

# WORLD HEALTH & POPULATION

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## From the Editor-in-Chief

**A**mbitious objectives like Universal Health Coverage (UHC), Sustainable Development Goals (SDGs), poverty reduction and others items on the global agenda will only be achieved if we have the right combination of human resources. We will require a workforce with the appropriate preparation operating in proper working conditions within local, national and global policies that align limited resources to achieve these global agendas and goals.

This issue of *World Health and Population* (WHP) with Dr. Marilyn A. DeLuca from New York University as the guest editor, clearly demonstrates that there are multiple practices and clear evidence that can point us towards a different narrative to help us reach the goals set by the various global agendas.

In two recent papers “No Global Health without Human Resources for Health (HRH)” (Shamian et al. 2015a) and “Human Resources for Health: A New Narrative” (Shamian et al. 2015b) my colleagues and I have discussed the challenges the global community is facing in HHR. In both of these publications, we emphasize the need for a new narrative

which calls upon governments to examine and plan HRH in the context of both social and health needs. Further, we describe the economic impact that employment in the healthcare sector can have in strengthening the local economy as well as household incomes – lifting people from poverty and providing them with disposable income, that can be targeted to healthier social and physical health. The healthcare sector is also a significant workforce that can empower women and provide opportunities for good jobs.

The other key agenda that seriously needs to be addressed is how to reorient the current preoccupation with hospital and medical care to an emphasis on primary healthcare and interprofessional teams that are embedded within and working closely with their communities.

UHC, SDG, poverty reduction and more are within in our reach if we consider the new narrative of HRH. The papers in this issue go a long way in shedding light on what the possibilities are for a “new narrative.”

**Dr. Judith Shamian RN, PhD**  
Editor-in-Chief

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Shamian, J., G. Tomblin Murphy, A. Elliott Rose and L. Jeffs. 2015b “Human Resources for Health: A New Narrative.” *Lancet* DOI: [http://dx.doi.org/10.1016/S0140-6736\(15\)61195-3](http://dx.doi.org/10.1016/S0140-6736(15)61195-3).

# Delivering on Equity Depends on Us

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I am honoured to present this most prescient issue of *World Health and Population*. Focused on *The Global Health Workforce: Striving for Equity Tackling Challenges on the Ground*, my charge to our invited authors was: “present a close-up and candid account of obstacles that confound the effective practice of the health workers on the ground, share your experiences, and recommend workable solutions.” The resulting seven papers from more than 30 authors tell us of healthcare circumstances in more than 50 countries. They describe myriad issues germane and familiar to health workforce challenges: large shortages of health professionals, competency, scope of practice, lack of credentialing and licensure mechanisms for cadres of health workers; maldistribution of the health workforce; protection of health workers; perverse incentives engendered by health systems and their impact on professional practice, access and

costs; and how the lack of health workforce measurement cripples health systems and thwarts population health.

These manuscripts include: an evaluation of multi-sector collaboration in Thailand to promote public health and healthy behaviours (Sopitarchasak et al. 2015); protecting and retaining health workers in civil war-torn Syria (Abbara et al. 2015); the initial report of an innovative continuity based model for health professionals training health professionals in 11 countries (Kerry et al. 2015); a survey of 70 low- and middle-income countries to assess stock, training and credentials of medically trained clinicians, including physician assistants and medical officers (Cobb et al. 2015); one year in, an assessment of Indonesia’s national health insurance system and the contextual HRH challenges (Sciortino and Roy 2015); team-based HIV treatment services using a nurse-led practice model to expand access to services in Namibia

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(Wesson et al. 2015); and a global perspective on the mandate for health workforce measurement that calls for a new approach to global governance and national accountability (DeLuca and Castro Lopes 2015).

The issues are familiar; tackling solutions with tenacity and teamwork is less practiced. As we approach the post-2015 era, it cannot be 'business as usual.' Rather, we need new energy and resources to address the 17 Sustainable Development Goals and the Global Strategy on Human Resources for Health 2030. And yes, familiar ubiquitous health system issues still need correcting. If history is a predictor of the future, the coming years will present unforeseen population health challenges that will test the capacity, preparedness and resilience of our health workforce and health systems.

We, the global community of stakeholders, get to choose how we move forward. I suggest that we consider three tenets: think out of

the box, accelerate the pace and mobilize untapped resources. We know full well that changing demographics and growing health service demands will challenge already stretched health systems. So, as you consider how to tackle the coming challenges while maximizing resources and drawing on health sciences, I encourage you to read each of the following papers with appreciation of the innovative approaches to familiar challenges. The authors share their insights as they describe how to tackle obstacles large and small. Inspiring, they show us that we get to determine the strength of health systems, now and in the future and ensure that healthcare is firmly rooted in equity for populations, regardless of where they live or who they are.

