WORSHOP PROCEEDING

FMOH/RMNCH-N Research Prioritization and Policy Brief Development Workshop

MAY 9-12, 2016
Addis Ababa, Ethiopia

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Introduction

FMOH/RMNCH-N Research Advisory Council (RAC) had a research prioritization and policy brief development workshop from May 9-12, 2016 at SOLO-TE hotel in Addis Ababa, Ethiopia. The participants for this workshop came from 22 institutions including representatives from the Federal Ministry of Health. The meeting was opened by Dr. Lisanu Tadesse, representing the Maternal and Child Health Directorate, Federal Ministry of Health, Ethiopia.

Over the four days meeting; participates discussed research prioritization methods and decided on the method that best suits the FMOH/RMNCH-N prioritization activities.

The sections below review the objectives of each session, provide an overview of the discussion and outputs from each session. The full agenda for the four-day meeting can be found in Appendix A.

Beyond the important outputs of each session reported below, the meeting provided an important opportunity for members to meet face to face, that allowed sharing of ideas and experiences between members both as individuals and as representatives of their institutions.

The workshop was financially supported by Save the Children and facilitated by Addis Continental Institute of Public Health.

Session Overview (Day 1)

Day 1 agenda:

- Welcome address opening remark
- Objective setting
- Research prioritization methodology review
- Review the previous RAC research priority topic list

Discussion and Outputs:

The meeting was opened by welcome address and opening remark by a representative from the Federal Ministry of Health (FMOH); Dr. Lisanu Tadesse. Followed by the participants introducing themselves and their institutional affiliation.

Prof. Yemane Berhane (ACIPH), chaired the first session; it started with agenda setting for the four days. The group discussed on the objective of the workshop, reached consensus on the importance of setting research priorities and the critical consideration in setting research priorities. It was agreed to be systematic in prioritizing research area and to build on what was already started by research advisory council (RAC).

Then, Prof. Yemane Berhane presented the WHO research prioritization method and the various other methods used for research priority setting. During this session the workshop participants were divided into 7 groups to review the advantages and disadvantages of the various methods and also to identify the method that may best suit the mission of RMNCH-N. (Attached please find the full presentation).

The groups reviewed the article: "*Yoshida S. Approaches, tools and methods used for priority setting in health research in the 21st century. Journal of Global health. June 2016; 6(1).* Each group then made oral presentations on the advantages and disadvantages of the various methods along with recommendation on which method is more suitable for the RMNCH-N activities. All except one group recommended the use of the *Child Health and Nutrition Research Initiative (CHNRI) approach* for the RMNCH-N research priority activities. [Annex- 2: Summary of outcomes from the group discussion]

The afternoon session started with a brief presentation by Dr. Yibeltal Tebekaw (MCSP-Jhpiego), on the procedures that were followed thus far by the Research Advisory Council (RAC) to come up with the research priority list. It was mentioned that the priority research list was developed in consultation with the six case teams of Maternal and Child Health (MCH) directorate, literature review and involvement of stakeholders. Emphasis was given to align the priority research areas with the Health Sector Transformation Plan (HSTP) and with the available budget. It was highlighted that there were no well-established

prioritization criteria's used when developing the current list. It could therefore be used as draft to facilitate the formal research prioritization exercise and is open to any kind of enrichment.

Participants complimented the positive progress made so far by the RAC; but suggested that the objective of this exercise should be clear; whether it is to identify thematic research areas or to identify specific research topics. Participants also agreed that it is very important for the research prioritization exercise to be based on a strong methodology in order to make the process transparent, systematic, and replicable. By doing so the process will be objective and useful for future referencing.

Based on the consensus reached to use the CHNRI method; the participants divided into two groups to discuss possible ways to adapt the CHNRI method to the local context. The groups used the article below for discussion:

"Igor Rudan, Jennifer L. Gibson, Shanthi Ameratunga, Shams El Arifeen, Zulfiqar A. Bhutta, Maureen Black, Robert E. Black, Kenneth H. Brown, Harry Campbell, Ilona Carneiro, Kit Yee Chan, Daniel Chandramohan, Mickey Chopra, Simon Cousens, Gary L. Darmstadt, Julie Meeks Gardner, Sonja Y. Hess, Adnan A. Hyder, Lydia Kapiriri, Margaret Kosek, Claudio F. Lanata, Mary Ann Lansang, Joy Lawn, Mark Tomlinson, Alexander C. Tsai, Jayne Webster. Setting priorities in Global Child Health Research Investments: Guidelines for Implementation of CHNRI Method. Summery paper. Croat Med J. 2008; 49:720-33. Doi:10.3325/cmj.2008.49.720" Summary of the above paper by Jill pooler

Session Overview (Day 2)

Dr. Lisanu presented ways to adapt the CHNRI approach on behalf of his team. [Attached please find the full presentation]. Concerns raised from this presentation revolved around the criteria. The use of equity and ethics as a ranking criteria was debated among participants. Other concerns include 16 criteria are too much for a selection criteria, and some of the terms used in the list are vague and difficult to measure. It was agreed to divide the criteria into three groups as basic criteria that must be fulfilled, ranking criteria, and criteria to be fulfilled after ranking.

