficiencies in children."

Indicators

- **Children 6-23 months given *any* complementary foods through public program:** Among children 6-23 months, percentage given *any* complementary food supplements in the last 3 months[75]

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	In the last 3 months, did you receive any of the following for (CHILD NAME):[76]		
Q1a	**[CONTEXT SPECIFIC OPTION 1]**	Yes.....1 No .....2 Don't know 8	→2
Q1b	**[CONTEXT SPECIFIC OPTION 2]**	Yes.....1 No .....2 Don't know 8	→2

[70] Visser J, McLachlan MH, Maayan N, Garner P. Community-based supplementary feeding for food insecure, vulnerable and malnourished populations–an overview of systematic reviews. *Cochrane Db Syst Rev.* 2018(11).
[71] WHIO eLENA. Supplementary feeding in community settings for promoting child growth. Updated 2019 Feb 11.
[72] IFE Core Group [WHO, UNICEF, UNHCR, WFP, IBFAN-GIFA, CARE USA, Foundation Terre des hommes and the Emergency Nutrition Network (ENN)]. Infant and young child feeding in emergencies (Version 2.1). Oxford: IFE Core Group; 2007.
[73] WHO. Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003.
[74] Shekar M, Kakietek J, D'Alimonte M, Walters D, Rogers H, Dayton Eberwein J, Soe-Lin S, Hecht R. Investing In Nutrition: The Foundation for Development: An Investment Framework to Reach the Global Nutrition Targets. 2016.
[75] Time period should reflect context/program implemented
[76] Ask all context specific options relevant to context/program implemented. Only two rows are included here for illustration.

Q1d	OTHER _____(SPECIFY)_____ 96		
Q2	From where did you get assistance? RECORD ALL MENTIONED. (This should be asked for each separate context specific option)	[CONTEXT SPECIFIC GOVERNMENT PROGRAM NAME] .....1 [CONTEXT SPECIFIC GOVERNMENT PROGRAM NAME] .....2 OTHER GOVT. SCHEMES.....3 OTHER _____(SPECIFY)_____ 96	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: name and age of index child and stratification variables of interest (e.g. type of complementary food, rural/urban, socioeconomic status, and education).

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Children 6-23 months given public provision of complementary foods	Number of children age 6-23 months given complementary food from *any* public program in the last 3 months surveyed	Number of children 6-23 months surveyed	$\frac{\text{Any of Q2} = \text{any government program}}{\text{Number of children } 6-23 \text{ months surveyed}} \times 100$

Considerations

Specifying intervention design

Delivery: We refer to public provision as inclusive of government, charity or NGO-led programs. This does not include informal provision by family members or neighbors. We have included a follow-up question about source of the product. We have not included an indicator corresponding to this question; however, responses could be used to confirm public provision source.

Adapt Q1 context specific options to fit local context with specific foods that are provided in the target setting to children 6-23 months (e.g. a fortified weaning cereal). Some types of food or food products may include[77]:

- Micronutrient fortified cereals (e.g. corn/soy blended flour)
- Lipid-based products (e.g. SQ-LNS)
- Staple food basket (e.g. rice, oil, beans)

This question will be most feasible to implement in contexts where specific branded products designed for this age group are being distributed (e.g. fortified weaning cereals). For settings where a food basket is given to the entire household, adapt the indicator to "Among children 6-23 months, percentage who live in a household that received any complementary food from *any* public program in the in the last 3

[77] United Nations Children's Fund (UNICEF). Improving Young Children's Diets During the Complementary Feeding Period. UNICEF Programming Guidance. New York: UNICEF, 2020.

months surveyed" "In the last 3 months, has your household or anyone in your household received assistance through [name of program]?" which is the MICS question.

Primary caregiver vs. biological mother: In some settings, it will be a caregiver other than the biological mother who is primarily responsible for caring for the index child. The DHS and MICS have different approaches to address this—the DHS asks only about children of mothers interviewed while MICS directs questions about children under five to both mothers and primary caretakers in cases where biological mothers are deceased or live in a different household.[78] Question should be modified depending on program design or context.

Recall period: We recommend using a recall period of three months, but this can be extended to up to six months depending on design of the program. Longer recall periods may not reflect when public provision of complementary food was received within the target child age criteria. Depending on survey timing, it may be necessary to further adapt the recall period for contexts where the survey is intended to capture food support is given as part of seasonal blanket feeding programs.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked with other child health and nutrition questions and with any questions on diet quantity and quality (e.g. food recall).

Question testing & validation: This question specifically has not been tested or validated, although similar social protection program questions have been used in household surveys. These questions are specialized for context, so existing examples may not be relevant to all survey designers. For example, PMA2020 national surveys conducted in Burkina Faso and Kenya included questions on: a) whether children 0-59 months were enrolled in a program at a health facility or community that provided food; b) number of months the child participated in the program; c) the kind of food received; and d) if the food is still being received. Questionnaire is available here. Similar questions have also been asked as part of the World Bank's Living Standards Measurement Study (LSMS). Household participation in social transfer schemes is included in the MICS. DataDENT is currently working on developing and validating indicators and household survey questions to measure nutrition sensitive social protection programs.

Handling of missing values: Missing values or "don't know" responses should be excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Public provision of complementary foods for children 6-23 months is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

[78] UNICEF. MICS FAQ. [Cited 2021 July 15]

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Children 6-23 months given public provision of *<u>any</u>* complementary foods	Not part of the standard DHS-8 questionnaire; individual DHS have included country-specific complementary food indicators. For example, the India DHS 2015 asked whether a child received foods from Angawadi/Integrated Child Development Services (ICDS) centers and Peru DHS 2014 asked about receipt of food from the Vaso de Leche program.	The MICS-6 indicator EQ5 "Children in the households that receive any type of social transfers" is defined as "Percentage of children under age 18 living in the households that received any type of social transfers in the last 3 months"

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Not part of standard DHS-8. India DHS 2015 and Peru DHS 2014 include examples of country-specific questions	MICS-6 is customized within each country to ask about specific programs in the "equitable chance in life" section of the household questionnaire.
Q2	Not part of standard DHS-8. Proposed question is identical to India DHS 2015 Q453	ST3. Has your household or anyone in your household received assistance through (name of programme)?

Child anthropometric assessment related to growth monitoring and/or screening for wasting

Intervention description

The WHO defines growth monitoring (GM) as the process of following a child's growth rate at regular intervals against anthropometric standards to determine growth adequacy/faltering. Growth monitoring promotion (GMP) is a preventative activity that uses GM to counsel caregivers on actions to improve IYCF and other practices to promote child growth.[79] GM facilitates early detection of growth faltering, which can be addressed before a child reaches poor nutritional status.[80] Most GMP interventions track weight gain. Monthly weight measurement is recommended for children up to 12 months of age.