**Marilyn A. DeLuca, PhD, RN**

Sciortino, R. and R. Tjong. 2015. "Health Human Resources: A Critical yet Challenging Pathway to Universal Health Coverage in Indonesia." *World Health & Population* 16(1): 49–59.

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# Time for a Copernican Revolution in Health Labour Markets

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**T**he last decade has highlighted dramatic gaps in the quantity, skill-mix and geographic distribution of the health workforce which, in turn, has restrained progress against the health-related Millennium Development Goals (Campbell et al 2013; WHO 2006). The global community has now embarked on a journey towards even more ambitious health targets outlined in the Sustainable Development Goals – scheduled for adoption by the United Nations General Assembly in September 2015 – including reaching universal health coverage (UHC). The experiences described in this special issue of the *Journal of World Health and Population – The Global Health Workforce: Striving for Equity Tackling Challenges on the Ground* – highlight the depth, breadth and complexity of the health workforce issues that countries will need to solve before they can reach UHC.

This issue highlights three main challenges faced by the global community: first, we do not train enough health workers to respond to the growing demand fueled by population and economic growth and transformation (particularly demand linked to aging and equity); second, we do not nurture the kind of health workers who will be able to respond meaningfully to this expanding demand, i.e. serving the poor and responding to changing needs; and third, we operate in a rapidly changing technological environments where medical practice and learning techniques are in a state of permanent transformation. The papers in this special issue provide a snapshot of the efforts at addressing these vexing issues in very different contexts, including low-income and fragile states. All countries operate in a globalized market where demand is increasing, and health workers can be mobile in response to the powerful attraction

of higher wages and better working conditions in more mature markets.

To address such a global and formidable challenge, nothing less than a Copernican revolution is needed in the way the global community addresses health labour issues – a revolution that can be summarized in three strategic shifts:

1. We need to move away from a manpower approach focusing on norms and standards to a more granulated understanding of the specifics of particular contexts, rural and peri-urban, cultural and economic.
2. Countries will need to be more innovative and flexible in their mode of practice, allowing the development of new job profiles and new modes of medical practice, mixing public and

private incentives, and maximizing the benefits of technological transformation in an increasingly pluralistic environment.

3. Innovations in training are also indispensable in focusing on selecting and nurturing a health workforce that is willing to serve the poor and disadvantaged.

And for these shifts to be successful, we will need to develop a powerful measurement framework, building on a comprehensive and in-depth understanding of the drivers of labour markets dynamics and health workers' performance.

The challenge is immense, but only if we tackle it will we reach UHC.

**Agnes Soucat, MD, MPH, PhD**  
The World Bank Group

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# Health Workforce Measurement: Seeking Global Governance and National Accountability

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### Abstract

Health workers are essential to population health. This paper addresses needed global and country-level action to build human resources for health data, systems and impact measurement. Using a conceptual framework drawn from theories on political prioritization (Shiffman 2007) and public mandates as mechanisms for reform (Kingdon 1984), we argue that increasing global health needs are driving political action to develop human resources for health data and measurement systems. To assess the evidence of past calls for health workforce data measurement, we conducted a systematic review of documents published between 2000 and 2014, searching for evidence of explicit calls for building health workforce data and measurement systems. Sources of evidence include World Health Assembly Resolutions and documents and events generated by key stakeholders: global organizations, civil society, donors, non-governmental organizations and professional organizations. We found that few World Health Resolutions contain specific language that addresses human resources data or systems. Stakeholder documents, however, contain more evidence of calls to expand health worker data systems.

The Sustainable Development Goals, national commitments to implement universal health coverage and efforts to increase the health workforce and strengthen global governance and accountability are recent initiatives with potential to improve access to health services. We posit that the temporal convergence of these initiatives is opening a window that will accelerate global and country-level receptivity and action to improve health workforce data and impact measurement necessary to build better health systems and improve population health.

### Urgent Need for Health Workforce Data

Efforts to improve global health continue to draw needed attention to health systems strengthening (HHS) and human resources for health (HRH). The urgency to grow and retain a competent and supported health workforce, the backbone of health systems, in low-, middle- and high-income settings is even more pressing, given the increasing prevalence of non-communicable diseases, devastating outbreaks of infectious diseases and calls for democratization of access to health services through universal health coverage (UHC) and equity. These factors, together with the expanding provision of health services by the private sector in low- and middle-income countries (LMICs) and pressure for transparency, are fueling the demand for HRH data that are: (1) reliable; (2) efficient to collect; (3) frequently updated; (4) inclusive across cadres and

settings; and 5) supported by inter-operable, open-source information systems.