Dr. Afework Mulugeta (Mekelle University) presented on behalf of the second group. [Attached please find the full presentation]. Following the presentation questions were raised for this group if they have considered how weighting could be done, how we could involve stakeholder and if they have considered how we could measure magnitude and severity, *if we include them in the criteria as per their suggestions.*

The discussion points raised for both groups were taken as an agenda for panel discussion. The panel discussion which was chaired by Prof. Yemane started with setting the name for the research priority procedure.

Initially six names were suggested by participants; after the voting process RAM-CHNRI was selected. Additional modifications were made before agreement was reached to finalize the selection title for the document *RAMN-CHNRI*. The name adapted keeps the internationally recognized name (CHNRI) and addresses the areas of reproductive, adolescent, maternal and newborn health.

Further discussions and modifications were made to accommodate the ideas raised by both groups. Draft document which includes the agreed upon amendments are attached in Annex 3.

Session Overview (Day 3)

Participants were asked to break out into three groups to filter the existing research priority topics. The list of the priority areas developed by RAC was distributed to participants to deliberate and rank according to the priority ranking procedure (MAMN-CHNRI). [Annex 4]

Presentations:

Dr. Mezgebu Yitayal (University of Gondar) gave a presentation on behalf of the Adolescent and Youth Health and Family planning group. Details about the prioritization procedures they have followed, the results and the final list of priority topics were presented. (Attached please find the full presentation).

> Maternal health and PMTCT group recognized a topic which were misplaced; "*Pilot the feasibility of Quinacrine female sterilization and transdermal patch in Ethiopia"* and suggested this group to rank and include the topic in their list.

Dr. Lissanu, presented the prioritization procedure and final topics for the Neonatal and child health + Immunization group. (Attached please find the full presentation). The group acknowledged the challenges during the ranking process. It was mentioned that reaching to an agreement was difficult partly because it was a large group (a lot in number). They also mentioned having certain dominant experts could influence the process and suggested to have a balanced mix of experts from various fields. The group also emphasized that raters should have good level of understanding about the setting and similar level of expertise. Recommendation to limit the number of rater to 7 people, and to provide raters with a short concept note 3 or 4 pages prior to the scoring activity were also suggested.

Dr. Yibeltal made an oral presentation on behalf of the maternal health and PMTCT of HIV group, and discussed procedures followed by the group to filter the research priorities. Individual rating and regardless of cost consideration were made; once the average grades were calculated the group decided to use 3 *(from a possible grade of 1-5*) as a threshold for cutoff from the list of priorities. Participant however voiced their concerns about the use of threshold to omit topics from the list; as well as the interpretation of decimal points in the rating process.

A panel was reconvened to discuss on five key questions:

1. How do we solicit research topics? After deliberation it was agreed that research topic should come from different prospective: the community, academic institution, program but it should be refined based on the criteria's. Furthermore, the importance of call for concept note with a

standardized template to set the context was strongly suggested. Then, the prioritization process has to be done according to the agreed upon system (RAMN-CHNRI). FMOH/EPHI, Academics, Health development partners and professional association may take the lead in managing the process.

2. Should we require a concept paper? It was unanimously agreed that concept note with a standardized format is required

3. Were the criteria's for scoring long? Issue were raised about some of the criteria's being long and wordy; plus there was concerns about redundancy in some of the criteria's. Annex 5: review of criteria's

4. Is there a need to set thresholds? It was unanimously agreed to not set threshold; we should leave the priorities as listed. If funding is available and we have the capacity; all priority research areas need to be addressed according to their priority list. Setting a threshold and removing some research areas from the list may create loopholes that make those topics to be dropped without being researched.

5. Should individuals selected for scoring be trained and what should be the number of individuals to be included in the team? Scorers have to be trained on the RAMN-CHNRI procedures and scoring should be done by a minimum of 7 independent scorers.

Session Overview (Day 4) – Thematic Research Groups Progress Report

Progress report of research groups and setting the way forward session was facilitated by Mr. Abiy. [Annex 6: Summary of progress report]

Following a breakout session to work on their thematic research report teams presented their progress report. [Annex 7: Summary of progress report-2]

Thematic group presentation and discussion:

Mr. Abiy presented on behalf of the thematic research group; "Contributors to Neonatal and perinatal mortality in Ethiopia: Analysis based on systematic review of local evidence" (Attached please find the full presentation).

Questions and comments for this group:

- **When reviewing the published literatures which years were included?** *2005-2015 (10 years frame was used for searching published literatures)*

- **Why did you use the 10years publication data?** *Especially considering the shift in programmatic approach over the years. It would have been better if you use a more recent data to increase the impact of the program. 10 years was selected to gather adequate literature; but if we agree as a group to limit the time frame for all our literature review the group could follow that. The other option here is we could as a group identify the times were major programmatic changes have occurred and could compare the changes that came from the different approaches.*

- **When analyzing the results did you try to differentiate between neonatal and perinatal mortality?** *No, since the literature on perinatal mortality was very scanty.*

- **Do you think the group was comprehensive in including all grey literatures especially when it comes to the unpublished theses?** *We focused on the thesis available in the 4 universities (Jimma University, Addis Ababa University, University of Gondar, and Mekelle University) so it may not be enough to cover the thesis researches in the country as there are many universities doing MPH training.*

- When we transfer some your results into policy brief; they may not be very clear. For example it is mentioned birth spacing is one contributor but it is vague.

