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Methodology and criteria for setting national health research priorities in Bhutan: a workshop report

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ABSTRACT

The Bhutanese health system is committed to providing health services for all citizens and is interested in strengthening the country's health research capacity. The objectives of this workshop were to understand the range of health research activities in Bhutan; to formulate a prioritized research agenda for the Ministry of Health (MoH); to share challenges, gaps and opportunities in health research; and to provide insights for future prioritization exercises. The MoH partnered with Khesar Gyalpo University of Medical University of Bhutan and USA-based facilitators to develop and pilot a methodology for health research priority setting. The Bhutan priority setting process was adapted from the Combined Approach Matrix and the Essential National Health Research methods. The methodology proved successful in the systematic creation of a list of health research priorities. Future priority setting processes will build on this workshop, continuing to refine and strengthen the priority setting process in Bhutan.

Keywords: Combined Approach Matrix; Essential National Health Research; Health Research Priority.

INTRODUCTION

Policy makers and global organizations such as the World Health Organization have been working to develop systematic health research priority setting methods to improve utilization of health research resources (funding, personnel, and equipment) most effectively[1-3]. Validated and systematic approaches to prioritization can help to produce strong priority lists that can be tracked and evaluated at a later date, with the understanding that country-level health research priorities will evolve over time[4,5].

The Essential National Health Research (ENHR) approach is one of the most frequently used frameworks for research priority setting in resource limited countries, focusing on disease-burden, proven efficacy of interventions, and cost benefit considerations in setting priorities, while also emphasizing cooperation and synthesis of priorities between institutions and public health bodies[4]. The Combined Approach Matrix (CAM) provides a method for stakeholders to systematically prepare for priority setting and then score identified health research activities across select criteria[6,7]. Countries such as Thailand[8], Canada[9], Maldives, and Panama[10] have conducted priority setting exercises that were found to adequately guide decision making processes and evaluations, while also encouraging open discussion of research priorities and leading to systematic and transparent decisions[8-10].

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Khesar Gyalpo University of Medical Sciences of Bhutan (KGUMSB) and the MoH have been collaborating to systematically identify health research priorities since 2014, when they sponsored the first Research Mapping and Priority Setting Workshop in Bhutan. The workshop used the ENHR method to develop an extensive list of research goals to be used as a starting point for future priority setting workshops. In December 2017, representatives from the MoH, KGUMSB, and the Ministry of Agriculture and Forests (MoAF) gathered for a workshop to pilot a systematic process that could be used (a) for future health research priority setting in Bhutan and (b) to inform the health research priorities of the 12th Five-Year Plan (FYP)[6].

METHODS

The Policy and Planning Division (PPD) of the MoH created a workshop organizing committee in September 2017, with representation from the MoH, KGUMSB, and two external facilitators who were public health academicians based in the USA.

Step One – Planning for Workshop

Background documents on previous research priority workshops were reviewed by this committee, and a literature review of best practices in health research priority setting identified the modified ENHR as the optimum framework.

The ENHR approach is most appropriate when determining resource allocation and when engaging participants from diverse communities and professional backgrounds[3,5]. Cooperation and synthesis of priorities between institutions and

public health bodies is necessary to succeed with the ENHR method[4]. This is why various departments within the MoH, and health allied agencies such as Jigme Dorji Wangchuck National Referral Hospital, Bhutan Medical and Health Council, Drug Regulatory Authority, KGUMSB and the Dzongkhag Health Sector were all sent invitations to join the workshop[11]. The MoAF was also invited to send representatives from the Department of Livestock. The CAM was used for organizing information that goes into the priority setting exercise, utilizing the information generated by participants to identify areas that need more information, and identifying health research priorities by reviewing existing research and developing an initial list of research priorities together[6,7]. The workshop organizing committee identified the ENHR as one optimum framework. The ENHR manual for research priority setting identifies four categories of criteria: appropriateness, relevance, chance of success (feasibility) and impact and Viergever identifies three different categories of criteria: public health benefit, feasibility, and cost[2,3].

Criteria selected for ranking priorities by the workshop organizing committee included multiple criteria in each of three domains: 1) Public Health Benefit (magnitude and severity of problem; community concern/demand), 2) Feasibility (local research capacity; present level of knowledge), and 3) Impact (potential economic impact, likelihood of research utilization, sustainability). The external facilitators developed a Likert-type 3-point scale for each of the criteria.

Step 2 - Assess baseline views prior to workshop. Participants completed an individual pre-workshop survey of expectations and skills prior to the workshop. They were asked about their 1) goals and expected outcomes, 2) skills and knowledge of relevance to the workshop and 3) personal learning objectives. The goals of the workshop were then laid out to participants and an overview of the current research landscape in Bhutan was given, emphasizing the challenges within the current health care system.

Step 3 - Conduct the Workshop

3a) Information dissemination phase. First, the MoH presented an overview of health related research that had been carried out in the past five years by the Ministry and individuals in Bhutan, research projects planned or proposed for the next FYP, a draft of the National Health Research Strategy for 2018-2023, and a brief overview of the last priority setting exercise conducted in Bhutan in 2014.