In 2014, on the heels of the 2013 Third Global Forum on HRH in Recife, UN member states and the WHO charged the Global Health Workforce Alliance (GHWA) to lead an inclusive consultative process to draft recommendations for a Global Strategy for Human Resources for Health to be presented to UN member states at the 69th Session of the World Health Assembly (WHA) in May 2016 (WHA 2014). The evidence reported here was generated as part of a review for the Global Strategy consultation process by several members of Technical Working Group 3 (TWG3 2015).

Since 2000, resolutions of UN member states and the WHA, reports and initiatives of the WHO, and advocacy by global, regional and country-level stakeholders document the need to grow and retain adequate numbers of competent and motivated health workers

(AAAH 2012; WHOafro 2005; AHWO 2010; APHRH 2011; CfWI 2010; Chan et al. 2010; DeLuca and Soucat 2013; FHWC 2012; G8 2008, 2011; GHWA 2010a, 2011b, 2012c; H8 2010; Middleberg 2010; Ottersen et al. 2014; Scheffler et al. 2009; Spero et al. 2011; Speybroeck et al. 2006; UN 2000, 2001a, 2010b; WHO 2006, 2008d, 2010d, 2012a). Yet, despite the glaring shortage of health workers in LMICs, and real, but less severe shortages across high-income countries, calls for and development and implementation of HRH data systems and related impact measurement have been markedly lacking. Defining the 2000 United Nations Millennium Development Declaration on Millennium Development Goals (MDGs) (UN 2000) as the starting point for analysis, we conducted a systematic review for evidence that addressed the need for HRH data systems and impact measurement found in documents from 2000 through 2014 and categorized that evidence across nine themes. Sources include WHA Resolutions (WHA 2000–2014) and documents and activities of key stakeholders: global organizations; advocacy groups; civil society; donors; non-governmental organizations (NGOs); and professional organizations.

The lack of reliable and current HRH data is problematic in health service delivery, education and training, strategic planning and organizing health workforce responses to emergencies. In addition to healthcare service provision, HRH data are necessary to evaluate health system investments, efficacy and population health needs. Despite numerous calls, UN member states and stakeholders have been slow to act on HRH data as a political priority. Indeed, the lack of timely and accurate HRH data and the availability of interoperative data systems are the most limiting factors in projecting, managing and evaluating country-level and global health workforces. While technological capacity, connectivity and big data management have advanced in other sectors, health systems across all income

settings lag behind sectors such as finance and manufacturing in the use of data systems. The health sector's lag in use of HRH data constrains its capacity to plan and project stock, evaluate competency, measure productivity and evaluate health workforce in the context of health outcome and impact metrics (ITU 2013; Jamison et al. 2013; Paris21 2000; WHO 2008c, 2011a, 2012d, 2013a, 2013b, 2014a).

Attention to changing demographics, increasing prevalence of chronic health conditions, ubiquitous outbreaks of communicable diseases and focus on prevention, measurement and outcomes research are escalating the need to accelerate improved governance and accountability for HRH data systems that serve local, national, regional and global health needs.

### Framework

Political agenda setting and public policy are complex processes that require a number of inter-connected conditions. The conditions can exist when: (1) national political leaders express sustained concern for an issue (Shiffman 2007); (2) the government enacts policies and strategies to address the problem; and (3) the government allocates adequate budgets to support the issue (Ibid). Kingdon (1984) suggests that receptiveness for major policy change depends on the presence of a strong public mandate. Building off these constructs, we posit that the increasing focus on the health workforce from 2000 through 2014 generated global and national policy imperatives to develop and implement HRH data, systems and impact measurement. Shiffman's and Kingdon's perspectives underpin our conceptual framework: increased focus on HRH has capacity to generate policy imperatives that advance global governance and national accountability for national, regional and global HRH data, systems and impact measurement.

Questions that underpin the study are:

Question 1: What influence has the focus on the health workforce between 2000 to 2014 had on generating policy imperatives at global and national levels to (a) develop, collect, report and utilize HRH data; (b) build HRH data systems; and (c) use these data in impact measurement?

Question 2: Will the convergence of the 2015 MGD target dates, setting forth the SDGs and post-2015 agenda and global consensus in support of UHC and equity, drive policy imperatives to develop and implement global and national HRH data systems and impact measurement?

Proposition 1: The increasing frequency and volume of evidence focused on the global health workforce found in multiple sources from 2000 to 2014 is fostering national and global entities to build local, national and global information systems to capture, store and generate HRH data and develop impact measures.

Proposition 2: The convergence of the 2015 MGD target dates and post-2015 agenda and global consensus in support of UHC and equity is generating robust policy mandates among global national and global stakeholders to develop and implement HRH data, systems and impact measurement.

## Methods

We conducted a systematic review and process tracing for evidence that calls for HRH data measurement and categorized the evidence found in source documents, donor reports, interviews and focusing events generated by (1) the WHA and (2) key stakeholders: global organizations, civil society,

donors, NGOs and professional organizations. The stakeholder evidence reviewed represents a select sampling and is not inclusive of all stakeholder documents and activities.