- **It was mentioned you have adapted the 3-delay model; which of the three delays was the major contributor?** *We didn't use the delay model but instead we used the framework. It was suggested to use the Pre-pregnancy, pregnancy and delivery phase factors instead of 3D framework*

Dr. Abebaw Gebeyehu (University of Gondar) presented on behalf of the thematic research group; "Barriers to utilization of long acting reversible and permanent contraceptive methods, with emphasis to emerging regions" (Attached please find the full presentation).

Questions and comments for this group:

- Emerging regions frequently mentioned and emphasized but in one of the slides Benishagul-Gumuz have higher utilization levels than Tigray; what can you say from that?
- It is better to omit the student researches which are not published.
- The barriers listed in your slide are too many and could be overwhelming.
- In your results it was mentioned that most policy documents are supportive to family planning but deficient in including it as an indicator. Policy documents are large documents and may not go into specific details so better not state it that way.
- **What kind of document should we consider for systematic review?** – *depends on your objective. The primary objective for carrying out this research is to provide evidence for policy decision hence the rational for going through national documents.*

Dr. Afework presented on behalf of the thematic research group; "The impact of community based nutrition program on acute and chronic malnutrition in Ethiopia" (Attached please find the full presentation).

Questions and comments for this group:

- When comparing changes before and after the Community Based Nutrition (CBN) program; did you consider other factors like time and study designs used?

- Strong recommendation to shift from ENA to ENAWA; were there evidences that women empowerment has a correlation with child feeding?

- CBN is a program and there are regional variations; plus considering that

there are no rigorous evaluations made on large scale, I was expecting one of your recommendation would be conducting impact evaluation at a large scale. *The group may recommend implementation study to provide evidence but the recommendation made were based on the international evidence; and considering the inclusion of additional recommendation will have little or no resources implication.*

Mr. Fasil presented on behalf of the thematic research group; "Factors associated with dropout from the vaccination program in Ethiopia" (Attached please find the full presentation).

Questions and comments for this group:

- There are many factors affecting dropouts in actual programs like vaccine saving; have you considered the missed opportunities within the program (*children may be born in the health facility but vaccination was not available until the required number is reached*).

- Have you considered behavior problems?

- Have you considered the role of health extension workers or the health development army?

- Have you access outbreak data? *The objective of the study is routine immunization.*

- In line with this it was suggested to include "*effect of campaign in regular immunization program*".

The way Forward (Day 4)

The way forward and closing was given by Dr. Lisanu. He appreciated the dedication of workshop participants, facilitators and organizations that supported the workshop. He mentioned that a solid foundation is laid to do research priority setting now and for the future by adapting the RAMN-CHNRI approach.

He also emphasized that the thematic groups must continue to work enthusiastically to complete the thematic research reports and the policy brief before the set deadline, which is mid-June 2016. There will be a 'learning day' dedicated for such activities around the Annual Review Meeting in June.

Dr. Lisanu concluded the workshop by thanking the participants for the tremendous work they have done over the course of the four days and asked them to continue to work with the same level of commitment in the future.

ANNEX 1: Meeting Agenda

Day 1:			
Time	Topic	Responsible	Moderator
8:30-9:00 am	Registration	ACIPH	
9:00- 9:30AM	Welcome address opening remark	FMOH	Dr. Lisanu
	Objective setting	Prof. Yemane	
10:00-10:30	Health break	ACIPH	
10:30-12:00pm	WHO research prioritization methodology	Prof. Yemane	FMOH RMNCH Lead
12:30-1:30pm	Lunch	ACIPH	
1:30-4:00pm (health break included)	Thematic break out to filter the previous research topic list	Participants	Prof. Yemane FMOH RMNCH-N lead
4:00-5:00pm	Reporting back	Thematic groups	Prof. Yemane FMOH RMNCH-N lead
5:oo-5:30	Discussion on the filtered topics	Participants	Prof. Yemane FMOH RMNCH-N lead

Day 2:			
Time	Topic	Responsible	Moderator
8:30-9:00 am	Registration and recap	Organizers	FMOH RMNCH-N lead
9:00- 11:30am (health break included)	Thematic break out to identify new research topics	Participants	Prof. Yemane FMOH RMNCH-N lead
11:30-12:00	Reporting back	Thematic groups	Prof. Yemane FMOH RMNCH-N lead
11:30-12:00	Discussion	participants	Prof. Yemane
12:30-1:30pm	Lunch	ACIPH	
1:30-2:30pm	Thematic group breakout to develop action plans for the new research list	Thematic groups	Prof. Yemane FMOH RMNCH-N lead
2:30-3:30pm	Thematic group breakout to develop action plans for the new research list	Thematic groups	Prof. Yemane FMOH RMNCH-N lead
3:30-4:00pm	Health break	ACIPH	
4:oo-4:30	Way forward	FMOH	Prof. Yemane

