

# MEETING REPORT

Prioritization of Nutrition  
Recommendations for The DHS  
Program



December 17, 2018  
Washington, D.C.

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# Meeting Agenda

## Monday, December 17 2018

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<b>Time</b>	<b>Topic</b>	<b>Presenter/Moderator</b>
2:00-2:10	Welcome	Omar Dary
2:10-2:20	Introductions and review of agenda	Erin Milner
2:20-2:45	Survey results and shortlisted recommendations for nutrition data quality	Sorrel Namaste Rukundo Benedict
2:45-3:15	Questions and Answers on report recommendations <i>All recommendations (not only those prioritized)</i>	Sorrel Namaste Rukundo Benedict
<b>3:15-3:30</b>	<b>Break 15 mins</b>	
3:30-4:30	Prioritization exercise in groups: Recommendations selected from the online survey will be further prioritized <i>Includes report back from groups</i>	Courtney Allen
4:30-4:50	Discussion on considerations for recommended actions	Erin Milner
4:50-5:00	Wrap-up and closing	Madeline Short-Fabic

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# Background

High-quality and relevant data are required to inform country and global decisions on nutrition policies and programs in low- and middle-income countries. Surveys from The Demographic and Health Survey (DHS) Program are a key source of nutrition data globally; as such, continual quality improvement to enhance the accuracy and depth of nutrition information collected is a high priority for The DHS Program.

In 2018, the nutrition group at The DHS Program conducted a qualitative study to describe the factors that facilitate or hinder nutrition data quality during the survey process and provide recommendations for The DHS Program to strengthen the collection of high-quality data for its users. The study focused on the collection and use of anthropometry, hemoglobin, and infant and young child feeding (IYCF) data. Over 50 nutrition and survey experts both internal and external to the DHS were interviewed, and two focus group discussions were held with survey managers.

The outcomes from the study are summarized in the report [“Enhancing Nutrition Data Quality in The DHS Program”](#) and includes a set of recommendations and associated actions to meet these recommendations. The proposed actions are primarily intended to improve the operations of The DHS Program, although the lessons learned can also be used by a wider audience involved in the collection and use of nutrition data.

As a follow-on to this study, a small group of representatives from USAID and the implementers of The DHS Program were convened on December 17, 2018 to prioritize the nutrition data recommendations and the associated actions. The results of the prioritization exercise will be used as a guide by The DHS Program to inform the extent and the order in which the recommendations and actions will be operationalized.

This meeting summary highlights the results of the prioritization exercise.

## Welcome, meeting objectives, and introductions

Dr. Omar Dary from USAID opened the meeting by commending The DHS Program for being a leading source of data globally. In the area of nutrition, there have been some concerns about the quality of DHS data. Dr. Dary emphasized that since these data are used for decision-making it is important that they be accurate; indeed, he indicated that in certain situations no data may be better than bad data.

Dr. Dary stated that two of the main topics of the meeting would be anthropometry and hemoglobin measurement. The quality of anthropometry may be improved by strengthening training and supervision. In contrast, accurate measurement of hemoglobin concentrations may reflect an issue with the method itself, and therefore may be a problem that is more complicated to solve. He also raised the possibility of collecting of micronutrient biomarkers within The DHS Program as long as data quality can be ensured.

Dr. Dary concluded by emphasizing that the world is expecting the availability of certain data. Data quality concerns with one aspect of the survey can result in the perception that other aspects of the survey also are flawed. He added that he was looking forward to a very good 4 to 5 years of The DHS Program with a renewed focus on nutrition data quality.

Dr. Erin Milner from USAID requested all meeting participants to introduce themselves. In attendance were four participants from USAID/GH, one participant from USAID/FTF, and five participants from The DHS Program. Dr. Milner subsequently reviewed the agenda and introduced the presenters. The objective of the meeting was to prioritize nutrition data quality recommendations for anthropometry, hemoglobin, and infant and young child feeding.

# Survey results and shortlisted recommendations for nutrition data quality

Dr. Rukundo Benedict from ICF provided a summary of the pre-meeting online survey results, which resulted in a shortlist of recommendations from the report, “Enhancing Nutrition Data Quality in The DHS Program.” She described that the report summarizes 54 interviews with internal (21) and external (33) experts and 2 focus group discussions with 13 survey managers on nutrition data quality for anthropometry, hemoglobin, and IYCF. In total, 32 recommendations emerged with a total of 129 actions.

The 32 recommendations (14 for anthropometry, 12 for hemoglobin, and 6 for IYCF) were shared in an online survey with all participants prior to the meeting. The participants were asked to shortlist their top four recommendations each for anthropometry and hemoglobin and their top two recommendations for IYCF. Participants completed the survey and the results were analyzed to create the shortlist of recommendations for the meeting.

The five highest-ranked recommendations<sup>1</sup> for anthropometry emerged from the survey design, training, data collection, and data processing phases:

- [\*Recommendation 2: Place anthropometry data quality considerations at the forefront of the survey design.\*](#)
- [\*Recommendation 4: Increase individualized anthropometry training.\*](#)
- [\*Recommendation 5: All primary anthropometry measurers should participate in the child anthropometry standardization exercise and restandardization if their performance is poor.\*](#)
- [\*Recommendation 10: Enhance supportive supervision for anthropometry data collection.\*](#)
- [\*Recommendation 12: Increase the use of field check data to monitor anthropometry data collection and promote corrective action.\*](#)

The four highest-ranked recommendations for hemoglobin emerged from the training and data collection phases:

- [\*Recommendation 4: Increase individualized hemoglobin training.\*](#)
- [\*Recommendation 5: Explore the incorporation of hemoglobin standardization exercises into the biomarker training.\*](#)
- [\*Recommendation 6: Improve blood sampling procedures for hemoglobin measurement.\*](#)
- [\*Recommendation 7: Explore pooling blood to increase accuracy of hemoglobin measurements.\*](#)

For IYCF, two recommendations emerged from the survey design and data dissemination and use phase:

- [\*Recommendation 2: Appropriately adapt the IYCF food group examples to the local context\*](#)
- [\*Recommendation 6: Revise DHS standard materials based on the WHO/UNICEF 2017 and 2018 IYCF consultations\*](#)

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<sup>1</sup> For anthropometry, five recommendations made the shortlist instead of four because of a tied ranking between recommendation 10 and 12.

Dr. Sorrel Namaste from ICF presented more detail from the report on the shortlisted recommendations:

For anthropometry, nutrition input into the design and funding for data quality was raised by several report informants. They described how funding decisions can impact all other aspects of the survey, for example, ensuring adequate team composition for anthropometry (i.e., a measurer and assistant), technical supervision expertise throughout the survey, and use of subsampling for anthropometry. Informants had noted that often the specific considerations for anthropometry were not central to the budget discussions and there was limited involvement of nutrition experts at the implementing agency to help inform these important budget decisions for anthropometry data quality.

The importance of training for anthropometry was described by all informants, and they highlighted the need for a longer training schedule, smaller class sizes, and more practice with children of varying ages. Child standardization exercises were also discussed by almost all informants and were viewed as key for anthropometry data quality. For measurers with poor performance during standardization, informants had discussed allowing sufficient time for retraining, practice, and restandardization. Many informants had described challenges in finding children in the appropriate age ranges for the exercise, but had noted it is possible, and that the standardization exercise required close coordination and communication between the survey manager, the implementing organization, and the trainers for effective execution.

Field supervision for anthropometry was cited by informants as a major area needing further strengthening, and informants had underscored the importance of supervisor training and the use of checklists to monitor work and provide constructive feedback. Finally, several informants had described the utility of the field-check tables for monitoring data quality in “real-time”, but had noted the challenges with explaining the resulting actions to be taken in the field.