Consistent with the consultative process used in developing the Global Strategy on HRH, we utilize the same eight themes in the health labour market framework outlined by Sousa and colleagues (2013, 893, Figure 1) along with one additional category, “other enablers, research”, to categorize the themes contained in the WHA Resolutions. We categorized the actions described in the WHA HRH-related resolutions and stakeholder documents among one or more of the following themes: (1) demand; (2) supply, education; (3) data, measurement; (4) accountability, alignment post-2015; (5) leadership, governance, policy alignment; (6) supply, demand/fragile states; (7) productivity, performance; (8) supply non-professionals; and (9) other enablers, research. *Explicit* calls for data and measurement are defined here as language that addresses health workforce data and/or measurement. *Implicit* calls for data are defined here as language that suggests or implies that data are needed to assess or report on activities or programs.

## Findings: Evidence 2000–2014

### WHA Resolutions

The review of WHA Resolutions generated between 2000 and 2014 reveals an increasing frequency of recommendations that call for strengthening the health workforce (WHA 2000–2014) (Figure 1). During this period, WHO member states generated 374 WHA Resolutions. Of the total number of Resolutions, 209 are categorized as health-related in nature and are further analyzed. The 165 non-health resolutions, categorized as financial and/or regulatory in nature, were excluded from further analysis.

Of the 209 health Resolutions, 109 (52%) relate, at least in part, to HRH and associated action(s) in one or more of the nine themes described. The most frequent themes of the WHA Resolutions are theme 5, *leadership, governance, policy alignment* (26%), followed by theme 2, *supply/education* (24%), and theme 7, *productivity performance* (16%). theme 3, data and measurement, represented 4% of the total themes addressed (Table 1).

While a majority of the 209 health resolutions includes language and references to health workforce, explicit language and evidence calling for the development of HRH data, systems and impact measurement

are sparse. Further, of the 109 health/HRH resolutions, only seven address explicit actions related to HRH data, systems and impact measurement, reflecting the low presence that HRH metrics occupied in the global policy architecture of the WHO.

Over the examined period, there is a notable trend from 2005 through 2014, as the number of resolutions with HRH actions markedly increased (2005, 2007, 2010, 2011 and 2014) (Figure 1). However, despite the period between 2000 through 2014 being marked by HRH “crises” and “scale-up” activities, recognition of the centrality of health workers, and urgency to strengthen health

**Table 1. Sample WHA resolutions by theme, order of frequency and extract/action**

Theme	WHA resolution (yr)	Extract/action
(5) Leadership, governance, policy alignment	55.11 (2002) 67.14 (2014)	“3) to accelerate development of an action plan to address the ethical recruitment and distribution of skilled health-care personnel, and the need for sound national policies and strategies for the training and management of human resources for health;” “9) to adopt policies that create healthy workplaces, protect workers’ health and, consistent with national and international law, prevent transfer of hazardous equipment, processes and materials;”  “11) to emphasize the importance of strengthening health systems, including the six building blocks of a health system (service delivery; health workforce; information; medical products, vaccines and technologies; financing; governance and leadership), to progress towards and sustain universal health coverage and improved health outcomes;”
(2) Supply, education	62.12 (2009)	“5) to train and retain adequate numbers of health workers, with appropriate skill mix, including primary care nurses, midwives, allied health professionals and family physicians, able to work in a multidisciplinary context, in cooperation with non-professional community health workers in order to respond effectively to people’s health needs;”
(7) Productivity, performance	55.12 (2002)	“6) to build and strengthen partnerships between health-care providers, both public and private, and communities, including nongovernmental organizations, in order to mobilize and empower communities in the response to HIV/AIDS;”
(9) Other enablers, research	55.23 (2002) 60.27 (2007)	“3) to monitor scientific data and to support research in a broad spectrum of related areas, including human genetics, nutrition and diet, matters of particular concern to women, and development of human resources for health;”  “6) to strengthen the capacity of health workers to collect accurate and relevant health information;”
(1) Demand	56.6 (2003)	“2) to strengthen human resource capability for primary healthcare in order to tackle the rising burdens of health conditions;”
(3) Data, measurement	59.27 (2006)	“5) to provide support for the collection and use of nursing and midwifery core data as part of national health-information systems;”

systems, specific WHA Resolutions focused on health workforce data and measurement are remarkably few in number. And, while effective implementation and evaluation of most health and the HRH-related resolutions *implicitly* rely on the availability of HRH data, *explicit evidence* in support of implementing and use of data, systems and impact measurement is sparse. The lack of explicit calls for HRH data suggests that a concerted, global movement for health workforce measurement systems would be impactful.