Day 3:			
Time	Topic	Responsible	Moderator
9:00-9:30 am	Objective setting	Dr. Lisanu	Prof. Yemane
9:30-10:00am	Breakout session on continuation of development of policy brief- per thematic group	Thematic groups	Chair and co-chair of each thematic groups
10:00-10:30am	Health break	ACIPH	
10:30-12:30pm	Breakout session on continuation of development of policy brief- per thematic group	Thematic groups	Chair and co-chair of each thematic groups
12:30-1:30pm	Lunch	ACIPH	
1:30-3:30pm	Breakout session on continuation of development of policy brief- per thematic group	Thematic groups	Chair and co-chair of each thematic groups
12:30-1:30pm	Lunch	ACIPH	
4:00-5:00pm	Breakout session on continuation of development of policy brief- per thematic group	participants	Chair and co-chair of each thematic groups

Day 4:			
Time	Topic	Responsible	Moderator
9:30-10:00am	Policy brief draft presentation by groups who have finalized	Thematic groups	Prof. Yemane
10:00-10:30am	Health break	ACIPH	
10:30-12:30pm	Policy brief draft presentation by groups who have finalized	Thematic groups	Prof. Yemane
12:30-1:30pm	Lunch	ACIPH	
1:30-3:30pm	Discussion on the policy briefs presented	Thematic groups	Prof. Yemane
12:30-1:30pm	Health break	ACIPH	
4:00-5:00pm	Way forward and closing	FMOH	Prof. Yemane

ANNEX 2: Summary of group discussion on the different research prioritization methodologies.

Group 1:

suggested point for selection:

- Stakeholder participation(representation)
- Context analysis
- Clarity of criteria
- Feasibility

Recommended Approaches:

- ENHI
- CHNRI
- COHRED

ENHI approach is preferable for Ethiopia but there is a need to supplement it to address the disadvantages

Group 2:

- Document reviewed focusing on **Applicability, Transparency, Structured approach/ systematic**
- Most of the methods were drown from developed nations (Country of ownership in low-middle income?)
- **CHNRI :** criteria of scoring, selection is transparent, simplicity, low cost, its scope is child nutrition, and it a new approach though it is not tested in LMIC)
- **Recommendation:** Build on RAC initiative including the best practices from CHNRI.

Group 3:

Method- CHNRNI-2007

Reasons for recommendation:

- recent, widely used
- assist decision making and consensus development
- independent ranking system
- participants identified by management team based on their experience
- research idea based on current evidence
- Strong scoring criteria
- Advantage: simple, inclusive, replicable, less costly
- Disadvantage: limited group involvement
- Continuous update of team
- Think tank group and data base

Group 4:

Guiding principles for selecting priority setting tools

- Transparency
- Applicability
- Systemic and structured approach
- Rooms for addition and removal of criteria's
- Not time and resource consuming

Recommendation: CHNRI

Group 5:

ENRI:

- Advantage-equity focus and multi-disciplinary
- Disadvantage- vague criteria

CAM:

- Advantage: institutional representation

- Disadvantage: time consuming

James Lind Alliance Method:

- Advantage: applicable to small scale, participants beneficiaries
- Disadvantage: clinical oriented

COHRED:

- Advantage: flexible to contexts
- Disadvantages: non specific

Delphi method:

- Advantages: flexible
- Disadvantage: time consuming, lack of transparency

CHNRI*:

- Advantage: simple, less costly, applicable
- Disadvantage: instrumental, representation, cost is not standard criteria

Group 6:

- Reviewed all the priority methodologies
- **Recommended :** CHNRI with modification to include online survey

Group 7:

EHNHR

- Resource intensive and time taking, subjective

CAM

- Avoids subjectivity

James:

- Narrow and focused

COHRED:

- Local context and cpd approach

DELPHI:

- Panel of experts no discussion

CHNRI*

- Scoring criteria, experts

Annex 3: RAMN-CHNRI first draft: steps in CHNRI

Steps	Description	Modified description
Step 1: Selecting managers of the process	A small team of people who represent investors in health research, their interests and visions (stakeholders). Their role is to assess the likelihood that the proposed research will reduce the burden of disease within the context of the investments being made.	RAC can play this function: The following members will form the process managers. • FMOH/EPHI • Academics • Health development partners • Professional associations The members will be 7. Each member will serve for two years
Step 2: Process managers to specify the context and risk management preferences	1. Context in space: what is the population in which the investments in health research should contribute to a reduction in the burden of disease and improve health? 2. Disease, disability and death burden: what is known about the problem to be addressed by the research? 3. Context in time: what is time lag between the intervention and detectable disease reduction? 4. Stakeholders: whose values and interests should be respected when setting research investment priorities? 5. Risk management preferences: how will investment risk be managed?	Similar groups as in Step 1 specify the context including defining the population, disease burden, impact time, stakeholders' interest and investment risk management process.
Step 3: Process managers to discuss criteria for setting health research priorities	Define criteria specific to the 'context' for discriminating between competing 'investment options'. For example: i) answerability ii) attractiveness iii) novelty iv) potential for translation v) effectiveness vi) affordability vii) deliverability viii) sustainability ix) public opinion x) ethical issues xi) potential impact on disease burden xii) equity xiii) community involvement xiv) cost and feasibility xv) enterprise generation. However, the longer the criteria the greater the possibility of overlap reducing their usefulness as independent criteria.	The following set of criteria can be used to prioritize researches 1) Answerability 2) Attractiveness 3) Novelty 4) Potential for translation 5) Effectiveness 6) Affordability 7) Deliverability 8) Sustainability 9) Public opinion 10) Ethical issues 11) Potential impact on disease burden