For hemoglobin, informants had described how health technicians usually have limited experience with hemoglobin measurements using the HemoCue prior to the training, and limited knowledge about the sensitivity of the hemoglobin measurements. Informants had underscored the importance of smaller class sizes and more practice with adults and children. A few informants from outside The DHS Program had described conducting hemoglobin standardization exercises, while one informant had questioned its utility. From field anecdotes in one survey, Dr. Namaste described acceptable precision and accuracy in hemoglobin concentrations from high-performing health technicians compared with lower-performing ones. However, she cautioned a more formal pilot is warranted to explore the utility of a hemoglobin standardization in the DHS.

Blood sample collection was discussed by several informants. They highlighted poor techniques as a source of measurement error when collecting the capillary blood sample, and the various tools that can be used to improve blood flow. Informants described venous blood collection and different procedures for pooling capillary blood samples, but noted further piloting is needed to confirm that pooling samples may result in improved hemoglobin measurement.

For the IYCF measurements informants had stressed the importance of engaging local experts for adapting the food lists and liquids to the country context, and had highlighted the need to ensure sufficient time and budget for translations. Informants had also discussed aligning survey reports and STATcompiler to the guidelines from the WHO/UNICEF 2017 and 2018 IYCF consultations. Dr. Namaste clarified that [recommendation 6](#), “*Revise DHS standard materials based on the WHO/UNICEF 2017 and 2018 IYCF consultations*,” concerned making changes to *existing* IYCF indicators, and updating tabulation plans for survey reports and STATcompiler. Dr. Namaste also explained that for [recommendation 1](#), “*Consider new questionnaire elements in The DHS Program*” referred to

the possibility of including *new* IYCF indicators that emerged from the same WHO/UNICEF 2017 and 2018 IYCF consultations, for example, unhealthy eating indicators. Because there may have been confusion during the online survey about the addition of new indicators (recommendation 1) versus updating existing indicators (recommendation 6), during the prioritization exercise the group that focused on the IYCF section was given the option to also consider [recommendation 1](#).

Dr. Namaste reminded participants that nutrition is just one component of DHS surveys, and noted that efforts to improve nutrition data quality will need to be balanced with the needs of the rest of the survey and that many of the recommendations could also be applied to other topic areas. She also emphasized that the recommendations all come with cost implications. Dr. Namaste stated that some of the costs are USAID core costs such as pilot exercises, whereas other costs for recommendations directly related to survey implementation in individual countries are borne by USAID missions and other donors. She stressed that it was important to prioritize actions with these points in mind.

A copy of the presentation and the shortlist of recommendations are available in [Appendix I](#).

# Questions and answers on report recommendations

The section below summarizes the discussions during the Q&A.

- I. *Participants asked for clarification on how the outcomes of the prioritization exercise will be used and the timeline to implement the prioritized actions.*
  - a. The purpose of the prioritization exercise is to gather consensus from the meeting participants about which actions the group views as the highest priorities, and to use this information to help inform work plan activities over the 5-year period of DHS-8. Some of the actions that are “low-hanging fruit” can be accomplished early within DHS-8, while other actions may require several years to accomplish. A plan for operationalizing actions to enhance nutrition data quality will be developed by the implementers of The DHS Program with USAID. Actions will be selected based on those prioritized during this meeting, in addition to other factors, such as the ease of implementation, the broader actions being taken by The DHS Program to enhance data quality, and the sequential order required to accomplish an action (i.e., a lower prioritized action may need to be accomplished prior to adopting a higher prioritized action).
  
- II. *Some of the recommendations such as standardization, calibration, and questionnaire customization were perceived by participants as “routine” activities and it was unclear why they were included.*
  - a. Some of the actions in the report are new while others are actions that need to be consistently implemented and strengthened across surveys. Competing demands, obtaining buy-in, and keeping costs down often make it challenging to ensure every action that will impact data quality is being implemented to the full extent. It was suggested that an additional emphasis should be placed on including people that understand nutrition data quality to help inform the survey design at both The DHS Program and country level.
  - b. For IYCF, it was highlighted that it is important for surveys to receive input from local country nutritionists on food items and food groupings. In many sections of the Woman’s Questionnaire, e.g., demographics, contraception, pregnancy and postnatal care, child immunizations etc., there are some adaptations required. For nutrition, this is particularly challenging as food is so context specific and may even vary by region within a country. Hence, it is also important to ensure that the correct people conduct the food adaptations and that there is the right balance of local adaptations with maintaining comparability over time and across surveys. As all adaptations pose the potential for error, special procedures are required to ensure the adaptations are done correctly. The DHS plans to work with other population-based surveys such as Multiple Indicator Cluster Surveys (MICS) to identify regional experts that can be used to ensure all local foods are included and grouped correctly. It was suggested to explore additional sources of data for food groups such as the Gallup database/survey that focus on food groups for minimum diet diversity for women.
  - c. For anthropometry, standardization in some surveys has only been done on adults, and the WHO is only now releasing guidelines on how to use the results of standardization exercises to determine acceptable pass/fail values. Calibration of equipment is included in the DHS biomarker manual, but the materials to perform calibration are not consistently procured for anthropometry. In the case of hemoglobin, the instruments are calibrated by the manufacturer,

but there are quality controls that could potentially be used in the field that are not currently used.

- III. *There was a discussion on the differences in data collection for malaria testing versus hemoglobin.* For the most part, blood collection for malaria testing is straightforward, especially in the case of malaria rapid diagnostic tests (RDTs) where it is a qualitative (yes/no) test. (Although, thick smears which are also often collected do require some special experience/training to ensure correct quantity and placement of blood on the slide.) For hemoglobin, the test is quantitative, and blood collection procedures can have a greater influence on the test outcomes compared with malaria RDT. Thus, it is important to ensure that rigorous training on correct techniques and procedures is provided and that these procedures are strictly followed during data collection to minimize the variation in hemoglobin concentrations. This is further challenging because trainees have less exposure to hemoglobin assessment using HemoCues compared with malaria testing, and have to learn new techniques on how to correctly obtain the blood sample.
- IV. *Since the survey is implemented by the country and everything begins with their buy-in, there was some surprise why the recommendation to “involve host-country stakeholders in decision-making and planning for high quality data” did not make it into the shortlist.*
  - a. The process at the survey design stage that includes a Steering Committee and sometimes a Technical Committee was described. Briefly, the Steering Committee decides on the questionnaire content, timeline for survey, and budget. In some countries, a Technical Committee provides technical expertise during the design of the questionnaire. Nutrition is often underrepresented in these meetings because the Steering and Technical Committees consist of high-level government and donor representatives that may represent multiple topical areas. Examples were also provided of committee members not attending meetings. It was emphasized that the individuals going on design trips need to raise awareness with the country on the emerging necessity for new inputs to protect nutrition data quality. It is important to communicate that this means that changes may be required around team composition, training, and data collection that were not done in previous surveys.
  - b. For recommendations that were not shortlisted during the online exercise, it was emphasized that they would still be considered for action in the nutrition work plan over the course of the project.
- V. *Subsampling and source of data by survey type were raised and discussed by the group.*
  - a. Even though countries request data at the district level, participants noted that in most cases for hemoglobin there are not large variations at that level and collecting this data will have little impact on the design or tracking of programs. In contrast, it was noted that anthropometry indicators can vary by sub-region and district. However, obtaining representative anthropometry data at lower levels needs to be balanced against the cost and the need to maintain high data quality.
  - b. The DHS Program is the leading source of anemia data globally. The data comes from the DHS survey, but also from the Malaria Indicator Surveys. While there have been some initial discussions between WHO’s malaria and nutrition departments about revitalizing the use of anemia data for malaria programming, in practice anemia data from surveys is not widely used for malaria programming at this time. This creates a challenge for the nutrition community that

is seeking high-quality hemoglobin data, but are often not part of the discussions or contributing funding to the Malaria Indicator Surveys.

