Primary Care Research Priorities in Low- and Middle-Income Countries

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ABSTRACT

PURPOSE To identify and prioritize the needs for new research evidence for primary health care (PHC) in low- and middle-income countries (LMICs) about organization, models of care, and financing of PHC.

METHODS Three-round expert panel consultation of LMIC PHC practitioners and academics sampled from global networks, via web-based surveys. Iterative literature review conducted in parallel. Round 1 (pre–Delphi survey) elicited possible research questions to address knowledge gaps about organization and models of care and about financing. Round 2 invited panelists to rate the importance of each question, and in round 3 panelists provided priority ranking.

RESULTS One hundred forty-one practitioners and academics from 50 LMICs from all global regions participated and identified 744 knowledge gaps critical to improving PHC organization and 479 for financing. Four priority areas emerged: effective transition of primary and secondary services, horizontal integration within a multidisciplinary team and intersectoral referral, integration of private and public sectors, and ways to support successfully functioning PHC professionals. Financial evidence priorities were mechanisms to drive investment into PHC, redress inequities, increase service quality, and determine the minimum necessary budget for good PHC.

CONCLUSIONS This novel approach toward PHC needs in LMICs, informed by local academics and professionals, created an expansive and prioritized list of critical knowledge gaps in PHC organization and financing. It resulted in research questions, offering valuable guidance to global supporters of primary care evaluation and implementation. Its source and context specificity, informed by LMIC practitioners and academics, should increase the likelihood of local relevance and eventual success in implementing research findings.

INTRODUCTION

The 1978 Declaration of Alma-Ata called for strengthening of family medicine and primary health care (PHC) globally, particularly in developing countries.[1] As the specialty of family medicine has grown, so has its academic presence. Creation and dissemination of new knowledge is a hallmark of an academic discipline and informs clinical practice and teaching. Academic family medicine plays a pivotal role in advancing PHC research. Many medical schools now include departments of family medicine, often broadening into PHC.[2] There has been corresponding growth in PHC research, indicated by the introduction of the subject heading "Primary Health Care" in *Index Medicus* in 2010, with indexed journals focusing on general practice, family medicine, and primary health care allocated to this subject.[3]

Primary health care research has advanced predominantly in high-income countries (HICs).[4,5] Many low- and middle-income countries (LMICs) are still establishing family medicine as a specialty, and the relative immaturity of the discipline, combined with the dominance of research by bioscience agendas and the greater capacity of HICs for funding and

performing research, means that capacity and funding for research on LMIC PHC priorities are still limited. Research priority setting does occur in LMICs but tends to be led by governments and international agencies with limited evidence of subsequent implementation.[6]

This study is embedded in a suite of work undertaken by Ariadne Laboratories to identify gaps in PHC research in LMICs and develop research implementation plans for prioritized topics. Traditionally, policy makers often make decisions that do not translate into effective change. The voice of health care providers and clinical academics has been lacking in much PHC policy to date, and yet it is of immense value if initiatives are to have traction at a community level. In line with the funder's criteria, we aimed to identify and prioritize the perceived evidence gaps for PHC practitioners and researchers about the organization of PHC, particularly different models of care, and the ways PHC systems may be financed.

METHODS

The study design was a modified Delphi panel of PHC experts from LMICs. Participants were invited via our research team's collective extensive global networks, augmented by snowball sampling techniques.[7] We created a matrix of respondents to ensure that our panel represented diversity in sex, age, country of residence, rural or urban location, role and discipline, and years of experience. Inclusion criteria were PHC practitioners or researchers residing in LMICs with Internet access

and with relevant experience to provide opinions on regional or national research needs in PHC organization and financing. Exclusion criterion was insufficient fluency in written English, because lack of time and resources precluded survey translation.

The survey was piloted among family doctors in World Organization of Family Doctors (WONCA) leadership roles. The funder timeline allowed 3 months to recruit the expert panel and conduct 1 qualitative and 2 modified Delphi survey rounds, delivered anonymously to enrolled panelists via Qualtrics' Online Survey Software & Insight Platform software (Qualtrics). Round 1 required panelists to generate research questions addressing knowledge gaps. Responses were collated, coded, and synthesized to lists of questions presented in round 2, where these were rated for level of importance. In round 3, the top 16 questions for both organization and financing were ranked in order of priority.