		12) Equity 13) Community engagement 14) Cost and feasibility 15) Enterprise generation 16) Private sector involvement 17) Urgency 18) Disease burden 19) Political acceptability/alignment with policy 20) Avoidance of duplication
Step 4: Process managers to choose a limited set of the most useful and important criteria	Using milestones which set out the aims of any health research select from the previous list, criteria that should discriminate between competing options (merging criteria if necessary). See Figure 1 from Rudan et al article.	The following list of criteria were chosen to prioritize researches • Answerable • Ethical • Effective • Cost • Feasibility • Deliverable • Maximum potential • Equitable • Sustainability: outcomes can be sustained and affordable • Disease burden
Step 5: Process managers to develop the means to assess the likelihood that proposed health research options will satisfy selected criteria	Invite a group of technical experts (e.g. methodologist; economist; statistician; health impact assessor) to work closely with the process managers to list, check and score research options/questions using a simple yes/no question proforma addressing each of the criteria individually. An example question regarding criterion answerability is: Is the research option/question well framed and endpoints well defined?	List of questions that will be used to evaluate the researches 1. Answerable: Would you say the research question is well framed and endpoints are well defined? 2. Answerable: Based on: (i) the level of existing research capacity in proposed research and (ii) the size of the gap from current level of knowledge to the proposed endpoints; would you say that a study can be designed to answer the research question and to reach the proposed endpoints of the research? 3. Ethics: Do you think that a study needed to answer the proposed research question would obtain ethical approval without major concerns? 4. Effectiveness: Based on the best existing evidence and knowledge, would the intervention,

		which would be developed/improved through proposed research be efficacious? 5. Effectiveness: Based on the best existing evidence and knowledge, would the intervention, which would be developed/improved through proposed research be effective? 6. Effectiveness: If the answers to either of the previous two questions are positive, would you say that the evidence upon which these opinions are based is of high quality? 7. Deliverability: Taking into account the level of difficulty with intervention delivery from the perspective of the intervention itself (eg, design, standardizability, safety), the infrastructure required (eg, human resources, health facilities, communication and transport infrastructure) and users of the intervention (eg, need for change of attitudes or beliefs, supervision, existing demand), would you say that the endpoints of the research would be deliverable within the context of interest? 8. Sustainability: Taking into account the resources available to implement the intervention, would you say that the endpoints of the research would be affordable within the context of interest? 9. Sustainability: Taking into account government capacity and partnership requirements (eg, adequacy of government regulation, monitoring and enforcement; governmental intersectoral coordination, partnership with civil society and external donor agencies; favorable political climate to achieve high coverage), would you say that the endpoints of the research would be sustainable within the context of interest? 10. Impact on disease burden: Taking into account the results of conducted intervention trials or for the new interventions the proportion of avertable burden under an ideal scenario, would you say that the successful reaching of research

		endpoints would have a capacity to result in significant reduction of disease burden? 11. Equity: Would you say that the present distribution of the disease burden affects mainly the underprivileged in the population? 12. Equity: Would you say that the underprivileged would be the most likely to benefit from the results of the proposed research after its implementation? 13. Equity: Would you say that the proposed research has the overall potential to improve equity in disease burden distribution in the long term (eg, 10 years)? 14. Alignment with policy: Would you say that the proposed research is aligned with the national health priorities (HSTP)? 15. Cost: Would you say that the cost required to conduct the research is reasonable for the expected deliverable? 16. Feasibility: Would you say that the proposed research could be done within the existing capacity and context? Use Likert scale: Strongly disagree, disagree, neutral, agree, strongly agree
Step 6: Systematically list a large number of proposed health research options	Whatever the funding circumstances that research priorities are responding to list and map i) the research domain e.g., research to assess health burden to ii) the research avenue e.g., measuring the burden to iii) the research option e.g., duration of research and iv) the research question, in order to identify the most important and specific questions to be investigated.	
Step 7: Pre-score all competing research options	Using the framework in Step 4 map the research options/questions to the milestones.	