- VI. *Overburdening the survey was raised, and there was concern that some donors take the view that if they contribute money to the survey, then anything can be added.* The survey design and how countries decide on what items will be collected in the survey was discussed. Increasingly there is less funding from USAID missions (they mainly cover technical assistance costs), and the government and partners are making up a larger pool of the funding. If countries do want new indicators and they (or a donor) have the money, the indicator often gets included even if there is not sufficient funding to fully cover it. This means other parts of the survey are strained. Further, funding cannot always solve data-quality issues. The challenge is to find a way to undergo a negotiation process whereby stakeholders understand the full survey burden and still can meet the countries' requests for highest-priority data. The importance of avoiding making the survey design negotiation transactional by focusing too much on funding was also raised.
  
- VII. *There was a concern about inefficiency in having specialized supervisors for anthropometry given the logistical challenges.* Supervision structures can differ by survey. When other biomarkers are being collected along with anthropometry, it may be feasible to have a biomarker-specific supervisor that rotates between teams. In cases where anthropometry is the only biomarker being collected, it may make more sense to strengthen training on anthropometry procedures for supervisors who are also responsible for oversight of the other components of the survey.
  
- VIII. *Further clarification on "adequate funding" in reference to the action item "ensuring that funding for anthropometry data collection is adequate to meet the recommendations" in this report was raised."*
  - a. The intention behind this action was to address some of the activities that were not as frequently operationalized as others. For example, if The DHS Program were to act on some of these items, such as changing the data collection team composition to include two health technicians to conduct anthropometry instead of interviewers doing so requires funding for training and paying more staff among other costs.
  - b. The budget is not separated by topics or indicators but rather major activities/survey phases (e.g., procurement, training), so it is difficult to say how much it costs for anthropometry training, for example. In most cases, countries want to include whatever they had in previous surveys, in addition to new items. They often are not thinking about increased costs for the topics they have previously collected, and are focused on how to obtain funding for the new topics.
  
- IX. *The DHS Program provides the survey standards for many other surveys at USAID.* Thus, it was viewed as important that The DHS Program enhance and maintain their high-quality standards, so that other surveys can follow the example of The DHS Program. Further, taking lessons learned within The DHS Program to other groups at USAID would be beneficial.
  
- X. *Countries' capacity to implement surveys has improved.* Currently, implementers of The DHS Program spend most of their time providing technical assistance on sampling, biomarkers, and data processing.

The importance of country ownership is something that needs to be considered when considering the implementation of actions.

## Prioritization exercise in groups

Ms. Courtney Allen from ICF facilitated the prioritization exercise. First, the group brainstormed a set of common criteria to consider when prioritizing the actions. The six criteria identified included non-negotiable, ease, impact, cost (both core and mission), feasibility, and timing for action (immediate, year one, multi-year).

Participants were organized into three groups for each of the nutrition topic areas. Ms. Allen explained the instructions to each group. Briefly, each group was required to rank all actions from the shortlist of recommendations for their nutrition topic area. Cards were provided to allow groups to pile sort and develop a final ranking. Groups then provided feedback on the top three ranked actions and explained their rationale for prioritizing the high- and low-ranked actions. The group members and final results for all ranked actions for anthropometry, hemoglobin, and IYCF are included in [Appendix II](#).

### Anthropometry

Due to more recommendations being included for anthropometry than the other topic areas, first the highest-ranking recommendations were grouped by survey phase (design, training, data collection) and then actions were ordered within these phases.

[Design phase: Recommendation 2](#). The highest-ranked action was subsampling for anthropometry, followed by ensuring adequate funding. The funding action was reworded by the group to be “funding sufficient to accommodate needed inputs for data quality.” The rationale behind selecting subsampling was that resources saved using this approach could be used to offset the costs of collecting high-quality anthropometry data. Anthropometry data would still need to be representative at the country’s regional level; the number of surveys this would affect is unknown, but could be assessed by looking at past surveys’ sample sizes. The takeaway is that the default should be to assess the minimum sample size needed for anthropometry and design the survey accordingly. A discussion on countries requesting district-level anthropometry data was raised. In most cases data is available at the country’s regional level, but the sample size needed to obtain sufficient precision at the district level often prohibited the collection of the data at this level. It was acknowledged that nutritional status can vary substantially even by district.

[Training phase: Recommendations 4 and 5](#). The highest-ranked action was about planning ahead of time for child standardization exercises, followed by developing checklists for The DHS Program staff on standard operating procedures for child standardization exercises, and increasing the duration of training.

[Data collection phase: Recommendations 10 and 12](#). The highest-ranked action was the use of the biomarker checklist, followed by actions related to strengthening field check tables. The group acknowledged that some of the checklists have already been developed and are being piloted in a few countries, and should be scaled to all surveys.

The actions that were viewed as less of a priority included documenting benefits and challenges of different training schedules, and actions related to knowledge management and documentation of the standardization exercises were viewed as less important than actual implementation of the exercises. However, it was raised that documentation would reinforce consistent implementation across surveys. There were also concerns raised about the use of videos and other technologies for supervision because of issues with protecting respondent’s anonymity.

Overall the group found it challenging to rank actions, with the reason given that some of the actions were considered non-negotiable; others felt anthropometry experts may be able to better rank actions, and others viewed many of the actions as sequential, making it difficult to place a later-stage action higher in the ranking.

## Hemoglobin

Due to the small number of actions for each recommendation, all [recommendations 4-7](#) (training and data collection) were collapsed. The group then ranked all actions.

The highest-ranked action was about investigating changing the lancets used. The group explained that this was listed first because of its feasibility, ease, cost effectiveness, and the ability to implement quickly. Further it was important that it happened before the second-ranked actions.

Piloting different methods of blood collection was the main second-ranked action and was viewed as non-negotiable. The group viewed this as a high priority because of the challenges with the current method for blood collection. Some group members felt very strongly that the DHS should avoid the use of single-drop capillary blood for hemoglobin measurement, and instead use venipuncture or pooled capillary blood in a microtainer. The group acknowledged logistical challenges for venipuncture blood collection in The DHS Program at this time, but did agree that exploring the use of a pooled capillary sample was more feasible. As part of the pilot, the group also included actions on procuring hand warmers and modifying blood collection for children 6-59 months old. Some of the group thought that testing use of heel warmers and heel prick should be part of the pilot, while others did not think these things needed to be formally piloted. Concern was also raised about the safety of conducting finger pricks in children 6-11.9 months of age, especially in malnourished children. However, participants provided several arguments to support testing in this age group: a pilot being planned by the National Health and Nutrition Examination Survey (NHANES) in the United States in which finger pricks would be done for children in this age range; other surveys in low- and middle-income countries that are using a finger prick; and WHO recommendations specifying finger pricks in 6-11.9 months are acceptable.

Implementation of the hemoglobin pilot was discussed and the importance of it being in a DHS context in order for it to be applicable to The DHS Program was emphasized. There is currently a work plan item in year one set-aside for The DHS Program to develop and implement the pilot.

The group ranked exploring venipuncture in the DHS as third, still viewing this as an important action because of potential challenges with using capillary blood for hemoglobin collection.