Ariadne Laboratories is concurrently funding similar work on PHC quality and safety, policy, and governance. Questions identified as belonging to these key areas were removed, and 1 question on finance identified as more relevant to PHC organization was moved across. The 4 highest-ranking questions for organization and finance were selected for formulation of country-specific implementation plans by researchers in LMICs. In parallel, iterative literature reviews were conducted to ensure the generated questions were areas with genuine evidence gaps (reported elsewhere).

Statistical analyses were performed with SAS version 9.3 (SAS Institute Inc). Ethics approval was

Figure 1. Countries of enrolled participants.

Participants per country

- Not a LMIC
- 0
- 1-2
- 3-4
- 5-10
- >10
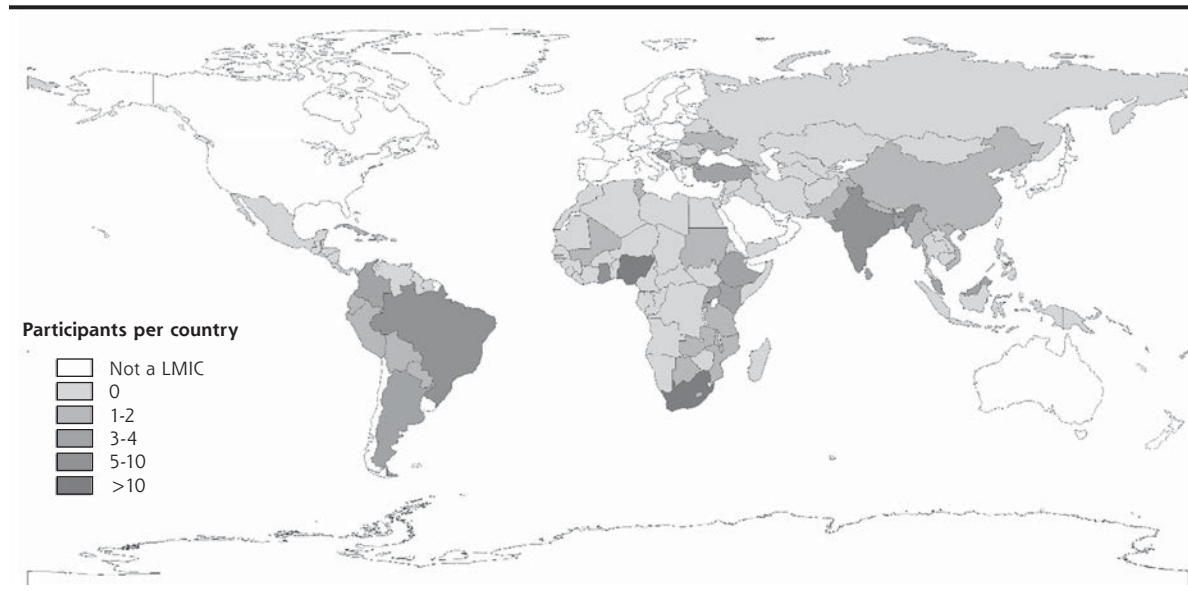
LMIC = low- or middle-income country.