At the community-level, measuring mid-upper arm circumference (MUAC) or weight-for-height and examining for bilateral oedema is encouraged for early identification of children 6-59 months with severe acute malnutrition. In primary healthcare facilities and hospitals, MUAC or the weight-for-height/weight-for-length status and examining for bilateral oedema is the recommended approach for identifying children with severe acute malnutrition in children 6-59 months.[81]

Indicators

- **Children with weight measured in the last 3 months:** Percentage of children [0-23, 0-59] months who had their weight measured in the last 3 months
- **Children with length/height measured in the last 3 months:** Percentage of children [0-23, 0-59] months who had their length/height measured in the last 3 months
- **Children with weight *and* length/height measured in the last 3 months:** Percentage of children [0-23, 0-59] months who had their weight and length/height measured in the last 3 months
- **Children with MUAC measured in the last 3 months:** Percentage of children [0-23, 0-59] months who had their MUAC measured in the last 3 months
- **Children with weight *and* length/height *or* MUAC measured in the last 3 months:** Percentage of children [0-23, 0-59] months who had their weight *and* length/height *or* MUAC measured in the last 3 months
- **Children whose caregivers received counseling about child growth in the last 3 months:** Among children [0-23, 0-59] months old, percentage with caregivers who were provided with any information about how their child is growing after their child's growth was assessed in the last 3 months
- **Children whose caregivers received anthropometric screening referrals for their child in the last 3 months:** Among children [0-23, 0-59] months old, percentage with caregivers who were given anthropometric screening referral to additional services after their child's growth was assessed in the last 3 months

[79] Mangasaryan N, Arabi M, Schultink W. Revisiting the concept of growth monitoring and its possible role in community-based nutrition programs. Food and nutrition bulletin. 2011 Mar;32(1):42-53.
[80] Ashworth A, Shrimpton R, Jamil K. Growth monitoring and promotion: review of evidence of impact. *Matern Child Nutr.* 2008 Apr;4:86-117.
[81] WHO. Guideline: Updates on the management of severe acute malnutrition in infants and children. Geneva: World Health Organization; 2013.

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	In the past 3 months, has any healthcare provider measured:		
Q1a	(NAME)'s weight	Yes.....1 No .....2 Don't know 8	
Q1b	(NAME)'s length or height?	Yes.....1 No .....2 Don't know 8	
Q1c	Around (NAME)'s upper arm? [82]	Yes.....1 No .....2 Don't know 8	
Q2	If 1a and/or 1b and/or 1c=1, the last time your child's growth was assessed, did the healthcare provider talk with you about how (NAME) is growing?	Yes.....1 No .....2 Don't know 8	
Q3	If 1a and/or 1b and/or 1c=1, the last time your child's growth was assessed, did a healthcare provider tell you where you could get help with improving (NAME)'s growth?	Yes.....1 No .....2 Don't know 8	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: child name and age in months and stratification variables of interest (e.g. mother's age, rural/urban, subnational unit, socioeconomic status, and mother's education).

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Children with weight measured in the last 3 months	Number of children [0-23, 0-59] months who had their weight measured in the last 3 months surveyed	Number of children [0-23, 0-59] months surveyed	$\frac{\text{Q1a} = 1 \text{ for children } [0-23,\ 0-59] \text{ months}}{\text{Number of children } [0-23.\ 0-59] \text{ months surveyed}} \times 100$

[82] Item 'c' refers to measurement of the mid upper arm circumference (MUAC). Rephrase this item as needed so that mothers will understand which part of the body the question is referring to. If a country does not have wide-scale Community Management of Acute Malnutrition (CMAM) program, item 'c' can be removed.

Indicator	Numerator	Denominator	Calculation
Children with length/height measured in the last 3 months	Number of children [0-23, 0-59] months who had their length/height measured in the last 3 months surveyed	Number of children [0-23, 0-59] months surveyed	$\frac{\text{Q1b} = 1 \text{ for children } [0-23, 0-59] \text{ months}}{\text{Number of children } [0-23. 0-59] \text{ months surveyed}} \times 100$
Children with weight *and* length/height measured in the last 3 months	Number of children [0-23, 0-59] months who had their weight *and* length/height measured in the last 3 months surveyed	Number of children [0-23, 0-59] months surveyed	$\frac{\text{Q1a} = 1 \textbf{ AND } \text{Q1b} = 1 \text{ for children } [0-23, 0-59] \text{ months}}{\text{Number of children } [0-23. 0-59] \text{ months surveyed}} \times 100$
Children with MUAC measured in the last 3 months	Number of children [0-23, 0-59] months who had their MUAC measured in the last 3 months surveyed	Number of children [0-23, 0-59] months surveyed	$\frac{\text{Q1c} = 1 \text{ for children } [0-23, 0-59] \text{ months}}{\text{Number of children } [0-23. 0-59] \text{ months surveyed}} \times 100$
Children with weight *and* length/height *or* MUAC measured in the last 3 months	Number of children [0-23, 0-59] months who had their weight *and* length/height *or* MUAC measured in the last 3 months surveyed	Number of children [0-23, 0-59] months surveyed	$\frac{\text{Q1a} = 1 \textbf{ AND } \text{Q1b} = 1 \textbf{ OR } \text{Q1c} = 1 \text{ for children } [0-23, 0-59] \text{ months}}{\text{Number of children } [0-23. 0-59] \text{ months surveyed}} \times 100$
Children whose caregivers received counseling about child growth in the last 3 months	Number of children [0-23, 0-59] months whose caregivers talked with a healthcare provider about their child's growth after their	Number of children [0-23, 0-59] months surveyed	$\frac{\text{Q1a} = 1 \textbf{ AND/OR } \text{Q1b} = 1 \textbf{ AND/OR } \text{Q1c} = 1 \textbf{ AND } \text{Q2} = 1}{\text{Number of women age } 15-49 \text{ whose youngest child age } 6-23 \text{ months is living with them}} \times 100$

Indicator	Numerator	Denominator	Calculation
	child's growth was assessed in the last 3 months surveyed		
Children whose caregivers received anthropometric screening referrals for their child in the last 3 months	Number of children [0-23, 0-59] months whose caregivers received an anthropometric screening referral for their child after their child's growth was assessed in the last 3 months surveyed	Number of children [0-23, 0-59] months surveyed	$\frac{\text{Q1a} = 1 \textbf{ AND/OR } \text{Q1b} = 1 \textbf{ AND/OR } \text{Q1c} = 1 \textbf{ AND } \text{Q3} = 1}{\text{Number of women age } 15-49 \text{ whose youngest child age } 6-23 \text{ months is living with them}} \times 100$

Considerations

Specifying intervention design

Delivery: For this section, we have included separate tabulations for children 0-23 and 0-59 months since younger kids may be more likely to have anthropometric measurements than older children. The age ranges chosen for calculating specific indicators should be adjusted to reflect context-specific program design (e.g. if only children 0-23 months participate in growth monitoring then denominator should be 0-23 months).

Primary caregiver vs. biological mother: In some settings, it will be a caregiver other than the biological mother who is primarily responsible for caring for the index child. The DHS and MICS have different approaches to address this—the DHS asks only about children of mothers interviewed while MICS directs questions about children under five to both mothers and primary caretakers in cases where biological mothers are deceased or live in a different household.[83] Question should be modified depending on program design or context.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked with other child health and nutrition questions.