Overall, there was agreement in the top-ranked actions on blood collection methods. This resulted in several of the other actions related to capillary blood collection for training falling to the bottom of the ranking. However, standardizing the blood drop number for hemoglobin was ranked fourth by the group because they felt it was important to keep this high on the list while awaiting pilot results. Other training activities such as small group sizes and increased use of demonstrations were middle ranked. The actions viewed as lowest priority included the hemoglobin standardization exercise and training for the HemoCue 301. The group was skeptical as to whether standardization would improve data quality and thought the use of pooled capillary or venipuncture blood would have more of an impact. In addition, the group thought the HemoCue 301 should not be used because of concerns with reliability being reported by some studies. The DHS Program currently procures the 201+ and the only cases where the 301 is used is when partners order supplies through UNICEF. While it needs to be confirmed, UNICEF may only include the 301 and not the 201+ on their supply list.

## Infant and young child feeding

During the online exercise, the group decided to rank both the [IYCF recommendations 1 and 6](#) so that there was full alignment with the WHO/UNICEF consultations. As with hemoglobin, there were a small number of actions for each recommendation and all [recommendations 1, 2, and 6](#) (design and data dissemination and use phases) were collapsed. The group then ranked all actions.

The highest-ranked action was incorporating unhealthy eating questions into the questionnaire. The group explained because the draft standard indicators being developed from the WHO/UNICEF consultations include these new indicators, it was important to be aligned with global guidance. Additionally, it was considered easy to achieve and feasible given the upcoming DHS-8 questionnaire revision process.

The second-ranked actions were updating the indicators that are currently being collected by The DHS Program in STATcompiler, revising tabulation plans and text for breastfeeding and complementary feeding indicators, and including the minimum acceptable diet (MAD), minimum dietary diversity (MDD), and minimum meal frequency (MMF) as calculated indicators. The group explained that they thought these actions were all related, so they were ranked together.

The group ranked the actions on IYCF adaptations third. The potential to work with MICS for the adaptations was raised in which a pool of regional consultants could be trained to conduct this work. They would have the right balance of knowledge of the local context, and the global perspective of not adapting food groups so much that the indicators would no longer be comparable over time and across countries.

The action viewed as lowest priority was the development of a child's questionnaire. There was no consensus for this action because it was perceived as the least feasible.

Participants discussed the open versus list-based approaches for IYCF. Currently there is no evidence for which method produces more valid results. MICS used to use a list-based approach, which is the current DHS methodology, but now has shifted their approach. Briefly, MICS first uses an open-based recall methodology where the respondent is asked what the child ate in the previous day/night from morning to evening and uses probes. Once a mother has recounted all items a child ate, the interviewers then use a list-based approach whereby they read out any foods from food groups that the mother did not mention. In the discussion, several questions about implications for training and the computer-assisted personal interviewing (CAPI) system were raised, and the DHS plans to reach out to MICS to learn more. The difference in methodologies raises concerns about comparability between DHS and MICS data. It is likely there would be higher estimates of minimum dietary diversity/food frequency and lower estimates of exclusive breastfeeding when the open-recall approach is used compared with the list-based approach. Participants brainstormed ideas for how new MICS data could be compared with older MICS data in the same country, but this was generally viewed as crude and would not lead to a shift in DHS methodology. It was suggested that The DHS Program, or another implementer such as the Advancing Nutrition project, conduct a pilot on open versus list-based IYCF questions. Further it was hoped this could also be an opportunity to expand on implementation science for surveys, and it was also suggested to draw on lessons learned from domestic surveys.

## Wrap-up and closing

In closing, Ms. Madeleine Short-Fabic thanked the USAID nutrition team for providing leadership and support to The DHS Program and for getting the right people to implement the work. She acknowledged this had been a neglected area not because of a lack of importance or desire, but because of funding constraints. She highlighted that the nutrition data-quality report provides actions that can build on the excellent DHS platform, but also acknowledged that the survey is not about nutrition alone; it requires a careful prioritization of the 32 recommendations and 129 actions for enhancing nutrition data quality. For anthropometry, the key take-away was that The DHS Program needs to continue doing what it has been doing, but to strengthen this work. For hemoglobin, there are concerns about the methodology, and there is need to consider different methodologies. For IYCF, it was the need to collect and present the most up-to-date indicators in alignment with current and emerging WHO/UNICEF-recommended indicators, and ensure these are reflected on STATcompiler and in the datasets. Of all the actions, those for hemoglobin are the most complex and costly, and if pilots reveal the need for new methodologies, this may influence the larger DHS survey operations. Ms. Short-Fabic thanked the meeting participants for engaging in the prioritization exercise and emphasized the importance of moving forward on incorporating some of the actions into The DHS Program work plan.

# List of participants

<b>Name</b>	<b>Affiliation</b>
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# Appendix I: Survey results & shortlisted recommendations for nutrition data quality

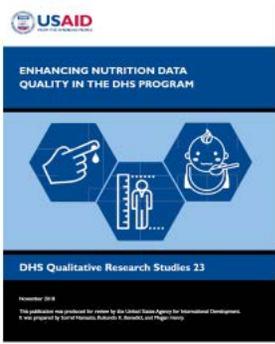
 **USAID**  
FROM THE AMERICAN PEOPLE

## Survey results & shortlisted recommendations for nutrition data quality

Sorrel Namaste  
Rukundo Benedict



## Qualitative study on nutrition data quality



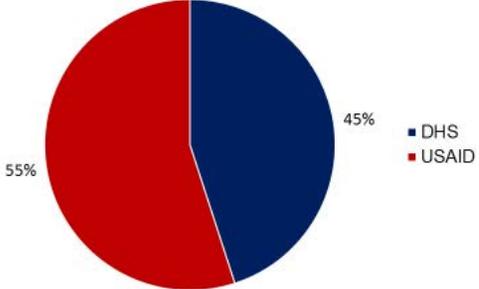
- 54 experts interviewed
  - 22 DHS, 33 external
  - Median survey experience 15 years (0-47)
- 2 focus groups
  - 13 survey managers
  - Median survey