**Stakeholders**

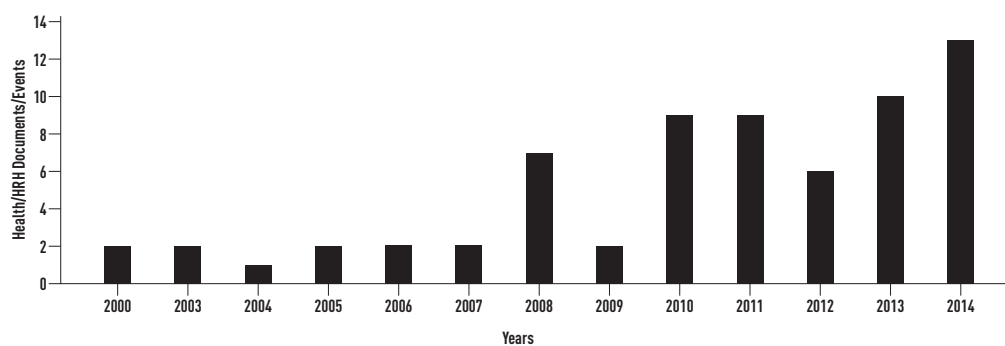
The focus of stakeholders – global organizations, civil society, donors, NGOs and professional organizations – on the global health workforce steadily increased over the period studied (Figure 2). Evidence includes the WHO and GHWA reports, documents and events generated by other stakeholders, namely, civil society, donors, NGOs and

professional organizations.

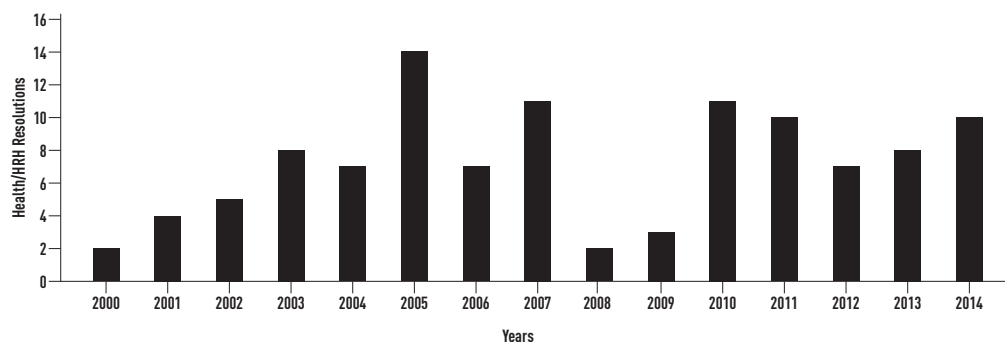
There is a notable increase in the generation of health and HRH associated evidence by stakeholders from 2008 through 2014 with 2008, 2010, 2011, 2013 and 2014 showing spikes in activity. Generation of health and HRH-associated evidence accelerated from 2008 through 2014. The most frequent themes addressed in the stakeholder evidence are: 5) leadership, governance (14.5%); 2) supply, education (13.4%); 7) productivity, performance (13%); 1) demand (12.7%), and 6) supply, demand, fragile states (12.7%). theme 3, data and measurement, accounted for only 5.56% of stakeholder evidence.

Interestingly, the several stakeholder spike years temporally align with WHA resolution spike years. And, years 2005, 2007, 2008, 2012 and 2013 follow and/or are followed by one or more major global HRH initiatives: World Health Report (2006); creation of the GHWA (2006); 1st Global Forum on HRH and

**Figure 1. Stakeholder evidence: documents and events by year**



**Figure 2. WHA health/HRH resolutions by year**



Kampala Declaration, *Agenda for Global Action* (GHWA 2008); UN consensus statement on UHC (UN 2012) and Recife Declaration (GHWA 2013c); and Global Strategy on HRH (WHA 2014). These temporal associations between HRH-related WHA Resolutions, stakeholder evidence on HRH data and major global HRH initiatives suggest multi-directional relationships across actors (see Appendix A and Appendix B at <http://www.longwoods.com/content/24295>).

Of the *explicit* HRH data evidence, *civil society*, a constant advocate for growing HRH and the need for workforce data systems, generated the major proportion of the evidence (Capacity Plus 2014; Center for Global Development 2014; DeLuca and Soucat 2013; FHWC 2014; GHWA 2013b [Stakeholder Commitments]; HWAI 2014; IOM 2009; Health Metrics Network 2011; Soucat and Scheffler 2013; Sousa et al. 2013), followed by GHWA (21%) (GHWA 2010b, 2011a, 2013a, 2013b [53 Country Commitments], 2014) and the WHO (21%) (2000, 2006a, 2007, 20011d, 2011e). Established in 2006, the GHWA convened three global meetings on HRH during the study period. Third Global Forum on HRH held in Recife in 2013 elicited numerous commitments on HRH from 53 member states and 27 other constituencies (GHWA 2013b). Solicited to accelerate progress on the global HRH agenda and the essential role of the health workforce to attain MDGs targets,

implement UHC and post-2015 health development priorities, many of the commitments address HRH data systems implicitly and/or explicitly.