Visual aid for recall: For Q1, The DHS Program has shown respondents a picture of the MUAC tape to help respondents recall.

[83] UNICEF. MICS FAQ. [Cited 2021 July 15]

Question testing & validation: The DHS Program is testing and validating Q1a-c. Versions of Q2 and Q3 have been tested by PMA2020 national surveys conducted in Burkina Faso and Kenya. PMA2020 asked "What did they tell you about your child growth?" with specific message responses and whether the child was referred to another facility or health worker. Questionnaire is available here. In this section, Q2 and Q3 are purposively phrased to be very general in how they reference counseling and referrals. These can be adapted to refer to more specific actions depending on the context.

Recall period: The recall period of three months aligns with the DHS-8 question.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

Child anthropometric assessment related to growth monitoring and/or screening for wasting is not included in global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS	MICS
Children with weight measured in the last 3 months	Identical	NA Note: MICS-6 core questionnaire includes whether child was weighed at birth and within two days after birth, but not afterwards
Children with length/height measured in the last 3 months	Identical	
Children with weight *and* length/height measured in the last 3 months	Identical	
Children with MUAC measured in the last 3 months	Identical	
Children with weight *and* length/height *or* MUAC measured in the last 3 months	DHS calculates "Weight *and* length/height *and* MUAC measured in the last 3 months." We have proposed "length/height *or* MUAC" to focus on whether children were screen for wasting. The IMCI protocol for wasting screening is "length/height *or* MUAC."[84]	
Children whose caregivers received counseling about child growth in the last 3 months	NA	
Children whose caregivers received anthropometric screening referrals for their child in the last 3 months	NA	

[84] World Health Organization. Integrated Management of Childhood Illness: distance learning course.

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to 607	NA
Q1a	Identical to 607a	
Q1b	Identical to 607b	
Q1c	Identical to 607c	
Q2	NA	
Q3	NA	

Iron and multiple micronutrient powder supplementation to prevent micronutrient deficiencies in children

Intervention description

Actual rates of iron and other micronutrient deficiencies among children in most LMICs is unknown due to insufficient data, however, the WHO estimates that 42% of children under five years are anemic, with iron deficiency as the most common cause.[85,86]

The table below summarizes WHO-recommended interventions for supplemental iron provided to young children to prevent micronutrient deficiencies. Provision of iron to treat diagnosed anemia is not reflected. Although WHO recommends multiple micronutrient powders (MNPs) for children up to 12 years of age, it is mostly implemented as a targeted intervention to improve the quality of complementary foods among children 6-23 months.

Intervention	Age group	Recommended Settings	Regimen/Dosage
Daily iron supplementation[87]	6-23 months 24-59 months	Prevalence of anemia in infants and young children is 40% or higher	Daily iron dose over 3 consecutive months in a year
Intermittent iron supplementation[88]	24-59 months	Prevalence of anemia in preschool age children is 20% or higher	One supplement per week. 3 months of supplementation followed by 3 months of no supplementation after which the provision of supplements should restart.
MNP[89]	6-23 months	Prevalence of anemia in children < 2 years or under 5 years is 20% or higher	90 sachets/doses over a 6-month period
	24 months to 12 years of age	Prevalence of anemia in children under 5 years is 20% or higher	

[85] Stevens GA, Finucane MM, De-Regil LM, Paciorek CJ, Flaxman SR, Branca F, Peña-Rosas JP, Bhutta ZA, Ezzati M, Nutrition Impact Model Study Group. Global, regional, and national trends in haemoglobin concentration and prevalence of total and severe anaemia in children and pregnant and non-pregnant women for 1995–2011: a systematic analysis of population-representative data. *Lancet Glob Health*. 2013 Jul 1;1(1):e16-25.

[86] WHO Global Health Observatory Data Repository. Anaemia in children < 5 years, Estimates by WHO region. [Cited 2021 July 2015]

[87] WHO guideline: Daily iron supplementation in infants and children. Geneva: World Health Organization; 2016.

[88] WHO guideline: Intermittent iron supplementation in preschool and school-age children. Geneva: World Health Organization; 2011.

[89] WHO guideline: Use of multiple micronutrient powders for point-of-use fortification of foods consumed by infants and young children aged 6–23 months and children aged 2–12 years. Geneva: World Health Organization; 2016. Licence: CC BY-NC-SA 3.0 IGO.

Indicators

- **Children given *any* iron-containing supplement iron in the last 12 months:** Among children age [6-23, 6-59] months, percentage given *any* iron-containing supplements (iron tablets, iron syrup, iron powder, MNP) in last 12 months
- **Children given *iron-only* supplement in the last 12 months:** Among children age [6-23, 6-59] months, percentage given tablets or syrup which *contained only iron* in last 12 months
- **Children given MNP in the last 12 months:** Among children age [6-23, 6-59] months, percentage given [local names for MNP] in the last 12 months

Questions and indicator calculation

Question(s)

Questions for all indicators are listed below in order that they should be asked.

Q1	In the last 12 months, was (NAME) given any of the following:[90] (SHOW COMMON TYPES OF PILLS/SYRUPS/MULTIPLE MICRONUTRIENT POWDERS)		
Q1a	Iron tablets or syrup?	Yes.....1 No .....2 Don't know 8	
Q1b	[Local names for multiple micronutrient powders]?	Yes.....1 No .....2 Don't know 8	

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: child name and age in months and stratification variables of interest (e.g. child sex, child breastfeeding status, mother's age, rural/urban, subnational unit, socioeconomic status, and mother's education).

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Children given *any* iron-containing supplement in the last 12 months	Number of children [6-23, 6-59] months who were given *any* iron-containing supplement in the last 12 months surveyed	Number of children [6-23, 6-59] months surveyed	$\frac{\text{Q1a} = 1 \textbf{ OR } \text{Q1b} = 1}{\text{Number of children } [6-23.\ 6-59] \text{ months surveyed}} \times 100$

[90] Only include item (a) if a country has a national pill/syrup program, and only include item (b) if country has a national micronutrient powder (MNP) program. If a country includes both types of supplements in their national program, retain both items. Remove this question in contexts that do not have an iron supplementation program for children

Indicator	Numerator	Denominator	Calculation
Children given *iron-only* supplement in the last 12 months	Number of children [6-23, 6-59] months who were given *iron-only* supplements in the last 12 months surveyed	Number of children [6-23, 6-59] months surveyed	$\frac{\text{Q1a} = 1}{\text{Number of children } [6-23.\ 6-59] \text{ months surveyed}} \times 100$
Children given MNP in the last 12 months	Number of children [6-23, 6-59] months who were given MNP in the last 12 months surveyed	Number of children [6-23, 6-59] months surveyed	$\frac{\text{Q1b} = 1}{\text{Number of children } [6-23.\ 6-59] \text{ months surveyed}} \times 100$

Considerations

Specifying intervention design

Formulations: Depending on the context, may include iron-only supplements (tablets, syrup, or powder) or MNPs with iron. A context may also have multiple MNP types. See note below regarding use of images and/or a "pill board".