**32 recommendations with 129 actions emerged**

## Online Survey Results

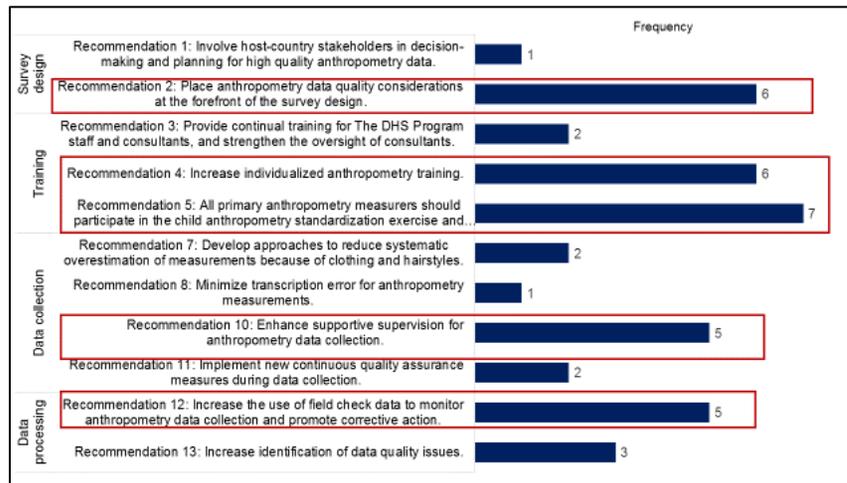
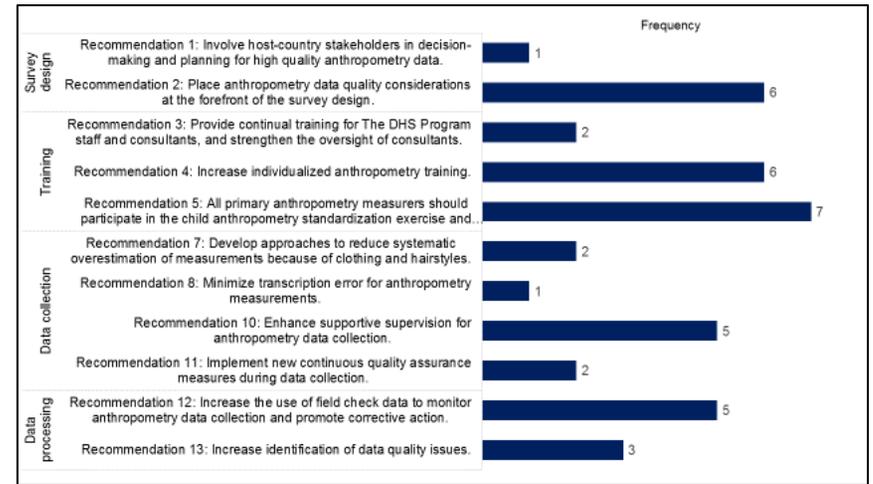
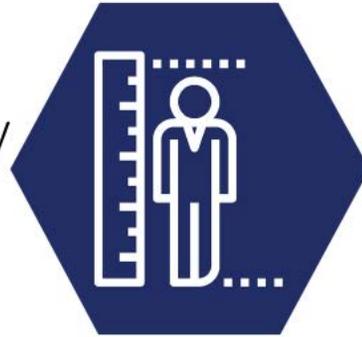
## Response rate & affiliation

- 100% response rate
- 11 respondents
  - 5 DHS
  - 6 USAID

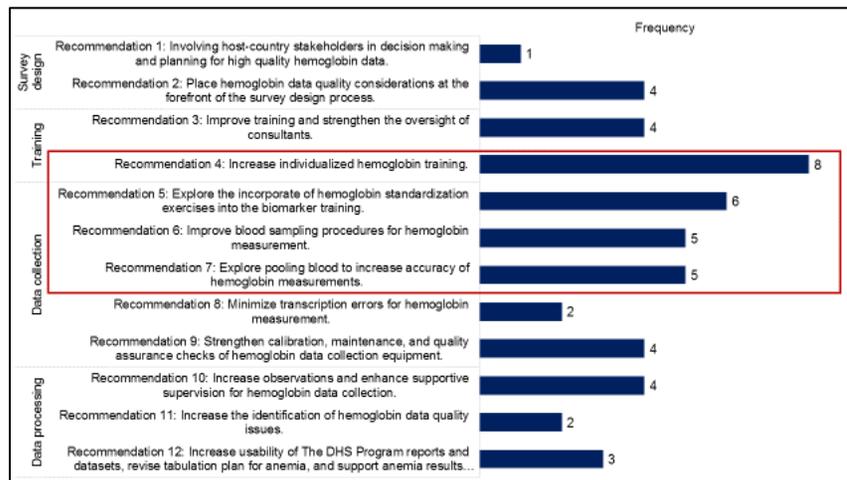
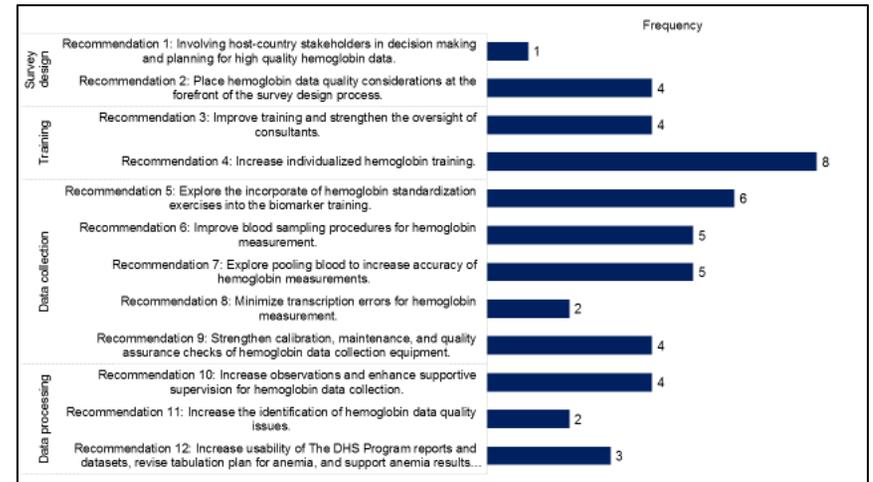


Affiliation	Count	Percentage
DHS	5	45%
USAID	6	55%

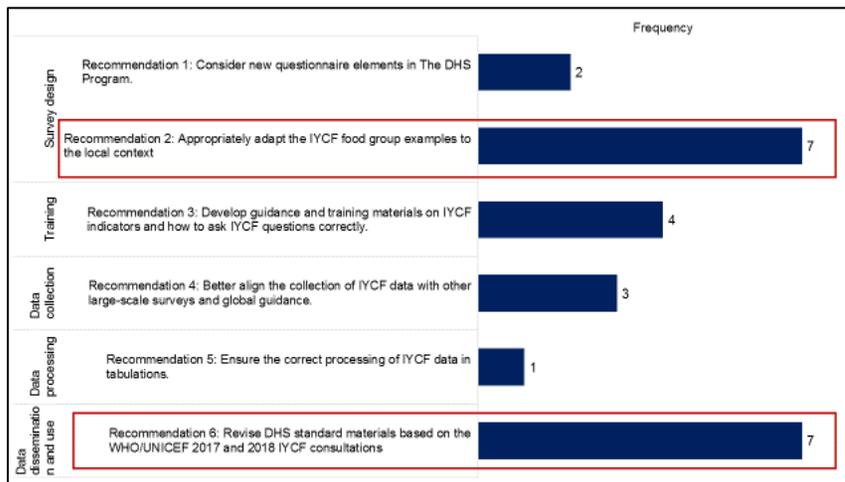
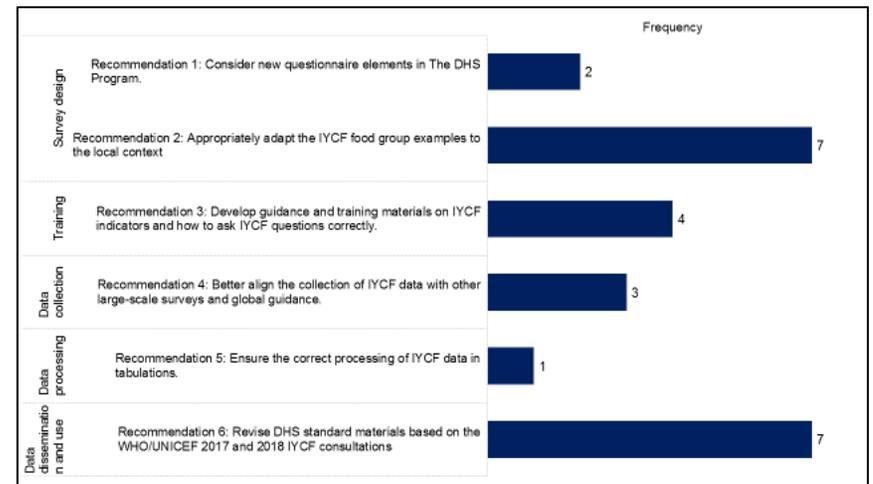
# Anthropometry