3b) Health research priority identification phase. Participants were split into three groups based on subject expertise to identify general priority research areas within their domain. Each group began by reviewing a list of potential health research topics and the knowledge gaps around that topic.

3c) Draft ranking and plenary discussion. Topics were placed in high priority, moderate priority, or low priority categories. These first drafts were presented to the whole group in plenary and an extensive discussion was held to refine the list. Lists were then revised into a second draft form. The presentation and discussion processes were repeated and the group selected high priority research topics from across the three domains (Table 1) for full scoring in the next step.

3d) Mixing groups and scoring. Representatives from each of the three expert areas were placed into new scoring groups. Each scoring group completed the scoring framework as in Table 2 for the high priority topics in each of the three expert areas. Topics were scored using a Likert-type 3-point scale.

3e) Calculate results and break ties. Mean priority scores, interquartile ranges, and mean confidence scores were calculated for each of the research areas by compiling the scores of all scoring groups (Table 3). This was done so that comparisons could be made across the three groups and to break ties. The interquartile range (IQR) represents consensus across groups. A lower IQR represents close agreement across scoring groups and a higher IQR represents wide disagreement across scoring groups. Final ranking was by mean priority score, and in case of a tie in priority scores, IQR was used to break the tie. In case of tied priority scores and IQR, highest mean confidence was used

Step 4 - Assess post-workshop views. A post-workshop survey was used to gather evidence on what participants learned and how they experienced the workshop. They were asked about 1) what they had learned about health research priority setting, 2) what suggestions they had for the next priority setting exercise, 3) who was missing from this exercise, and 4) what impacts could come from the workshop.

Table 1. Initial form for research priority generation for use in step 3c

	Public Health Protection[1]			Health Service Delivery			Health Policy and System		
No.	High	Mod.	Low	High	Mod.	Low	High	Mod.	Low
1									
2									

[1]Each of the expert groups, (1) public health protection, (2) health service delivery, and (3) health policy and systems, identified lists of high, moderate and low priority research topics in their area of expertise

Table 2. Scoring framework for use in Step 3d[1]

HIGH PRIORITY HEALTH RESEARCH TOPIC					
PUBLIC HEALTH BENEFIT	**1**	**2**	**3**	**SCORE[2]** (1, 2, or 3)	CONFIDENCE[3] 1 (low) - 3 (high)
Magnitude & Severity of Health Problem[4]	Affects few people with low severity	Affects moderate number of people or is of moderate severity	Affects high number with high severity		
Community concern/demand	limited or no concern	moderate concern	high concern		
FEASIBILITY	**1**	**2**	**3**		
Present level of knowledge about the problem and how to address it in Bhutan	Little is known	Moderate amount is known	A lot is known		
Local research capacity (skills and human resources) to address this issue in Bhutan	Limited local research capacity	Moderate research capacity	High research capacity		
IMPACT	**1**	**2**	**3**		
Research utilization: Probability research results will be utilized for policy or services	low likelihood	moderate likelihood	high likelihood		
Potential economic impact of addressing the issue	Low economic impact	moderate economic impact	high economic impact		
Sustainability: likelihood of long term impact	low likelihood	moderate likelihood	high likelihood		
Confidence - score 1 (low) to 3 (high)			**Total Score**		

[1]This table provides the criteria and the scales used to generate a priority score for each health research topic identified. This process was repeated for each of the seven criteria – two in public health benefit, two in feasibility, and three in impact.
[2]This column represents the selection from the previous three columns, 1-3, for the given criteria. For example, the second public health benefit criteria is the level of community concern. If the scoring group considered the level of community concern to be low or none, they would score the community concern as 1, and so on.
[3]Scoring group would also provide a confidence score to indicate how confident they are of the score they have given the topic, ranging from low confidence (1) to high confidence (3). For example, if a group member felt they had a strong grasp of the topic and could confidently assess the given criteria, they would put the confidence as 3.
[4]For example, for each topic, a score of 1 to 3 would be given for Public Health Benefit: Magnitude and Severity of Health Problem, based on the scoring group's perception of whether the problem affects (1) few people with low severity, affects (2) a moderate number of people or is of moderate severity, or affects (3) a high number of people with high severity.

Table 3. Reporting form for priority scores for use in step 3e[1]

Research Priority	Average Score[2]	Mean Confidence[3]	IQR[4]
[Each identified research priority] – as many lines as needed			

[1]This table provides a compilation of all scores submitted by the scoring groups.
[2]This column represents the mean of the scores of each scoring group for the listed priority.
[3]This column represents the mean confidence score from each scoring group for the listed priority.
[4]This column provides the intraquartile range, which is the appropriate measure of distribution for an ordinal scale. High IQR indicates larger variation across the groups in their scoring; low IQR indicates limited variation across the scoring groups.

Box A - Pre-workshop participant expectations:

Question 1 - What do you1 see as the goals and expected outcomes of this workshop?