Step 8: Score health research options using the chosen set of criteria	Technical experts to score the research options/questions independently against the criteria selected by the process managers in Step 4: 0= I disagree/1=I agree/0.5 neither agree nor disagree	
Step 9: Calculating intermediate scores for each health research option	The scores of the technical experts from Step 8 are calculated for each research options/questions and divided by the number of received answers. The results are assigned a value of 0% and 100% and each represents a measure of collective optimism among the technical experts of the likelihood that each option/question would satisfy each priority setting criterion in turn. The scores can now be ranked.	
Step 10: Obtaining further input from stakeholders	Involve stakeholders to i) define minimal score (threshold) for each criterion that needs to be achieved in order to consider any research option a funding priority ii) allocate different weights to these scores so they are not just a simple arithmetic mean, but a weighted mean.	
Step 11: Adjusting intermediate scores taking into account the values of stakeholders	Calculate weighted mean of scores of stakeholders in Step 11. Discard research options that fail to reach all the suggested thresholds.	
Step 12: Calculating overall priority scores and assigning marks	Calculate mean scores of technical experts in Step 8 for all criterion in Step 4 see figure from Rudan et al article.	
Step 13: Performing an analysis of agreement between scorers	For transparency, assess level of agreement between technical experts for each research option/question using Kappa calculation.	
Step 14: Linking	All decisions that need to be made must be based on i) research priority scores (RPS) and cost of each	

computed research priority scores with investment decisions	research option/question, either already supported or proposed as an alternative ii) maximising the sum of RPS values of supported research options within a given fixed budget iii) if the sum of the RPS scores within an existing program is lower than the sum of the alternative, resources should be shifted from the existing into the new research options.	
Step 15: Feedback and revision	Adjust the research investment portfolio to new contexts and aim to reduce the existing disease burden in the most cost-effective and equitable way by i) adding further research options/questions to the list ii) adding additional criteria ii) re-scoring all research options in the redefined context iv) revising thresholds and weights.	

Annex 4: Research Priority list per thematic area.

Adolescent and Youth Health		
Topic	**Score (100%)**	**Rank**
Risk taking behaviors of adolescents and youth in Ethiopia: how common higher-risk sex and substance uses are?	**79.0**	**1st**
The impact of the National Adolescent and Youth Reproductive Health Strategy 2006-2015, and Baseline Assessment for the Adolescent and Youth Health Strategy 2016-2020, Ethiopia: A triangulation of quantitative and qualitative approaches	**78.8**	**2nd**
Factors affecting utilization of contraceptive methods among sexually active adolescents and youth	**78.5**	**3rd**
VCT utilization of adolescents and sexual behavior	**72.5**	**4th**
Attitude of adolescents and youths to utilize youth friendly services	**68.8**	**5th**

Family Planning		
Topic	**Score (100%)**	**Rank**
Immediate postpartum family planning with emphasis to IUD	75.5	1st
Identifying needs, misconception and other related factors on the utilization of IUCD	74.2	2nd
Barriers for utilization of long acting reversible and permanent contraceptive methods in Ethiopia	73.1	3rd
Barriers for family planning services utilization in emerging region	72.9	4th
Factors associated early removal of long acting contraceptive methods: poor counseling or adverse effects?	70.8	5th
Magnitude of infertility and facility readiness to work up and treat	62.3	6th

Neonatal and child health + immunization		
Topics	**Total Score**	**Rank**
Factors associated with dropout from the vaccination program in Ethiopia	69	
ICCM service utilization barriers	72	
KMC practice assessment: Initiation at facility and continuation at community/home	71	
Community based treatment of possible serious bacterial infections in young infants (< 2 months) when referral is not possible: Implementation research	74	
Estimating the incidence of pneumonia in preschool and school aged children: longitudinal.	75	
Estimating the incidence of diarrheal diseases in preschool and school aged children: longitudinal.	76	
Estimating the common causes of morbidity among children aged 5-14 years	76	
Estimating the causes of under-five mortality	76	
Estimating the incidence of common neonatal health problems	76	
Estimating the common causes of neonatal mortality	76	
The effect of health worker education and changing measles vaccine vial size on measles vaccination coverage	0	
Why HIV care to children is challenging in Ethiopia?	73	
Prevalence of Hepatitis B virus infection among pregnant women: a base line data for the introduction of HepB birth dose vaccine.	72	
Prevalence of Rubela virus infection among infants: a base line data for the introduction of combined measles-rubella vaccine.	53	
How common is yellow fever in Ethiopia? A base line data for scale up the yellow fever vaccination.	69	
Discrepancy between the measles vaccination coverage and measles outbreak: Is it program failure or vaccine failure?	70	
Trend in the proportion of pneumonia in under-five children in relation to introduction of pneumococcal conjugate vaccine among children admitted to hospitals: facility based study.	59	
Incidence, associated factors and outcomes of preterm deliveries in public hospitals: Facility based cohort	69	
Causes and incidences of stillbirth and early neonatal death: Facility based	69	
Nutrition		
The contribution of community-based nutrition programs to reduction of SAM and stunting in Ethiopia	71	
Micronutrient status (iron, folate, iodine, zinc, vitamin A) of pregnant women: biochemical assessment	69	
Why stunting is highly prevalent in the Northern part of Ethiopia?	64	