# Hemoglobin



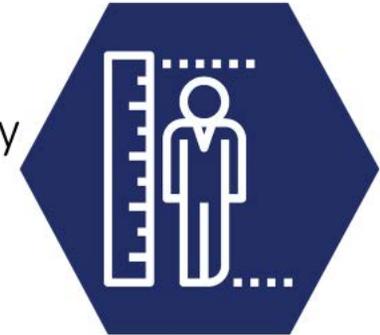
# Infant and Young Child Feeding



## Shortlisted recommendations



## Anthropometry



Place anthropometry data-quality considerations at the forefront of the survey design

*“So in terms of success, in terms of our partners...the success will come from **if they have the same understanding that this is not just something you can do quickly, and it is not a light effort.**”*



Increase individualized anthropometry training

*“**Anthropometry requires a whole different training** and of course equipment...you’re down there and doing something physical and explaining it in a different way.”*



All primary measurers should participate in the child anthropometry standardization exercise and restandardization if their performance is poor

“Where are we going to find the children? Are we going to find enough younger babies, and to do both recumbent length and standing height? **You really have to work through the details...we find that it takes a lot of back and forth.**”



Enhance supportive supervision

“Supervision is one of the biggest challenges. The implementing agency is used to monitoring fieldwork, but **mostly they are used to just going and making sure the teams are in the correct place.** I think it's an area that we can strengthen. It means that supervisors need to be aware of the correct procedure, but often there isn't time to provide that [training].”



Increase the use of field check data to monitor anthropometry data collection and promote corrective action

“Checking the data quality of measurements is a challenge [using field checks tables]. **What is an outlier and then how do you respond to technicians in the field?**”

SC-1202K Children's weight									
Percent distribution of children under 5 eligible for height and weight by result of weight measurement, status or incomplete date of birth, according to intervention team, Nigeria 2018									
Result of children's weight measurement									
Child not measured	Present	Refused	Other	Total	I	II	III	IV	Target 1
Team									

SC-1202K Children's height data									
Percent distribution of children under 5 eligible for height by result of height measurement, or incomplete date of birth, according to intervention team, Nigeria 2018									
Result of children's height measurement									
Child not measured	Present	Refused	Other	Total	I	II	III	IV	Target 1
Team									

Hemoglobin



## Increase individualized hemoglobin training

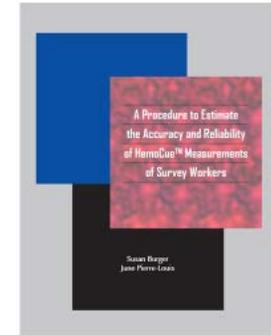
“We trained surveyors that have no biological background, and **they were not convinced that the capillary function was so crucial**, and then we did validation studies that proved that when milking or when not enough training is performed, there are considerable variations within the results in the same person.”



## Explore the incorporation of hemoglobin standardization exercises into the biomarker training

“It [hemoglobin standardization] uses the same principles as the anthropometry standardization.”

“I kind of shy away from it because I think it's a waste of time because it's not too variable.”



## Improve blood sampling procedures for hemoglobin measurement

“Everything bad can go wrong at collecting the sample, and you can't get any good results from a bad sample.”



## Explore pooling blood to increase accuracy of hemoglobin measurement

“Collect a larger quantity into a Microtainer and then sample from the Microtainer; there's an expectation that you're going to get a much more homogeneous supply.”

“There's some concern that as you're pushing the drop out there to the 500 microliters...that much more interstitial fluid creates a bias. I haven't seen studies on that.”

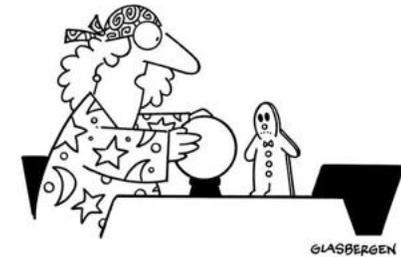


## Infant and Young Child Feeding



Appropriately adapt the IYCF food group examples to the local context.

“If you don't pay attention to the food lists, some of the foods **are not locally adapted**, even if you send it to the country.”



“In a past life, you were a bowl of flour, butter, eggs, sugar, ginger and molasses.”

Revise DHS standard materials based on the WHO/UNICEF 2017 and 2018 IYCF consultations.

“Until there's some sort of global recommendation, we're not just going to change things and make additions and changes ...because it then...it might change a lot, like from year to year. So it's best to wait until there's some sort of agreed-upon standard.”



“For nutrition, of course, there are plenty of things we could do, but it's not only nutrition in the survey. We have all the other aspects in the survey, and we need to find the right balance between what we can do to improve data, improve the quality and so on, and on the other hand, keeping the budget and the organization of the survey manageable.”



# SHORTLIST: ENHANCING NUTRITION DATA QUALITY RECOMMENDATIONS

## Anthropometry

### Design Phase

#### **Recommendation 2: Place anthropometry data-quality considerations at the forefront of the survey design.**

Steps for consideration by The DHS Program include:

- 1) Ensuring that funding for anthropometry data collection is adequate to meet the recommendations in this report, including a budget line item for child anthropometry training-standardization exercises.
- 2) Collecting anthropometry data on a smaller subsample using a sample size that allows for nationally and subnationally representative nutritional status (and disaggregated by demographics) for each target population (women, children).
- 3) Including a primary and assistant anthropometrist in each interviewing team, preferably with only one primary measurer per team.
- 4) Over-recruiting a minimum of 15% of measurers.
- 5) Establishing a supervision system that takes into account anthropometry-specific data collection needs to ensure correct measurement procedures are performed.

### Training Phase

#### **Recommendation 4: Increase individualized anthropometry training.**

Steps for consideration by The DHS Program include:

- 6) Increasing the duration of anthropometry training to 6 days to provide more opportunities for practice and anthropometry standardizations (see recommendation 5).
- 7) Documenting the benefits and challenges of different training schedules, such as daily alternating of anthropometry and blood collection (if blood collection is part of the survey).
- 8) Ensuring no more than 10 primary measurers are included in each breakout session for hands-on practice, and planning for enough trained facilitators for each breakout room.
- 9) Hosting a minimum of three evening clinics to provide individualized training to trainees identified as having poor technique.
- 10) Recruiting enough age-appropriate children to practice both recumbent and standing measurements.

#### **Recommendation 5: All primary anthropometry measurers should participate in the child anthropometry standardization exercise and restandardization if their performance is poor.**

Steps for consideration by The DHS Program include:

- 11) Developing checklists for The DHS Program staff on the standard operating procedures for child anthropometry exercise processes.
- 12) Planning early for the child anthropometry standardization and restandardization exercises, including written communications with the implementing agency.

- 13) Providing transport allowances for adults and children to travel to the training venue for practice sessions rather than trainees traveling to clinics.
- 14) Adopting a definition of what constitutes passing an anthropometry standardization exercise by using the technical error of measurement values established by the WHO/UNICEF anthropometry data quality working group.
- 15) Ensuring that passing the anthropometry standardization exercise is a selection criterion for being hired as a primary measurer.
- 16) Requiring all anthropometry trainings to have at least one trainer who has documentation of having passed an anthropometry standardization exercise in the previous 2 years (The DHS Program staff, consultants, survey managers).
- 17) Revising the anthropometry standardization tool to provide passing/failing criteria, allow for easy adaptation, and produce individualized retraining plans.
- 18) Increasing awareness and use of the anthropometry standardization tool, such as branding of the tool and developing training materials on the tool's use.
- 19) Requiring anthropometry standardization tool results to be maintained as part of the survey files in SharePoint, with summary results presented in the survey's final report.