Delivery: Depending on the context, iron supplements can be: a) distributed at no cost—typically through public and in some cases private facilities or at community-level; b) purchased by caregivers at pharmacies and other retail outlets; or c) a combination of approaches. Preventative iron supplement interventions follow different dosing based on age group and intervention type (see "Introduction").

Source of supplement: Indicator on source of supplemental iron may be most useful in contexts using multiple and/or unique programmatic approaches for distribution. For example, several country contexts are developing cost recovery schemes for caregivers to purchase MNP or supplements while others use facility, community, or campaign-based distributions at no cost. Contexts where malnourished children are targeted for MNP could include "malnutrition clinics" as a source. Refer to Appendix 3 for resources on how to ask about supplement source.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked with other child health and nutrition questions. Ensure sample size is large enough if disaggregating data for children 6-23 months and children 6-59 months.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among iron-containing supplements as well as other supplements and medications. When asking Q1, the enumerator will both show the visual aid and read aloud answers.

Question testing & validation: There are no standard global indicators to measure iron supplementation for children as the potential variability in dosing and time period when the supplement is provided do not allow for more specific questions that facilitate cross-country comparisons. The DHS Program has used a variation of Q1 in its core questionnaire, and the DHS-8 questionnaire updated the reference period to "last 12 months" from "last 7 days" since the seven-day reference period was not aligned with global

guidance or actionable. Similar questions on iron supplementation and MNP for children have been in large-scale surveys by the US Centers for Disease Control and Prevention (CDC); United States Agency for International Development (USAID) Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING); Nutrition International; International Food Policy Research Institute (IFPRI); and GroundWork. PMA2020 national surveys conducted in Burkina Faso and Kenya included question on whether a child took MNP and how many days it was taken in the last 30 days. Questionnaire is available here.

Recall period: The recommended 12-month recall period is to account for the variability in WHO recommended protocols for supplementing young children with iron (e.g. three out of 12 months). This should be adapted if countries have a protocol and target population that allows for more specific recall period (e.g. any in last six months).

Handling of missing values: Missing values or "don't know" responses should be excluded from the numerator.

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

MNP supplementation to prevent micronutrient deficiencies in children is not included in global indicator frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Children given *any* iron-containing supplement iron in the last 12 months	Identical to DHS-8 – tabulated for the following age ranges in months: 6-8; 9-11; 12-17; 18-23; 24-35; 36-47; 48-59; 6-23; 24-59	NA
Children given *iron-only* supplement in the last 12 months		
Children given MNP in the last 12 months		

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to DHS-8 604	NA
Q1a	Identical to DHS-8 604a	
Q1b	Identical to DHS-8 604b (we propose using plural "local names" vs. "local name" for MNP	

High-dose vitamin A supplementation for children

Intervention description

The WHO recommends high-dose vitamin A supplementation (VAS) for infants and children 6-59 months of age in settings where vitamin A deficiency is a public health problem.[91] Vitamin A supplements have historically been distributed through countries' Expanded Programme on Immunization and Polio eradication efforts, but are increasingly being shifted to other campaign-based approaches (i.e. "Child Health Days") and/or integrated into routine care.

The following doses of vitamin A are recommended[92]:

- Infants 6-11 months of age: 100,000 IU (30g RE) vitamin A; one dose
- Children 12-59 months of age: 200,000 IU (60mg RE) vitamin A; dose every 4-6 months

UNICEF's "Coverage at a Crossroads: New directions for vitamin A supplementation programmes" summary (2018) outlined challenges with VAS coverage data and advocates for the use of administrative data for monitoring VAS coverage with occasional post-event coverage surveys to validate these data.[93] Primary critiques of household survey approaches include that they happen too infrequently and the six month recalls do not align with biannual distributions nor do they sufficiently capture different distribution channels. However, this compendium includes household survey coverage of VAS given it is a widely used indicator in global frameworks and country strategic plans.

Indicators

- **Children given Vitamin A supplement (high-dose) in the last 6 months (recall only):** Among children age [6-23, 6-59] months, percentage given a high-dose Vitamin A supplement in the last 6 months
- **Children given Vitamin A supplement (high-dose) in the last 6 months (vaccine record only):** Among children age [6-23, 6-59] months, percentage given a high-dose Vitamin A supplement based on documentation of vitamin A dose received
- **Children given Vitamin A supplement (high-dose) in the last 6 months (recall and vaccine record):** Among children age [6-23, 6-59] months, percentage given a high-dose Vitamin A supplement in the last 6 months with documentation of vitamin A dose received

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	In the last 6 months was (NAME) given a vitamin A dose like [this/any of these]? (SHOW CONTEXT-SPECIFIC EXAMPLES)	Yes.....1 No .....2 Don't know 8	→2 →End →2

[91] WHO. Guideline: Vitamin A supplementation in infants and children 6–59 months of age. Geneva: World Health Organization; 2011.

[92] WHO eLENA. Vitamin A supplementation in infants and children 6–59 months of age guidance summary. [Cited 2021 July 15].

[93] UNICEF. Coverage at a Crossroads: New directions for vitamin A supplementation programmes. New York: UNICEF; 2018

Q2	Do you have a card or other document where (NAME)'s vaccinations are written down?	Yes.....1 No .....2 Don't know 8	→3 →End
Q3	May I see the card or other document where (NAME)'s vaccinations are written down?	YES CARD AND/OR OTHER DOCUMENT SEEN .....1 NO CARD AND NO OTHER DOCUMENT SEEN 2	→4 →End
Q4	COPY DATE OF MOST RECENT VITAMIN A DOSE FROM THE CARD FOR (NAME) RECORD '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A DOSE WAS GIVEN, BUT NO DATE IS RECORDED. RECORD '00' IN 'DAY' COLUMN IF CARD IS BLANK FOR THE DOSE.		

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: child name and age in months and stratification variables of interest (e.g. child sex, child breastfeeding status, mother's age, rural/urban, subnational unit, socioeconomic status, and mother's education).

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Children given Vitamin A supplement (high-dose) in the last 6 months (recall only)	Number of children [6-23, 6-59] months who were given a vitamin A supplement in the last 6 months based on recall surveyed	Number of children [6-23, 6-59] months surveyed	$\frac{\text{Q1} = 1}{\text{Number of children [6 - 23. 6 - 59] months surveyed}} \times 100$
Children given Vitamin A supplement (high-dose) in the last 6 months (vaccine record only)	Number of children [6-23, 6-59] months who were given a vitamin A supplement in the last 6 months based on vaccine record surveyed	Number of children [6-23, 6-59] months surveyed	$\frac{\text{Date of Q4 in last 6 months of interview date}}{\text{Number of children [6 - 23. 6 - 59] months surveyed}} \times 100$
Children given Vitamin A supplement (high-dose) in the last 6 months (recall and vaccine record)	Number of children [6-23, 6-59] months who were given a vitamin A supplement in the last 6 months surveyed and documentation of	Number of children [6-23, 6-59] months surveyed	$\frac{\text{Q1} = 1 \textbf{ AND Date of Q4 in last 6 months of interview date}}{\text{Number of children [6 - 23. 6 - 59] months surveyed}} \times 100$

Indicator	Numerator	Denominator	Calculation
	vitamin A dose is received		

Considerations

Specifying intervention design

Formulations: Depending on the context, VAS is an oral liquid that can be given in the form of a capsule (most common), single-dose dispenser, or with a graduated spoon.[94] See note below regarding use of images and/or a "pill board".