Maternal Health and PMTCT in HIV		
Topic	**Average Mean score**	**Rank**
HIV positive women's fertility rate and family planning service utilization in Ethiopia	4.5	2nd
Characteristics of continuum of PMTCT of HIV care in Ethiopia	4.2	5th
Partner HIV testing and disclosure practice during maternal and newborn health care	3.8	8th
Rate of mother to child transmission (MTCT) of HIV in Ethiopia	4.4	4th
Prevalence of Obstetric fistula and pelvic organ prolapse (POP) in Ethiopia: How common iatrogenic fistula cases are?	4.1	4th
Oropharyngeal bloody procedures and risk of MTCT of HIV: case control study	3.4	6th
The trend of cesarean delivery in the last decade: How common is maternal request for c/s?	2.9	7th
Characteristics of continuum of care in maternal and newborn health, and the influence of one to the other	4.6	1st
Attitude of health providers towards safe abortion service: what is the reality on the ground after ten years of the abortion law?	3.2	5th
Minimum 24 hours postpartum stay at health facility: feasibility, acceptability and impact on maternal and neonatal health	4.5	1st
Piloting the feasibility of labor pain treatment with nitrous oxide	2.7	4th
The contribution of the women development army (including use of family health card) to ANC and institutional delivery: Home delivery free surveillance and response	4.0	2nd
Prevalence of Toxoplasmosis among pregnant women	2.2	3rd
The practice of iron and folate prescription and utilization during pregnancy and postpartum period	4.4	1st
Interactive voice response (IVR) for MNH	3.8	1st
Practice of labor pain management in Ethiopia	**New suggested topic**	

Annex 5: List of Research Review Criteria

1. **Answerable:** Would you say the research question is well framed and endpoints are well defined?
2. **Answerable:** Based on: (i) the level of existing research capacity in proposed research and (ii) the size of the gap from current level of knowledge to the proposed endpoints; would you say that a study can be designed to answer the research question and to reach the proposed endpoints of the research?
3. **Ethics**: Do you think that a study needed to answer the proposed research question would obtain ethical approval without major concerns?
4. **Effectiveness:** Based on the best existing evidence and knowledge, would the intervention, which would be developed/improved through proposed research be efficacious?
5. **Effectiveness:** Based on the best existing evidence and knowledge, would the intervention, which would be developed/improved through proposed research be effective?
6. **Effectiveness:** If the answers to either of the previous two questions are positive, would you say that the evidence upon which these opinions are based is of high quality?
7. **Deliverability:** Taking into account the level of difficulty with intervention delivery from the perspective of the intervention itself (eg, design, standardizability, safety), the infrastructure required (eg, human resources, health facilities, communication and transport infrastructure) and users of the intervention (eg, need for change of attitudes or beliefs, supervision, existing demand), would you say that the endpoints of the research would be deliverable within the context of interest?
8. **Sustainability:** Taking into account the resources available to implement the intervention, would you say that the endpoints of the research would be affordable within the context of interest?
9. **Sustainability:** Taking into account government capacity and partnership requirements (eg, adequacy of government regulation, monitoring and enforcement; governmental inter sectorial coordination, partnership with civil society and external donor agencies; favorable political climate to achieve high coverage), would you say that the endpoints of the research would be sustainable within the context of interest?
10. **Impact on disease burden:** Taking into account the results of conducted intervention trials or for the new interventions the proportion of avertable burden under an ideal scenario, would you say that the successful reaching of research endpoints would have a capacity to result in significant reduction of disease burden?
11. **Equity:** Would you say that the present distribution of the disease burden affects mainly the underprivileged in the population?
12. **Equity:** Would you say that the underprivileged would be the most likely to benefit from the results of the proposed research after its implementation?
13. **Equity:** Would you say that the proposed research has the overall potential to improve equity in disease burden distribution in the long term (eg, 10 years)?
14. **Alignment with policy:** Would you say that the proposed research is aligned with the national health priorities (HSTP)?
15. **Cost:** Would you say that the cost required to conduct the research is reasonable for the expected deliverable?
16. **Feasibility:** Would you say that the proposed research could be done within the existing capacity and context?

Annex 6: Summary of progress report by thematic groups – at the beginning of the workshop

Topic/ Group	Progress	Remark
1. HIV Positive women's fertility rate and family planning service utilization in Ethiopia	Data extraction	Gap in expert on systematic review Complete extraction of literature
2. Characteristics of continuum of PMTCT of HIV care in Ethiopia	Postponed	
3. Factors associated with dropout from the vaccination program in Ethiopia	Report drafted	Draft policy brief
4. What contributes to high early neonatal mortality	Report drafted	Draft policy brief
5. Barriers to utilization of long acting reversible and permanent contraceptive methods, with emphasis to emerging regions	Report drafted	Draft policy brief
6. Risk taking behavior of adolescents and young in Ethiopia: how common higher-risk sex and substance uses are?	Literature identified	Few members in the group More literature
7. The impact of community based nutrition program on acute and chronic malnutrition in Ethiopia	Report drafted	Two reports: 1 on SAM& another on chronic Malnutrition Draft policy brief at least for one
8. The effect of service availability and readiness on maternal and newborn health service provision(state of quality)	One meeting held	UNFPA is willing to support Refine the topic and develop a plan