- Respondents viewed the goals of the workshop to be for setting, identifying, and/or listing priority areas for research
- One participant also noted that their goal was to learn about which research designs might be appropriate for which questions
- The skills that respondents brought were their experiences in public health research

Question 2 - What skills and knowledge do you1 bring to this workshop?

- There were many individuals who worked for the Ministry of Health present and brought the expertise from that office
- The majority of participants wanted to learn how to set priorities using a specified methodology

Question 3 - What do you1 want to learn from this workshop?

- Some expanded that they wanted to know how others thought about priority setting and to hear their experiences
- Others wanted to be able to take priorities to the Ministry of Health in order to advise health policy

[1] 'You' for the purposes of this survey was defined as both individually and as representatives of specific organizations

Box B - Post-workshop participant feedback:

Question 1 - What were three most important things you1 learned about health research priority setting process from participating in this workshop?

- Participants most often listed their new ability to identify priorities and "systematically assess" priorities as the most important thing they learned from the workshop
- The importance of having a methodology to follow for the future was widely recognized
- The research needs of the country became clearer through the workshop as well
- Two participants noted that flexibility was important to priority setting

Question 2 - What are your1 recommendations to improve the next priority setting exercise?

- Improvements for the next workshop included suggestions about ensuring the inclusion of more stakeholders through pre-workshop organization and scheduling
- The second-most frequent recommendation was for participants to gather and receive more information prior to the workshop, so as to facilitate informed discussions. Namely, sharing lists of researchers and projects being done around the country as well as briefings were viewed as important for future planning. These should be distributed prior to day one of the workshop

Question 3 - Who should have participated in this workshop but were missing?

- Health care workers of various types were most frequently pointed out as missing and second was Civil Society Organization stakeholders
- One participant noted that donors were not present

Question 4 - What do you1 want to see as the outcome/impact coming from this workshop?

- The majority of participants viewed the workshop as having the ability to directly impact the Ministry of Health's research topics and considerations
- The prioritization of funding was noted to be of issue, and something that could now potentially be better addressed with this methodology

[1] 'You' for the purposes of this survey was defined as both individually and as representatives of specific organizations

DISCUSSION

This workshop utilized a combination of two different priority setting models. The ENHR and CAMmodels were modified by the workshop facilitators, refined further by the workshop planning team, and adapted based on feedback during the workshop. Because of this combination, the workshop could be molded to participants' needs and methods could be flexible in how they were used. The success of this workshop is demonstrated by the creation and use of the various matrices laid out in this paper.

There have been few published manuscripts that describe priority setting workshops. Many studies have conducted priority setting exercises by evaluating long-form individual interviews of stakeholders or by eliciting information from individuals in other ways. This manuscript instead reports on a priority setting exercise conducted within a group setting using a combination of previous tested methodologies.

Compared to other similar workshops run in Thailand, Canada, Maldives and Panama, participants had comparable critiques of the workshop's methods[8-10]. In these environments, priority setting was found to adequately guide decision making processes, evaluations, and encourage open discussion of research priorities. A similarly conducted exercise in Canada also suggested that research briefings to be distributed before a workshop takes place. There was a content expert present at that workshop, but participants felt that relying on a single person to explain the deficiencies in a research area would result in a list that was less robust[9]. Distributing briefings prior to the workshop could help to ameliorate and deepen the priority setting process.

Similarly, in Panama the criteria for representation in workshop participants was not satisfied[10]. There, as in Bhutan, it was found that providers were not included in the workshop as much as participants would have liked, while there was also an over-representation of the MoH. Further examination into the details of why these other stakeholders are often not present is warranted.

The draft list developed by the Working Group was shared with all employees of the Ministry, JDWNRH, KGUMSB, CSOs, and development partners for comments. Further, the list and methodologies were presented to the stakeholders for comment and consensus. The methodology and the list were presented to the 51st High Level Committee (HLC) meeting of the MoH in August, 2018, and the HLC endorsed the methodology and asked for further consultation with additional stakeholders using the scoring methods of this priority setting process prior to finalization of the list of health research priorities.

Steps beyond this workshop include planning for the next iteration of the prioritization process. This could take the form of a workshop to further refine the priorities. Another workshop could also focus on specific sectors of health research or specific research bodies. This would allow decision making to perhaps be more tailored to the participants' institutional knowledge base or research expertise.

Developing an infrastructure for integrating a regular health research prioritization processes into Ministry affairs will be crucial. What remains to be determined is how often these workshops should take place. They could occur every two years, or every five years, or in some other arrangement. The workshop successfully implemented a systematic priority setting process adapted and molded from previously tested processes. Similar workshops with broader reach of stakeholder participation would be beneficial for future priority setting processes.

CONCLUSIONS

Organizing this systematic priority setting process lays the groundwork for future priority setting workshops to be conducted in Bhutan using this combination of internationally recognized best practices. Participants did express their interest in refining the process in various ways and participating in further workshops. Therefore, it has been important to evaluate this workshop in order to utilize this method of combining CAM and ENHR in the future.

It is particularly important to note that this exercise was conducted in a limited resource setting, but was found to be feasible and recommendable. The input of constituencies that were not included in this workshop is important for improving the equity of a priority setting processes in the future.

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