Delivery: Depending on the context, VAS can be delivered through multiple platforms (e.g. routine services, campaigns). In many countries, delivery platforms are being transitioned from outreach to routine approaches and so the question about source may be useful to include (Appendix 3).

Source of supplement: Refer to Appendix 3 for resources on how to ask about supplement source.

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked with other child health and nutrition questions. Ensure sample size is large enough if disaggregating data for children 6-23 months and children 6-59 months.

Visual aid for recall: Images and/or a "pill board" should be used to aid recall. They can help respondents distinguish among various micronutrient supplements and medications.

Question testing & validation: Receipt of VAS in the past six months is a common question in households surveys, however, as noted in the introduction, there are concerns about the validity of this approach.

Recall period: The 6 month recall period has been widely used for this question and reflects the WHO recommended protocol (biannual supplementation). UNICEF has flagged concerns about alignment actual program timing and other issues with recall.[95]

Handling of missing values:

Indicator	Missing values	Don't know
Children given Vitamin A supplement (high-dose) in the last 6 months (recall only)	Both excluded from numerator	
Children given Vitamin A supplement (high-dose) in the last 6 months (vaccine record only)	If the date is missing on the vaccine record, it is assumed that the child did not receive supplementation (excluded from the numerator). If the vaccine record is not seen, it is assumed that the	

[94] WHO eLENA. Vitamin A supplementation in infants and children 6–59 months of age guidance summary. [Cited 2021 July 15].
[95] ibid

Indicator	Missing values	Don't know
	child did not receive supplementation based on subsequent question.	
Children given Vitamin A supplement (high-dose) in the last 6 months (recall and vaccine record)	If the date is missing on the vaccine record, it is assumed that the child did not receive supplementation (excluded from the numerator). If the vaccine record is not seen, it is assumed that the child did not receive supplementation based on subsequent question.	

Comparison to global indicator frameworks and DHS/MICS household survey programs

Global indicator frameworks

High-dose vitamin A supplementation for children is included in several global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Children given Vitamin A supplement (high-dose) in the last 6 months (recall only)	Not tabulated by DHS – VAS coverage calculated based on whether mother reports that the child received a vitamin A dose in the last 6 months + date on vaccine card of last dose is within 6 months of the interview	NA
Children given Vitamin A supplement (high-dose) in the last 6 months (vaccine record only		
Children given Vitamin A supplement (high-dose) in the last 6 months (recall and vaccine record)	Identical	

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to DHS-8 Q605	NA
Q2	Modification to DHS-8 Q504 "Do you have a card or other document where (NAME)'s vaccinations are written down?" with different response categories. DHS response categories: YES, HAS ONLY A CARD/YES, HAS ONLY ANOTHER DOCUMENT/YES, HAS CARD AND OTHER DOCUMENT/NO, NO CARD AND NO OTHER DOCUMENT	Modification to MICS-6 IM2. Do you have a National Child Immunization Record, immunization records from a private health provider or any other document where (name)'s vaccinations are written down?

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS	MICS
Q3	Modification to DHS-8 Q507 “May I see the card or other document where (NAME)’s vaccinations are written down?” with different response categories. DHS response categories: YES, ONLY CARD SEEN/YES, ONLY OTHER DOCUMENT SEEN/YES, CARD AND OTHER DOCUMENT SEEN/NO CARD AND NO OTHER DOCUMENT SEEN.	Modification to MICS-6 IM5 “May I see the card(s) (and/or) other document?” MICS response categories: YES, ONLY CARD(s) SEEN/YES, ONLY OTHER DOCUMENT SEEN/YES, CARD(S) AND OTHER DOCUMENT SEEN/NO CARDs AND NO OTHER DOCUMENT SEEN
Q4	Identical to DHS vaccine card review	NA

Zinc supplementation with ORS for children with diarrhea

Intervention description

Zinc supplementation reduces the prevalence and duration of diarrhea among children under five years.[96] The WHO recommends oral zinc supplementation for 10-14 days (20mg for children and 10mg for infants under six months), in addition to oral rehydration solution (ORS), to treat children with diarrhea.[97,98]

Indicators

- **Children given ORS for an episode of diarrhea in the last 2 weeks**: Among children under 5 who had diarrhea in the 2 weeks preceding the survey, the percentage given fluid from an ORS packet or pre-packaged ORS fluid
- **Children given zinc for an episode of diarrhea in the last 2 weeks**: Among children under 5 who had diarrhea in the 2 weeks preceding the survey, the percentage given zinc
- **Children given ORS *and* zinc for an episode of diarrhea in the last 2 weeks**: Among children under 5 who had diarrhea in the 2 weeks preceding the survey, the percentage given fluid from an ORS packet or pre-packaged ORS fluid *and* zinc

Questions and indicator calculation

Questions

Questions for all indicators are listed below in order that they should be asked.

Q1	Has (NAME) had diarrhea in the last 2 weeks?	Yes.....1 No .....2 Don't know 8	→2 →End →End
Q2	Was (NAME) given any of the following at any time since (NAME) started having the diarrhea:		
Q2a	A fluid made from a special packet called [LOCAL NAME FOR ORS PACKET]?	Yes.....1 No .....2 Don't know 8	
Q2b	[LOCAL NAMES FOR PRE-PACKAGED ORS LIQUIDS] or other pre-packaged ORS liquid	Yes.....1 No .....2 Don't know 8	
Q2c	Zinc tablets or syrup?	Yes.....1 No .....2 Don't know 8	

[96] WHO, Johns Hopkins Bloomberg School of Public Health, USAID, UNICEF. Implementing the new recommendations on the clinical management of diarrhoea : guidelines for policy makers and programme managers. Geneva: World Health Organization; 2006.
[97] WHO eLENA. Zinc supplementation in the management of diarrhoea. Updated 2019 Feb 11.
[98] WHO, Johns Hopkins Bloomberg School of Public Health, USAID, UNICEF. Implementing the new recommendations on the clinical management of diarrhoea : guidelines for policy makers and programme managers. Geneva: World Health Organization; 2006.