Annex 7: Summary of progress report by thematic groups – at the end of the workshop

Topic/ Group	Summary of current progress
1. HIV Positive women's fertility rate and family planning service utilization in Ethiopia	No presentation Progress was made is collecting literatures and the group have decided to have a one week workshop to sit and work on the report
2. Characteristics of continuum of PMTCT of HIV care in Ethiopia	
3. Factors associated with dropout from the vaccination program in Ethiopia	Dr. Fasil Presented draft results of report
4. What contributes to high early neonatal mortality	Dr. Abiy Presented draft results of report
5. Barriers to utilization of long acting reversible and permanent contraceptive methods, with emphasis to emerging regions	Dr. Abebaw Presented draft results of report
6. Risk taking behavior of adolescents and young in Ethiopia: how common higher-risk sex and substance uses are?	S/r Aster Summary of the groups progress presented orally and draft will shared with the group soon
7. The impact of community based nutrition program on acute and chronic malnutrition in Ethiopia	Dr. Afework Presented draft results of report along with the policy brief
8. The effect of service availability and readiness on maternal and newborn health service provision(state of quality)	No presentation Topic was refined and literature extraction has commenced

Annex 8: List of Participants

S.N	Name	Affiliation	Tel.	email
1.	Abebaw Gebeyehu	UoG	920314519	gabebaw2worku@gmail.com
2.	Abiy Hiruye	MOH-PI	912166601	ahiruy@pathfinder.org
3.	Abiy Seifu	AAU-SPH	912629235	seifua@gmail.com
4.	Afework Mulugeta	Mekelle University	914382045	afework.mulugeta@gmail.com
5.	Alula Meressa	CIRHT	935409495	ateklu72@gmail.com
6.	Aseged Woldu	TIE	911407576	asegedk@gmail.com
7.	Assefa Alem	Engender Health	911727682	aalem@engenderhealth.org
8.	Aster Teshome	FMOH	911456406	aster1621@gmail.com
9.	Befikadu Tariku	Arbaminch university	912361811	fike_tariku@yahoo.com
10.	Bereket Matlewos	Save the children	911985713	berket.mathows@savethechildren.org
11.	Birhanu Sendek	ISI/FGG	911663709	bsendek@ifhp.et.org
12.	Birhanu Sendek	ISI/FGG	911663709	bsedek@ifhp.et.org
13.	Demissew Alemu	Jimma University	911811468	demisam5@gmail.com
14.	Fasil Tessema	Jimma university	917804095	fasil.tessema@ju.edu.et
15.	Gashaw Andagie	UoG	911385423	gashawab@gmail.com
16.	Gizachew Tadele	JSI/L10K	912 003624	gizt121@gmail.com
17.	Gurmesa Tura	`Jimma University	912061646	gurmesatura@gmail.com
18.	Hanna Yemane	ACIPH	912869823	ym1hanna@gmail.com
19.	Haney Shamil	FMOH-AIKA	939860304	Haneyshemil2@gmail.com
20.	Kasahun Sime	JSI/Finot	911724854	kasahun74@gmail.com
21.	Legesse Kidanne	Ccrda/core	911761833	legessek.cgpp@gmail.com
22.	Lisan Taddesse	MOH	911389826	Chexpert1.mch@gmail.com
23.	Meselech Asseged	AAU-SPH	911904390	meselecha@yahoo.com
24.	Mezgbu Yitayal	UOG	947057683	mezgebuy@gmail.com
25.	Mirgessa Kaba	AAU/SPH	911213631	mirgissk@yahoo.com
26.	Mulugeta Naizgi	Mekele University/CH	913718423	mnaizgi@yahoo.com
27.	Neghist Tesfaye	UNAIDS	913539697	belaynehn@unaids.org
28.	Seifu Hagos	AAU-SPH	911613577	Seif_h23@yahoo.com
29.	Tariku Nigatu	Pathfinder	911795445	trknigatu@gmail.com
30.	Tesfaye Setegn	Bahir Dar University	917063992	tesfayesetegn@yahoo.com
31.	Wegen Shiferaw	WHO	911406654	Shiferaw@who.int

32.	Yared Abera	FMOH	911401951	yaredab@yahoo.com
33.	Yibeltal Tebekaw	MCSP-Jhpiego	911763770	ytebekaw@gmail.com
34.	Yohannes Dibaba	Ipas	917803615	dibabay@ipas.org
35.	Yoseph Worku	SPGMMC	911842800	worku_yoseph@yahoo.com
36.	Yunis Mussema	Save the children	911665836	yunis.mnsema@gmail.com
37.	Yemane Berhane	ACIPH	911219785	yemaneberhane@addiscontinental.edu.et
38.	Zemene Tigabu	UoG	911545653	zemene.tigabu@gmail.com
39.	Zenaw Adam	JSI/UI-FHS	929037120	zenaw_adam@jsi.com