Donors supported seminal initiatives that addressed health workforce issues (JLI 2004) and continue to provide needed resources to advance HRH. Donor stakeholders generated 8 of 67 sources of the evidence on HRH (Global Fund 2008; OGAC 2003, 2008, 2012; JLI 2004) and Reports of Ministries (Omaswa and Boufford 2010; US GHI 2009; World Bank 2014). NGOs have been constant advocates for the health workforce and generated a significant portion of the evidence. Among professions, nurses and midwives stand apart in their advocacy to build and monitor HRH data. The evidence includes the *Report of the State of Midwifery* (UNFPA 2014), a Recife Commitment by International Confederation of Midwives (ICM) and the International Council of Nurses (ICN) (GHWA 2013b) and the *Triad Communiqué* (2014) by government chief nursing officers, midwifery officers, representatives of national nursing organizations and regulatory bodies (Table 2).

One study limitation is the sampling of stakeholder sources, which is not inclusive of all sources of HRH data evidence generated by stakeholders. In addition, we limited our review to major global HRH sources and did not review national documents due to resource and time constraints.

These appendices are included in this PDF, directly after the article.



Breakfast with the Chiefs is an educational session that provides invited "Chief Executives" the opportunity to share new ideas, policies and/or best practices with colleagues.

Our speakers are CEOs, notable researchers, cabinet ministers, deputies, or leaders from the academic community.

**Table 2. Sample stakeholder evidence by frequency of theme and extract/action**

Theme	Source/year	Extract/action
5) Leadership, governance, policy alignment	Joint Learning Initiative (JLI), 2004	p 137 "Effective action, both urgent and sustained, requires solid information, reliable analyses, and a firm knowledge base. But data, analyses, and research on human resources for health and technical expertise are underdeveloped, in part due to chronic underinvestment. National and global learning processes must be launched to rapidly build the knowledge base – essential for guiding, accelerating, and improving action. A culture of science-based knowledge building must be infused into the human resources community."
2) Supply, education	Soucat and Scheffler, 2013, The Labor Market for Health Workers in Africa	p 12 "Overall we know very little of the supply and distribution of health workers in Africa The information deficit is staggering...A major investment is required to generate the evidence needed to support effective policies."
7) Productivity, performance	UNFPA, et al., State of Midwifery Report 2014	p 41 "Every country needs a minimum HRH data set on their midwifery workforce...this includes headcount;..."
1) Demand	GHWA, 2013 Third Global Forum HRH, Recife	"14. ii enhance HRH information systems to facilitate labour market analysis in HRH forecasting and link needs-based planning and projections to innovative practices;"  "18. We commit to addressing transnational issues and work towards strengthening health systems, including global HRH governance and mechanisms, by: (i) disseminating good practices and evidence; (ii) strengthening data collection from all countries..."
6) Supply, demand fragile states	GHWA, 2010, HRH: Country Coordination & Facilitation	p 10 "It is also imperative that monitoring of HRH programmes of partners complies with the national HRH plan, strengthens human resources information systems and involves the national health workforce observatories."
3) Data and measurement	Frontline Health Workers Coalition, 2014, A Commitment to Community Health Workers	P 10 "Create a minimum data set on CHW enabling governments to make evidence-based decisions..."; "Create national registries and integrate them into the nation human resources information system."

### Conclusions and Opportunities

1. The evidence is striking for what is not included, notably the sparse language in WHA Resolutions that explicitly calls for development of HRH data/systems and their use in health impact measurement. This finding heightens the need for effective global governance mechanisms to foster expansion and utility of health workforce data.
2. The approaching MDG target dates, adoption of the Sustainable Development Goals (SDGs) and the post-2015 agenda appear to be contributing to a mandate on HRH data measurement.
3. A cross-section of global, national and local leaders and stakeholders recognize the inconsistencies and gaps in HRH data reporting from member states and call for actions to improvement in the quantity, quality and frequency of HRH data and impact metrics.
4. Progress in information technology and systems, and the movement for big data across sectors, including health, are adding fuel to the argument for improved and frequent national HRH data to assess health impact measurements.
5. Improvements and innovations in the use of information systems and connectivity in low- and middle-income settings enable health data exchange and health informa-

tion systems; however, they require resources and a number of inputs and conditions.

6. Changing demographics, increasing prevalence of chronic health conditions, focus on prevention and measurement and outcomes research are coalescing and advancing policy imperatives for data systems to assist local, national and global entities assess, plan and evaluate the health workforce.