Additional questions that must be asked to calculate indicators

To calculate recommended indicators, the following must also be included in the survey: child name and age in months and stratification variables of interest (e.g. child sex, rural/urban, subnational unit, mother/primary caregiver's education, socioeconomic status, source of drinking water, and type of toilet facility)

Indicator calculation

Indicator	Numerator	Denominator	Calculation
Children given ORS for an episode of diarrhea in the last 2 weeks	Number of children under age 5 who had diarrhea in the 2 weeks preceding the interview and were given fluid from an ORS packet or pre-packaged ORS fluid surveyed	Number of children under age 5 with diarrhea in the 2 weeks preceding the interview surveyed	$\frac{\text{Q2a} = 1 \textbf{ OR } \text{Q2b} = 1}{\text{Q1} = 1} \times 100$
Children given zinc for an episode of diarrhea in the last 2 weeks	Number of children under age 5 who had diarrhea in the 2 weeks preceding the interview and were given zinc surveyed	Number of children under age 5 with diarrhea in the 2 weeks preceding the interview surveyed	$\frac{\text{Q2C} = 1}{\text{Q1} = 1} \times 100$
Children given ORS *and* zinc for an episode of diarrhea in the last 2 weeks	Number of children under age 5 who had diarrhea in the 2 weeks preceding the interview and were given fluid from an ORS packet or pre-packaged ORS fluid *and* zinc surveyed	Number of children under age 5 with diarrhea in the 2 weeks preceding the interview surveyed	$\frac{\text{Q2a} = 1 \textbf{ OR } \text{Q2b} = 1 \textbf{ AND } \text{Q2c} = 1}{\text{Q1} = 1} \times 100$

Considerations

Specifying intervention design

Formulations: Depending on the context, ORS may be distributed as sachets which can be dissolved in water or pre-packaged as a liquid. As reflected in the suggested questions, there may be local names for both. Contexts may also offer a government-recommended homemade fluid (RHF). RHF is different than ORS, and the DHS tabulates: 1) RHF, 2) Either ORS or RHF, and 3) oral rehydration treatment (ORS, RHF, or increased fluids). This section omits the RHF question that DHS uses as part of this series of questions.

Zinc is included in most national diarrhea treatment guidelines, intervention coverage is low in many settings.[99] It is only measured among children with reported diarrhea so, if diarrhea incidence is low in a specific context, the sample size may be too small to measure precisely.

In contexts where respondents may receive co-packaged ORS and zinc, consider adding a question specifically about receipt of co-packaged ORS and zinc. The WHO added co-packaged ORS and zinc sulfate to the Model List of Essential Medicines for Children (EMLc).[100] At least five countries (Ghana, Kenya, Senegal, Vietnam, and Zambia) have co-packaged ORS and zinc on their national essential medicines lists, and co-packaged ORS and zinc has also been given out at public facilities in Nigeria and Uganda.[101]

Questionnaire design & interview technique

Location in questionnaire: These questions should be asked with other child health and nutrition questions about diarrhea.

Question testing & validation: IMPROVE is currently validating maternal recall of ORS and/or zinc administered at healthcare visits in Peru for an episode of diarrhea in the past two weeks.[102] PMA2020 national surveys conducted in Burkina Faso and Kenya asked this series of questions. Questionnaire is available here. Nutrition International has used multiple approaches to ask about different combinations of ORS and zinc.

Recall period: Most examples of asking about ORS and/or zinc during diarrhea refer to an episode of diarrhea in the past two weeks. However, Nutrition International has also asked about ORS and/zinc given during an episode of diarrhea in the past 30 days.

Handling of missing values: Missing values and "don't know" responses are excluded from the numerator.

Question(s) use in DHS, MICS, and other national household surveys

Global indicator frameworks

Zinc supplementation with ORS for children with diarrhea is included in several global monitoring frameworks. You can access a summary comparing several global monitoring framework nutrition indicators on the DataDENT website here.

Comparison of indicators/questions to DHS and MICS

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Children given ORS for an episode of diarrhea in the last 2 weeks	Identical to DHS-8	Identical to MICS-6
Children given zinc for an episode of diarrhea in the last 2 weeks		Not tabulated by MICS-6

[99] Black RE. Progress in the use of ORS and zinc for the treatment of childhood diarrhea. *J Glob Health.* 2019 Jun;9(1).
[100] WHO. World Health Organization model list of essential medicines for children: 7th list 2019. Geneva: World Health Organization; 2019. License: CC BY-NC-SA 3.0 IGO.
[101] PATH. PATH applauds recognition for frontline treatment of childhood diarrheal disease by the World Health Organization [Blog]. 2019.
[102] Contact Melinda Munos (mmunos@jhu.edu) to learn more about this work.

Comparison of compendium indicator definitions to DHS and MICS		
Indicator definition	DHS-8	MICS-6
Children given ORS *and* zinc for an episode of diarrhea in the last 2 weeks		Identical to MICS-6

Comparison of compendium questions proposed to DHS and MICS		
Compendium	DHS-8	MICS-6
Q1	Identical to DHS-8 608	Modification of CA1. In the last two weeks, has (name) had diarrhoea?
Q2	Identical to DHS-8 615 (omitted "[A GOVERNMENT-RECOMMENDED HOMEMADE FLUID]?" as a sub-question)	Modification of CA7. During the time (name) had diarrhoea, was (he/she) given:
Q2a	Identical to DHS-8 615a	Identical to CA7[A]
Q2b	Identical to DHS-8 615b	Modification of CA7[B] "A pre-packaged ORS fluid called insert local name for pre-packaged ORS fluid?"
Q2c	Identical to DHS-8 615c	Identical to CA7[C]

Appendix 1. Indicator Summary Table

Section	Indicator Name	Definition
Preconception		
Iron-containing supplementation for non-pregnant women and adolescent girls of reproductive age	Given or bought any iron-containing supplement by non-pregnant women and adolescent girls of reproductive age	Among non-pregnant women ages 15-49 years, percentage who were given or bought any iron-containing supplements in the last 6 months
	Counseling on use of iron-containing supplement to non-pregnant women and adolescent girls of reproductive age	Among non-pregnant women ages 15-49 years, percentage who received counseling on taking iron-containing supplements from a healthcare provider in the last 6 months
Pregnancy		
Iron-containing supplements during pregnancy	Given or bought any iron-containing supplement during pregnancy	Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were given or bought any iron-containing supplement during pregnancy for the most recent live birth and/or stillbirth
	Consumption of any iron-containing supplement during pregnancy	Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who took any iron-containing supplement during pregnancy for the most recent live birth and/or stillbirth
	Consumption of any iron-containing supplements (number of days) during pregnancy	Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who took any iron-containing supplements during pregnancy for the most recent live birth and/or stillbirth by number of days

Section	Indicator Name	Definition
	Given or bought multiple micronutrients containing iron during pregnancy	Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were given or bought multiple micronutrients containing iron during pregnancy for the most recent live birth and/or stillbirth
	Consumption of multiple micronutrients containing iron during pregnancy	Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who took any multiple micronutrients containing iron during pregnancy for the most recent live birth and/or stillbirth
Calcium supplementation during pregnancy	Given or bought any calcium-containing supplement during pregnancy	Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were given or bought any calcium supplement during pregnancy for the most recent live birth and/or stillbirth
	Consumption of any calcium-containing supplement during pregnancy	Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who took any calcium
	Consumption of calcium-containing supplements (number of days) during pregnancy	Among women age 15-49 with a live birth and/or stillbirth in the last 2 years, percentage who took calcium supplements during pregnancy for the most recent live birth and/or stillbirth by number of days
Deworming during pregnancy	Consumption of any deworming medication during pregnancy	Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who took any medicine for intestinal worms during pregnancy for the most recent live birth and/or stillbirth
Low-dose Vitamin A supplementation during pregnancy	Given any low-dose vitamin A only supplements during pregnancy	Among women age 15-49 years with a live birth and/or stillbirth in the last 2 years, percentage who were given any low-dose vitamin A only supplements during pregnancy for the most recent live birth and/or stillbirth