Table 1. Demographics of Panelists in the 3 Rounds

	Round 1 n = 70	Round 2 n = 84	Round 3 n = 68
	n (%)	n (%)	n (%)
Sex			
Male	42 (60)	46 (55)	39 (57)
Female	28 (40)	38 (45)	29 (43)
Age, y			
<30	2 (3)	4 (5)	3 (4)
30-39	16 (23)	21 (25)	15 (22)
40-49	22 (31)	24 (29)	18 (27)
50-59	18 (26)	22 (26)	22 (32)
>60	12 (17)	13 (15)	10 (15)
Location			
Urban	50 (71)	62 (74)	52 (76)
Rural	20 (29)	22 (26)	16 (24)
Global region			
Europe	9 (13)	13 (15)	10 (15)
Africa	31(44)	35 (42)	31 (46)
Eastern Mediterranean	1 (1)	1 (1)	1 (1)
South Asia	10 (14)	11 (13)	7 (10)
Asia Pacific	6 (9)	6 (7)	6 (9)
North America Caribbean	2 (3)	5 (6)	2 (3)
South America	11 (16)	13 (16)	11 (16)
Health practitioner[a]	54 (77)	61 (73)	50 (74)
Family doctor	52 (74)	57 (68)	46 (68)
Other doctor	1 (1)	3 (4)	3 (4)
Nurse	1 (1)	1 (1)	1 (1)
Tenure as health professional, y	54 (77)	61 (73)	50 (74)
<5	6 (9)	9 (11)	8 (12)
5-10	14 (20)	13 (15)	12 (18)
11-15	12 (17)	13 (15)	11 (16)
16-20	7 (10)	7 (8)	6 (9)
>20	15 (21)	19 (23)	13 (19)
Primary care academic[a]	55 (79)	58 (69)	47 (69)
Junior academic role	24 (34)	37 (44)	20 (29)
Senior academic role	31 (44)	21 (25)	27 (40)
Tenure as academic, y	55 (79)	58 (69)	47 (69)
<5	18 (26)	17 (20)	12 (18)
5-10	19 (27)	24 (29)	19 (28)
11-15	5 (7)	7 (8)	3 (4)
16-20	7 (10)	5 (6)	8 (12)
>20	6 (9)	5 (6)	5 (7)
Policy maker[a]	18 (26)	16 (19)	14 (21)
Tenure as policy maker, y	18 (26)	16 (19)	14 (21)
<5	9 (13)	6 (7)	5 (7)
5-10	5 (7)	6 (7)	4 (6)
11-15	2 (3)	2 (2)	2 (3)
16-20	1 (1)	2 (2)	1 (1)
>20	1 (1)	0 (0)	2 (3)

WONCA = World Organization of Family Doctors.

Note: For WONCA global regions see http://www.globalfamilydoctor.com/AboutWonca/Regions.aspx.

[a] Some panelists hold more than 1 role, hence total >100%.

obtained from the University of Auckland Human Participants Ethics Committee (January 18, 2018; Ref 020630). Further details on each round are included in the Supplemental Appendix, available at http://www.AnnFamMed.org/content/17/1/31/suppl/DC1/.

RESULTS

There were 141 enrolled participants from 50 LMICs from all global regions, with respondents from 40% of all middle-income countries (MICs) and 19% of all low-income countries (LICs) (Figure 1). Supplemental Table 1 (available at http://www.AnnFamMed.org/content/17/1/31/suppl/DC1/) shows the number of countries represented per region.

Table 1 shows the demographic characteristics of participants in each round. Round 1 generated 1,229 questions for coding: 744 for PHC organization and 479 for financing. Independent coding of the first 25 survey responses showed a high degree of consistency with a Cicchetti-Allison κ coefficient weight for organization κ = 0.879 (95% CI, 0.7345-1.000), P <.0001 (almost perfect agreement); and for finances κ = 0.611 (95% CI, 0.3107-0.9105), P <.0001 (substantial agreement). In round 2, 36 questions on organization and 31 on financing were presented for rating. Once the ratings were summed, the top 16 questions in each area were presented for ranking (Supplemental Table 2, available at http://www.AnnFamMed.org/content/17/1/31/suppl/DC1, shows the full lists of questions). After we removed questions deemed more relevant to another component of PHC, the top-ranked 4 in each area were selected for the development of implementation plans by researchers in LMICs (Table 2).

DISCUSSION

The final 4 prioritized questions for PHC organization deal with primary/secondary care transition, horizontal integration within a multidisciplinary team, integration of private and public sectors, and ways to support successfully functioning PHC teams. The finance questions address payment systems to increase access and availability, mechanisms to encourage governments to invest, the ideal proportion of the health care budget, and factors to improve workforce distribution.