### Data Collection Phase

#### **Recommendation 10: Enhance supportive supervision for anthropometry data collection.**

Steps for consideration by The DHS Program include:

- 20) Requiring individuals who supervise anthropometry data collection to receive adequate training and pass a test on correct anthropometry measurement procedures.
- 21) Implementing the use of a supervision biomarker checklist.
- 22) Identifying rotating biomarker monitors who are trained to provide oversight for anthropometry data collection.
- 23) Piloting remeasurement of anthropometry data on a subset of children by the anthropometry monitors.
- 24) Exploring the use of video and other technologies to ensure anthropometry data collection supervision is taking place.

### Data Processing Phase

#### **Recommendation 12: Increase the use of field check data to monitor anthropometry data collection and promote corrective action.**

Steps for consideration by The DHS Program include:

- 25) Examining DHS survey data to identify the most useful data to include in the field check tables, and the appropriate stage in the data collection process when these indicators can detect data issues.
- 26) Revising field check tables to better identify deviations from standards and appropriately alert the need for remedial measures.
- 27) Developing a field-level dashboard on anthropometry data and other topics, which presents data on team performance and alerts teams to the need for corrective actions.

## Hemoglobin

### Training Phase

#### **Recommendation 4: Increase individualized hemoglobin training.**

Steps for consideration by The DHS Program include:

- 28) Ensuring no more than ten health technicians are included in each breakout session for hands-on practice, and planning for enough trained facilitators for each breakout room.
- 29) Providing more opportunities for practice on children and adults and potentially a hemoglobin standardization exercise (see recommendation 5).
- 30) Hosting a minimum of three evening clinics that provide individualized training to those trainees who have been identified as having poor technique.
- 31) Increasing the use of demonstrations and videos to review correct procedures and provide course corrections on techniques.
- 32) Providing training with a timer when the HemoCue 301 is used to assure that the microcuvette is placed in the analyzer within 15 seconds of the finger prick.

#### **Recommendation 5: Explore the incorporation of hemoglobin standardization exercises into the biomarker training.**

Steps for consideration by The DHS Program include:

- 33) Piloting the feasibility of hemoglobin standardization exercises to review hemoglobin collection techniques and minimize errors.

### Data Collection Phase

#### **Recommendation 6: Improve blood sampling procedures for hemoglobin measurement.**

Steps for consideration by The DHS Program include:

- 34) Developing materials that describe how poor techniques cause false high and low hemoglobin measurements.
- 35) Reviewing research on sources of variation in hemoglobin concentrations on a yearly basis and incorporating new findings into the data collection procedures and materials.
- 36) Standardizing across all surveys the use of the third blood drop for hemoglobin and not collecting DBS samples before hemoglobin.
- 37) Modifying blood collection procedures to draw blood from a finger prick for all children age 6 to 59 months.
- 38) Procuring hand warmers for cold climates (and potentially warmer climates).
- 39) Investigating the most appropriate lancet size, depth, and gauge that would result in better data and adhere to within-country and global regulations.

#### **Recommendation 7: Explore pooling blood to increase accuracy of hemoglobin measurements.**

Steps to be considered by The DHS Program include:

- 40) Piloting different methods of hemoglobin blood collection.
  - Finger wicking versus gravity method on a single blood drop versus gravity method on a pooled blood drop sample versus the gravity method from a microcontainer
- 41) Exploring the feasibility of venipuncture instead of capillary sampling.

## Infant and Young Child Feeding (IYCF)

### Design Phase

#### **Recommendation 1: Consider new questionnaire elements in The DHS Program.**

Steps for consideration by The DHS Program include:

- 42) Determining the feasibility of developing a Child's questionnaire separate from the Women's questionnaire; DHS currently asks IYCF questions for youngest living child instead of all children under age 2; this is a proxy for global indicators.
- 43) Adding questions on unhealthy eating practices for children under age 2 to the IYCF section of the questionnaire based on the 2018 IYCF consultation.

#### **Recommendation 2: Appropriately adapt the IYCF food group examples to the local context.**

Steps to be considered by The DHS Program include:

- 44) Developing guidance on how to appropriately adapt the IYCF section of the DHS questionnaire; the guidance should be part of an overall guidance document that includes the other topics requiring adaptation in the DHS questionnaire.
- 45) Engaging local government or multilateral staff to ensure the IYCF section of the DHS questionnaire is appropriately adapted; preferably the process would be overseen by a survey technical committee that includes representation from the host-country nutrition sector.
- 46) Partnering with other organizations that have large-scale surveys to train regional experts on the appropriate adaptation of the IYCF section of the questionnaire, and drawing from this pool of regional experts when adapting surveys.

### Data Dissemination and Use Phase

#### **Recommendation 6: Revise DHS standard materials based on the WHO/UNICEF 2017 and 2018 IYCF consultations.**

Steps for consideration by The DHS Program include:

- 47) Reviewing and revising the tabulation plan and text for breastfeeding and complementary feeding indicators; this would include an area graph on IYCF feeding practices, as recommended by WHO, in the DHS tabulation plan and a video that describes how to interpret the area graph.
- 48) Updating the STATcompiler with revised breastfeeding and complementary feeding indicators.
- 49) Including MDD & MAD & MMF as calculated indicators in the recode microdata data sets.

## Appendix II: Group members and prioritization results

### Anthropometry – Data-Quality Prioritized Recommendations

Group members: Kiersten Johnson, Sorrel Namaste, and Madeline Short Fabric.

**Recommendation 2: Place anthropometry data-quality considerations at the forefront of the survey design.**

RANK	#	RECOMMENDATION	SURVEY PHASE
2	A2-1	Ensuring that funding for anthropometry data collection is adequate to meet the recommendations in this report, including a budget line item for child anthropometry training-standardization exercises.	Design
1	A2-2	Collecting anthropometry data on a smaller subsample using a sample size that allows for nationally and subnationally representative nutritional status (and disaggregated by demographics) for each target population (women, children).	Design
3	A2-3	Including a primary and assistant anthropometrist in each interviewing team, preferably with only one primary measurer per team.	Design
4	A2-4	Over-recruiting a minimum of 15% of measurers.	Design
5	A2-5	Establishing a supervision system that takes into account anthropometry-specific data collection needs to ensure correct measurement.	Design

**Recommendation 4: Increase individualized anthropometry training.**

**Recommendation 5: All primary anthropometry measurers should participate in the child anthropometry standardization exercise and restandardization if their performance is poor.**