Section	Indicator Name	Definition
Nutrition and breastfeeding counseling as part of antenatal care during pregnancy	Counseling about maternal diet during pregnancy	Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about maternal diet
	Counseling about breastfeeding received during pregnancy	Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about breastfeeding
	Counseling about use of iron-containing supplements during pregnancy	Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about taking iron-containing tablets
	Counseling about use of calcium supplements during pregnancy	Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about taking calcium supplements
	Counseling about maternal physical activity and rest during pregnancy	Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about physical activity and rest
Monitoring weight gain as part of antenatal care during pregnancy	Weighed during at least 2 ANC visits	Among women age 15-49 who had at least two or more ANC visits for their most recent live birth in the last 2 years, percentage that reported their weight being measured over at least two ANC visits
	Counseling on weight gain during ANC	Among women age 15-49 who received ANC for their most recent live birth in the last 2 years, percentage that received information about the amount of weight to gain (not too little or too much)

Section	Indicator Name	Definition
Delivery and Postnatal Care		
Breastfeeding counseling and support around delivery and early postnatal care	Early initiation of breastfeeding	Among the last live births in the 2 years preceding the survey, percentage where breastfeeding was initiated within one hour of birth
	Physical assistance to support breastfeeding initiation	Among the last live births in the 2 years preceding the survey, percentage where health worker helped the mother put her baby to breast for first time
	Physical assistance to support breastfeeding initiation within one hour of birth	Among the last live births in the 2 years preceding the survey, percentage where health worker helped the mother put her baby to breast for first time AND breastfeeding was initiated within one hour of birth
	Breastfeeding counseling during early postnatal care	Among the last live births in the 2 years preceding the survey, percentage for whom counseling on breastfeeding was performed during the first two days after birth
	Breastfeeding observation during early postnatal care	Among the last live births in the 2 years preceding the survey, percentage for whom observation of breastfeeding to ensure correct technique was performed during the first two days after birth
	Breastfeeding counseling with observation during early postnatal care	Among the last live births in the 2 years preceding the survey, percentage for whom counseling on breastfeeding AND observation of breastfeeding to ensure correct technique were performed during the first two days after birth
	Informed about access to breastfeeding support during early postnatal care	Among the last live births in the 2 years preceding the survey, percentage for whom where to get help with breastfeeding was shared during the first two days after child's birth

Section	Indicator Name	Definition
Iron supplementation to prevent postpartum anemia	Given or bought of any iron-containing supplement to prevent postpartum anemia	Among women age 15-49 years with a live birth in the last 2 years and whose youngest child is between 6-23 months old on the day of the survey, percentage who were given or bought any iron-containing supplement within 3 months after most recent live birth
Childhood Prevention and Promotion		
Infant and young child feeding counseling for children 6-23 months	Children 6-23 months whose primary caregiver received any IYCF counseling in the last 6 months	Among children 6-23 months old, percentage with caregivers who talked with a healthcare provider about how or what to feed their child in the last 6 months
	Children 6-23 months whose primary caregiver received age-appropriate IYCF counseling in the last 6 months	Among children 6-23 months old, percentage with caregivers who talked with a healthcare provider and received age-appropriate information about how or what to feed their child in the last 6 months
Public provision of complementary foods for children 6-23 months	Children 6-23 months given any complementary foods through public program	Among children 6-23 months, percentage given *any* complementary food supplements in the last 3 months
Child anthropometric assessment related to growth monitoring and/or screening for wasting	Children with weight measured in the last 3 months	Percentage of children [0-23, 0-59] months who had their weight measured in the last 3 months
	Children with length/height measured in the last 3 months	Percentage of children [0-23, 0-59] months who had their length/height measured in the last 3 months
	Children with weight and length/height measured in the last 3 months	Percentage of children [0-23, 0-59] months who had their weight and length/height measured in the last 3 months
	Children with MUAC measured in the last 3 months	Percentage of children [0-23, 0-59] months who had their MUAC measured in the last 3 months

Section	Indicator Name	Definition
	Children with weight and length/height or MUAC measured in the last 3 months	Percentage of children [0-23, 0-59] months who had their weight and length/height or MUAC measured in the last 3 months
	Children whose caregivers received counseling about child growth in the last 3 months	Among children [0-23, 0-59] months old, percentage with caregivers who were provided with any information about how their child is growing after their child's growth was assessed in the last 3 months
	Children whose caregivers received anthropometric screening referrals for their child in the last 3 months	Among children [0-23, 0-59] months old, percentage with caregivers who were given anthropometric screening referral to additional services after their child's growth was assessed in the last 3 months
Iron and multiple micronutrient powder supplementation to prevent micronutrient deficiencies in children	Children given any iron-containing supplement iron in the last 12 months	Among children age [6-23, 6-59] months, percentage given *any* iron-containing supplements (iron tablets, iron syrup, iron powder, MNP) in last 12 months
	Children given iron-only supplement in the last 12 months	Among children age [6-23, 6-59] months, percentage given tablets or syrup which *contained only iron* in last 12 months
	Children given MNP in the last 12 months	Among children age [6-23, 6-59] months, percentage given [local names for MNP] in the last 12 months
High-dose Vitamin A supplementation for children	Children given Vitamin A supplement (high-dose) in the last 6 months (recall only)	Among children age [6-23, 6-59] months, percentage given a high-dose Vitamin A supplement in the last 6 months
	Children given Vitamin A supplement (high-dose) in the last 6 months (vaccine record only)	Among children age [6-23, 6-59] months, percentage given a high-dose Vitamin A supplement based on documentation of vitamin A dose received
	Children given Vitamin A supplement (high-dose) in the last 6 months (recall and vaccine record)	Among children age [6-23, 6-59] months, percentage given a high-dose Vitamin A supplement in the last 6 months with documentation of vitamin A dose received

Section	Indicator Name	Definition
Childhood Treatment		
Zinc supplementation with ORS for children with diarrhea	Children given ORS for an episode of diarrhea in the last 2 weeks	Among children under 5 who had diarrhea in the 2 weeks preceding the survey, the percentage given fluid from an ORS packet or pre-packaged ORS fluid
	Children given zinc for an episode of diarrhea in the last 2 weeks	Among children under 5 who had diarrhea in the 2 weeks preceding the survey, the percentage given zinc
	Children given ORS and zinc for an episode of diarrhea in the last 2 weeks	Among children under 5 who had diarrhea in the 2 weeks preceding the survey, the percentage given fluid from an ORS packet or pre-packaged ORS fluid *and* zinc

Appendix 2. Collecting pregnancy and birth history information

Most of the maternal and child intervention coverage indicators included in this compendium require a pregnancy and/or birth history to identify eligible respondents. There are several standard approaches to collecting this information in a household survey. A full *pregnancy history* is a complete list of pregnancies a woman has ever had and their outcome including live births, stillbirths, miscarriages, and abortions. In contrast, a full b*irth history* is a complete list of children a woman has ever given birth to including birthdate, sex, survival status, current age (if alive), age at death (if deceased), and whether the child cohabitates with the mother.[103] Some household surveys collect truncated pregnancy or birth histories, which focus within a specific time period (e.g. the previous three years).