Relationship to the Literature

A focus on optimal team-based care, equitable access, and integration across care sectors aligns with the World Health Organization Framework for Integrated People-Centered Health Services, which advocates universal access to health services coordinated around people's needs.[8] It also aligns with the third Sustainable Develop-

Table 2. Four Top-Ranked Research Questions for PHC Organization and Financing (Country-Specific Version)	
PHC Organization	**PHC Financing**
1. What are the factors to be considered and negotiated for successful referral from primary to secondary care and back (in Brazil)?	1. What is the most appropriate payment system to increase access and availability of quality PHC (in Croatia)?
2. How should care be horizontally integrated and coordinated among the multidisciplinary PHC team (in South Africa)?	2. What mechanisms have been found to be effective in persuading governments to invest in PHC (in Kenya)?
3. How can the public and private sectors work more collaboratively to improve and integrate PHC coverage and prevent segmentation of the services (in Malaysia)?	3. What are the factors or incentives that can improve distribution of PHC workforce or equity of accessing PHC services (in the Caribbean)?
4. How can different stakeholders (eg, policy makers, health system managers, health workforce organizations, academic institutions and communities) support and assist the primary health care workforce and successful team functioning (in Nigeria)?	4. What is the ideal proportion of the total health care budget that guarantees the development of quality PHC (in Turkey)?
PHC = primary health care.	

ment Goal on universal health and well-being.[9] Emphasizing the position of PHC in the health system reflects the historic bias of many health systems toward reactive hospital-based care and the importance of horizontal links of PHC to other community-based sectors affecting population health.[4] The Declaration of Alma-Ata today invites a move beyond health services' structure to how to organize them to advance health equity and support people to actively participate in the maintenance of their health.[10] Our findings relate to key components of health systems, where LMICs need to evaluate and gather evidence of what works in their context.

A precursor to this work is the research priorities identified by the Primary Health Care Measurement and Implementation Research Consortium.[11] Furthermore, the Primary Health Care Performance Initiative has introduced a framework to assess PHC performance in LMICs to help guide health reforms.[12] Many of the generated questions relate to required health system reform and thus complement this work.

Strengths

A strength is the size and representation of our LMIC panel, given the short time period available. Top-down decisions made by policy makers often lack stakeholder engagement and thus do not translate into effective change. The voice of, and indeed, the coproduction of evidence by, health care providers and clinical academics is of great value if initiatives are to have traction at a PHC level.

In many LMICs, competing political and economic agendas and the burden of disproportionately high demand/supply ratios may limit evaluation of what works and what does not.[13] This study should inform PHC reforms and prioritize research evaluation. Other strengths include our use of robust qualitative analysis methods, with a high degree of interrater coding reliability, and 2 Delphi rounds, facilitating consensus of research question priorities.

Limitations

In keeping with the authors' professional contexts, most panelists were family doctors. Overall, LICs were underrepresented compared with MICs. There was limited snowballing to nonmedical professionals via international networks because of time constraints. Time and resources restricted us to English-only surveys and to participants with Internet access, and the majority of African panelists came from Anglophone countries. This restriction also limited active authorship, with a bias toward Anglophone academics in HICs. This bias underscores the urgency of building and supporting academic PHC capacity and infrastructure in LMICs. Finally, organization and financing of PHC were approached separately, although some questions generated in 1 area fit better in the brief for another. This limitation illustrates the interrelatedness of the topics in the perception of the respondents, who may see the system as a whole rather than split into different components.

Conclusion and Next Steps

The focus on integration of PHC between the public/private interface, secondary care, and community services signals to policy makers where attention is necessary, as does the need for new evidence on how to design models of care and finance PHC for equitable access.

Literature reviews were undertaken that established that the questions generated by our panelists have not already been been robustly answered in LMIC contexts and are indeed significant knowledge gaps. Researchers from LMICs, selected from the panelists, have developed country-specific research implementation plans for prioritized questions, to be presented shortly at a forum attended by donors for consideration of funding these LMIC research teams to implement their proposals. Other agencies may also consider these findings, which will be disseminated

back to the networks from which data were drawn. There may be opportunities to prioritize further work in additional settings.

To read or post commentaries in response to this article, see it online at http://www.AnnFamMed.org/content/17/1/31.

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