### Recommendations

Convergence of 2015 MDG target dates, adoption of the Sustainable Development Goals (SDGs) and post-2015 agenda and population health needs are driving a growing global mandate, opening a window for global and national actions for health workforce data, systems and impact measurement. The evidence described suggests that all stakeholders increased the frequency of and calls for HRH data measurement over the time period studied. The following actions have potential to actualize health workforce data systems going forward:

1. **Global governance** and leadership by UN member states, WHO and stakeholders are essential to advance national and global HRH data and systems development. Ongoing consultation with interest groups and stakeholders is key to member state engagement and future adoption of HRH data.
2. **National governments** have a responsibility to invest in HRH data systems. Countries should identify local HRH data champions and, with multi-sectoral and multi-stakeholder engagement, build national HRH data centres for HRH data, systems and impact measurement.
3. **Investments** by national governments, global organizations and donors are needed to develop and implement HRH data, systems and impact measurement. Private-sector donor support can accelerate rapid development and implementation of HRH data systems. Needed resources go beyond fiscal capacity and include infrastructure and human resource support for training and ongoing technical support. The expanding corporate sector development in LMICs presents opportunities for them to invest in national health systems.
4. **Leadership and oversight** to develop and implement global and country-level HRH data programs should be placed with an appropriate entity such as the GHWA or a new multi-sectoral, multi-stakeholder entity sufficiently empowered and resourced. This entity would work with regional and national HRH data observatories and engage key stakeholders and sectors.
5. **Establish regional support structures or observatories for HRH data** systems and impact measurement, which will provide data management and technical support to ensure reliability of data. Functions would include support and systems enhancement for data efficiency, security and integrity.
6. **Technical obstacles need to be flattened to improve data quality and interoperability.** These include: (a) adopt common definitions, nomenclature and minimum data sets that are inclusive of workforce cadres and consider local definitions; (b) establish mechanisms to resolve emerging taxonomy problems; (c) increase frequency of data reporting to quarterly; (d) improve validity and

reliability of data; and (e) coordinate action with new processes such as civil registration and vital statistics systems.

7. **Use of incentives to accelerate action by countries** eager to build HRH data systems could prove beneficial and serve as implementation models for other settings.
8. Future WHA Resolutions and donor-driven health initiatives should contain **specific language and resource appropriations for health workforce and support related HRH data, systems and impact measurement.**

Two initiatives that address health workforce data followed the inclusion period that defined our review and are noteworthy. *The Measurement and Accountability for Results in Health (MA4H) Summit* convened in Washington, DC, in June 2015, organized by the World Bank, USAID and the WHO focused sharply on health worker data and impact measurement. The MA4H Summit proposed an ambitious five-point call to action for measurement and accountability for health in the post-2015 era health in LMICs (World Bank, USAID and WHO 2015) that aligns with our recommendations and aims to accelerate health workforce data systems (Box 1).

In July 2015, the landmark report on community health workers (CHWs), *Strengthening Primary Health Care through Community Health Workers: Investment Case and Financing Recommendations*, was published (Dahn et al. 2015). Supported by a consortium of funders, the MDG Health Alliance, Clinton Foundation, Partners in Health, the World Bank Group and African Leaders Malaria Alliance, along with the governments of Ethiopia and Liberia, this report is remarkable for the recommendations it lays out for investment in CHWs and a model of financing. Here too, health workforce data on CHWs are essential to assess stock, capacity and impact measurement of this vital and typically under-recognized cadre.

#### **Box 1: Measurement and accountability for results in health (MA4H): Five-point Plan**

1. Increase the level and efficiency of investments by governments and development partners to strengthen the country health information system in line with international standards and commitments.
2. Strengthen country institutional capacity to collect, compile, share, disaggregate, analyze, disseminate and use data at all levels of the health systems.
3. Ensure that countries have well-functioning sources for generating population health data, including civil registration and vital statistics systems, censuses and health surveys tailored to country needs, in line with international standards.
4. Maximize the effective use of the data revolution, based on open standards, to improve health facility and community information systems including disease and risk surveillance and financial and health workforce accounts, empowering decision-makers at all levels with real-time access to information.
5. Promote country and global governance with citizen's and community's participation for accountability through monitoring and regular, inclusive transparent reviews of progress and performance at the facility, sub-national, national, regional and global levels, linked to health-related SDGs.

Source: World Bank, USAID and WHO 2015.