The DHS and MICS survey programs have used different approaches to collect pregnancy and/or birth history information.

A majority of DHS include a full birth history, however, some have used a truncated birth history (most commonly five years preceding the survey).[104] The DHS Program started to collect child birthdate as part of the birth history beginning with DHS-7. With DHS-8, The DHS Program has shifted from collecting birth history to pregnancy history; questions are in the Woman's Questionnaire Section 2: Reproduction. Additionally, the DHS-8 asks separately about pregnancy-related interventions received for each live birth in the last three years; earlier DHS rounds used the previous three to five years.

The MICS-6 collects a birth history in the Questionnaire for Individual Women. MICS asks about pregnancy-related interventions specific to the last live birth during the past two years.

[103] Croft, Trevor N., Aileen M. J. Marshall, Courtney K. Allen, et al. Guide to DHS Statistics. Rockville, Maryland, USA: ICF. 2018 Sept. See Infant and Child Mortality.
[104] ibid

Appendix 3. Indicators and questions related to source or location of interventions

In some contexts, it may be important report more specifically about the intervention source, provider, and/or location. The proposed indicator definition may be refined to only reflect services received from specific sources, providers and/or locations (e.g. only public facilities). Alternatively, information about the source, provider, and/or location may accompany the primary indicator in a table.

The following format is recommended for source indicators.

Source of (intervention): Among (target population) who reported receiving the intervention, percent by (each source).

The DHS-8 core questionnaire asks about source for the following nutrition-related interventions: ANC, IFA during pregnancy, delivery, postnatal care, and advice or treatment for child illnesses/diarrhea. MICS-6 questionnaire asks about source for the following nutrition-related interventions: delivery and postnatal care.

Below are examples of questions about source that can be adapted based on survey priorities. Omit any response options that are not relevant to the context. Cognitive testing should be carried out to ensure respondents understand the question and can distinguish among response items. Field testing as well as high quality enumerator training and supervision are also needed to facilitate accurate responses.

Example 1

Example 1 is modeled after the DHS-8 question about source of IFA during pregnancy. The response items are very specific; in some instances, respondents may not be able to accurately distinguish between them (e.g. whether a facility is specifically NGO managed).

Where did you get [INTERVENTION NAME]? 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).

PUBLIC SECTOR

a) GOVERNMENT HOSPITAL
b) GOVERNMENT HEALTH CENTER
c) GOVERNMENT HEALTH POST
d) MOBILE CLINIC
e) COMMUNITY HEALTH WORKER/FIELDWORKER
f) OTHER PUBLIC SECTOR (SPECIFY)

PRIVATE MEDICAL SECTOR

g) PRIVATE HOSPITAL
h) PRIVATE CLINIC
i) PHARMACY
j) PRIVATE DOCTOR
k) MOBILE CLINIC

l) COMMUNITY HEALTH WORKER/FIELDWORKER
m) OTHER PRIVATE SECTOR (SPECIFY)

NGO MEDICAL SECTOR

n) NGO HOSPITAL
o) NGO CLINIC
p) OTHER NGO MEDICAL SECTOR (SPECIFY)

OTHER SOURCE

q) SHOP
r) MARKET
s) [MASS DISTRIBUTION CAMPAIGN]
t) SCHOOL
u) OTHER (SPECIFY)

Example 2

Example 2 is an abbreviated version of the DHS response categories. This may be more feasible to implement but should also be tested and adapted to context.

Where did you get [INTERVENTION NAME]? 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).

a) GOVERNMENT HEALTH FACILITY
b) PRIVATE HEALTH FACILITY
c) MOBILE CLINIC
d) COMMUNITY HEALTH WORKER
e) [MASS DISTRIBUTION CAMPAIGN – ADD LOCAL NAME]
f) PHARMACY
g) SHOP/MARKET
h) SCHOOL
i) OTHER
j) DON'T KNOW

Appendix 4. Other resources for nutrition measurement in large-scale household surveys

This list focuses on resources that include model questions for inclusion in household surveys. It is not exhaustive, nor should inclusion of resources be considered an endorsement. Please share relevant resources through www.datafornutrition.org.

Indicator and Measurement Guidance

WHO and UNICEF (2021) Indicators for assessing infant and young child feeding practices: definitions and measurement methods
https://www.who.int/publications/i/item/9789240018389

FAO (2021) Minimum dietary diversity for women: an updated guide for measurement from collection to action.
http://www.fao.org/nutrition/assessment/tools/minimum-dietary-diversity-women/en/

PMA2020 Nutrition Survey – Burkina Faso and Kenya: Measurement Innovations Report 2018
https://www.pmadata.org/publications/nutrition-measurement-innovations

JMP WASH (2018) Core questions on water, sanitation and hygiene for household surveys: 2018 Update
https://washdata.org/monitoring/methods/core-questions

FAO (2014) Guidelines for assessing nutrition-related Knowledge, Attitudes and Practices (KAP)
http://www.fao.org/3/i3545e/i3545e.pdf

FAO (2016) Compendium of indicators for nutrition-sensitive agriculture
http://www.fao.org/3/i6275e/i6275e.pdf

WHO and UNICEF (2019) Recommendations for data collection, analysis and reporting on anthropometric indicators in children under 5 years old
https://data.unicef.org/resources/data-collection-analysis-reporting-on-anthropometric-indicators-in-children-under-5/

FHI-360. Intake: Center for Dietary Assessment
https://www.intake.org/

Tufts University - International Dietary Data Expansion Project (INDEXX)
https://inddex.nutrition.tufts.edu/

WHO, CDC, UNICEF and Nutrition International (2020) Micronutrient Survey Manual
https://www.who.int/publications/i/item/9789240012691

Global Survey Programs

The DHS Program. DHS Model Questionnaire Phase 8
https://dhsprogram.com/publications/publication-dhsq8-dhs-questionnaires-and-manuals.cfm

DHS Module on Household Food Insecurity (FIES)
https://dhsprogram.com/publications/publication-DHSQM-DHS-Questionnaires-and-Manuals.cfm

DHS Sampling and Household Listing Manual
https://www.dhsprogram.com/publications/publication-DHSM4-DHS-Questionnaires-and-Manuals.cfm

DHS Supplemental Module on Maternal Health Care
https://dhsprogram.com/publications/publication-DHSQM-DHS-Questionnaires-and-Manuals.cfm

UNICEF. Multiple Indicator Cluster Survey (MICS) 6 Tools
https://mics.unicef.org/tools

Standardized Monitoring and Assessment of Relief and Transitions (SMART) Methodology
https://smartmethodology.org/survey-planning-tools/smart-methodology/

World Bank Living Standards Measurement Study (LSMS)
https://www.worldbank.org/en/programs/lsms