<b>RANK</b>	<b>#</b>	<b>RECOMMENDATION</b>	<b>SURVEY PHASE</b>
<b>3</b>	A4-1	Increasing the duration of anthropometry training to 6 days to provide more opportunities for practice and anthropometry standardizations (see recommendation 5).	Training
<b>14</b>	A4-2	Documenting the benefits and challenges of different training schedules, such as daily alternating of anthropometry and blood collection (if blood collection is part of the survey).	Training
<b>6</b>	A4-3	Ensuring no more than 10 primary measurers are included in each break-out session for hands-on practice, and planning for enough trained facilitators for each breakout room.	Training
<b>9</b>	A4-4	Hosting a minimum of three evening clinics to provide individualized training to trainees identified as having poor technique.	Training
<b>7</b>	A4-5	Recruiting enough age-appropriate children to practice both recumbent and standing measurements.	Training
<b>2</b>	A5-1	Developing checklists for The DHS Program staff on the standard operating procedures for child anthropometry exercise processes.	Training
<b>1</b>	A5-2	Planning early for the child anthropometry standardization and restandardization exercises, including written communications with the implementing agency.	Training
<b>4</b>	A5-3	Providing transport allowances for adults and children to travel to the training venue for practice sessions rather than trainees traveling to clinics.	Training
<b>5</b>	A5-4	Adopting a definition of what constitutes passing an anthropometry standardization exercise by using the technical error of measurement values established by the WHO/UNICEF anthropometry data quality working group.	Training
<b>11</b>	A5-5	Ensuring that passing the anthropometry standardization exercise is a selection criterion for being hired as a primary measurer.	Training
<b>8</b>	A5-6	Requiring all anthropometry trainings to have at least one trainer who has documentation of having passed an anthropometry standardization exercise in the previous 2 years (The DHS Program staff, consultants, survey managers).	Training
<b>10</b>	A5-7	Revising the anthropometry standardization tool to provide passing/failing criteria, allow for easy adaptation, and produce individualized retraining plans.	Training
<b>13</b>	A5-8	Increasing awareness and use of the anthropometry standardization tool, such as branding of the tool and developing training materials on the tool's use.	Training
<b>12</b>	A5-9	Requiring anthropometry standardization tool results to be maintained as part of the survey files in SharePoint, with summary results presented in the survey's final report.	Training

**Recommendation 10: Enhance supportive supervision for anthropometry data collection.**

**Recommendation 12: Increase the use of field check data to monitor anthropometry data collection and promote corrective action.**

<b>RANK</b>	<b>#</b>	<b>RECOMMENDATION</b>	<b>SURVEY PHASE</b>
<b>5</b>	A10-1	Requiring individuals who supervise anthropometry data collection to receive adequate training and pass a test on correct anthropometry measurement procedures.	Data Collection
<b>1</b>	A10-2	Implementing the use of a supervision biomarker checklist.	Data Collection
<b>6</b>	A10-3	Identifying rotating biomarker monitors who are trained to provide oversight for anthropometry data collection	Data Collection
<b>7</b>	A10-4	Piloting remeasurement of anthropometry data on a subset of children by the anthropometry monitors.	Data Collection
<b>8</b>	A10-5	Exploring the use of video and other technologies to ensure anthropometry data collection supervision is taking place.	Data Collection
<b>2</b>	A12-6	Examining DHS survey data to identify the most useful data to include in the field check tables, and the appropriate stage in the data-collection process when these indicators can detect data issues.	Data Processing
<b>3</b>	A12-7	Revising field check tables to better identify deviations from standards and appropriately alert the need for remedial measures.	Data Processing
<b>4</b>	A12-8	Developing a field-level dashboard on anthropometry data and other topics, which presents data on team performance and alerts teams to the need for corrective actions.	Data Processing

## Hemoglobin – Data-Quality Prioritized Recommendations

Group members: Rukundo Benedict, Omar Dary, and Joanna Lowell.

**Recommendation 4: Increase individualized hemoglobin training.**

**Recommendation 5: Explore the incorporation of hemoglobin standardization exercises into the biomarker training.**

**Recommendation 6: Improve blood sampling procedures for hemoglobin measurement.**

**Recommendation 7: Explore pooling blood to increase accuracy of hemoglobin measurements.**

RANK	#	RECOMMENDATION	SURVEY PHASE
6	H4-1	Ensuring no more than 10 health technicians are included in each breakout session for hands-on practice, and planning for enough trained facilitators for each breakout room.	Training
10	H4-2	Providing more opportunities for practice on children and adults and potentially a hemoglobin standardization exercise (see recommendation 5).	Training
11	H4-3	Hosting a minimum of three evening clinics that provide individualized training to those trainees who have been identified as having poor technique.	Training
5	H4-4	Increasing the use of demonstrations and videos to review correct procedures and provide course corrections on techniques.	Training
13	H4-5	Providing training with a timer when the HemoCue 301 is used to assure that the microcuvette is placed in the analyzer within 15 seconds of the finger prick.	Training
14	H5-1	Piloting the feasibility of hemoglobin standardization exercises to review hemoglobin collection techniques and minimize errors.	Training
7 <sup>2</sup>	H6-1	Developing materials that describe how poor techniques cause false high and low hemoglobin measurements.	Data Collection
12	H6-2	Reviewing research on sources of variation in hemoglobin concentrations on a yearly basis and incorporating new findings into the data collection procedures and materials.	Data Collection
4	H6-3	Standardizing across all surveys the use of the third blood drop for hemoglobin and not collecting DBS samples before hemoglobin.	Data Collection
2	H6-4	Modifying blood collection procedures to draw blood from a finger prick for all children age 6 to 59 months.	Data Collection
2	H6-5	Procuring hand warmers for cold climates (and potentially warmer climates).	Data Collection
1	H6-6	Investigating the most appropriate lancet size, depth, and gauge that would result in better data and adhere to country and global regulations.	Data Collection
2	H7-1	Piloting different methods of hemoglobin blood collection: Finger wicking versus gravity method on a single blood drop versus gravity method on a pooled blood drop sample versus the gravity method from a microcontainer	Data Collection
3	H7-3	Exploring the feasibility of venipuncture instead of capillary sampling.	Data Collection

<sup>2</sup> No actions ranked 8<sup>th</sup> or 9<sup>th</sup> because the group ranked three actions 2<sup>nd</sup>.

## Infant and Young Child Feeding (IYCF) – Data-Quality Prioritized Recommendations

Group members: Jeniece Alvey, Trevor Croft, and Erin Milner.

**Recommendation 1: Consider new questionnaire elements in The DHS Program.**

**Recommendation 2: Appropriately adapt the IYCF food group examples to the local context.**

**Recommendation 6: Revise DHS standard materials based on the WHO/UNICEF 2017 and 2018 IYCF consultations.**

RANK	#	RECOMMENDATION	SURVEY PHASE
8	IYCF1-1	Determining the feasibility of developing a Child’s questionnaire separate from the Women’s questionnaire; DHS currently asks IYCF questions for youngest living child instead of all children under age 2; this is a proxy for global indicators.	Survey Design
1	IYCF1-2	Adding questions on unhealthy eating practices for children under age 2 to the IYCF section of the questionnaire based on the 2018 IYCF consultation.	Survey Design
5	IYCF2-1	Developing guidance on how to appropriately adapt the IYCF section of the DHS questionnaire; the guidance should be part of an overall guidance document that includes the other topics requiring adaptation in the DHS questionnaire.	Survey Design
7	IYCF2-2	Engaging local government or multilateral staff to ensure the IYCF section of the DHS questionnaire is appropriately adapted; preferably the process would be overseen by a survey technical committee that includes representation from the host-country nutrition sector.	Survey Design
6	IYCF2-3	Partnering with other organizations that have large-scale surveys to train regional experts on the appropriate adaptation of the IYCF section of the questionnaire, and drawing from this pool of regional experts when adapting surveys.	Survey Design
3	IYCF6-1	Reviewing and revising the tabulation plan and text for breastfeeding and complementary feeding indicators; this would include an area graph on IYCF feeding practices, as recommended by WHO, in the DHS tabulation plan and a video that describes how to interpret the area graph.	Data Dissemination
2	IYCF6-2	Updating the STATcompiler with revised breastfeeding and complementary feeding indicators.	Data Dissemination
4	IYCF6-3	Including MDD & MAD & MMF as calculated indicators in the recode microdata data sets.	Data Dissemination