Over the past 15 years, the collective efforts of stakeholders in global health have moved health workforce up front and centre in the discussions on population health. In the coming months, we will witness two landmark events as UN member states act on the post-2015 SDGs and the Global Strategy on HRH. The SDGs intensify the urgent need for global governance and national accountability mechanisms on data and measurement. The Global Strategy on HRH promises to coalesce the necessary consensus among global leaders, national governments and stakeholder to actualize HRH data systems. Going forward, stakeholders must stay mindful that implementation of HRH data systems is an ongoing and iterative process that requires vigilance and nimble structures to support improvements over time. The September 2015 United Nations General Assembly and the May 2016 WHA are two key opportunities for representatives of member states and stakeholders to recognize health workforce measurement as the key priority needed to improve population health. If we measure it, we can improve it.

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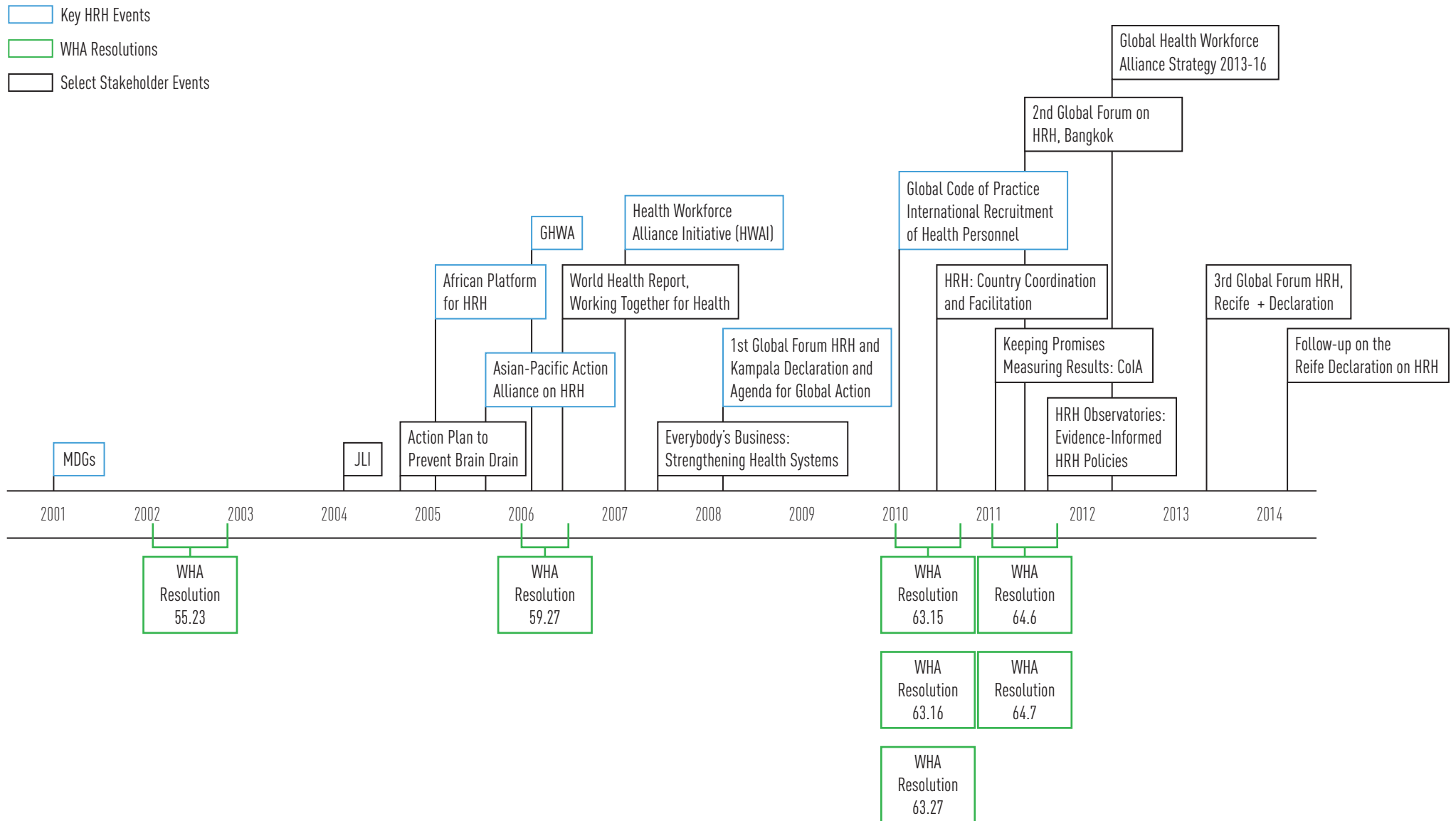
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# Health Workforce Measurement: Seeking Global Governance and National Accountability

Marilyn A. DeLuca and Sofia Castro Lopes

**ATTACHMENT A. Timeline: Key global HRH events + WHA resolutions and select stakeholder documents that explicitly address health workforce data**



# Health Workforce Measurement: Seeking Global Governance and National Accountability

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## ATTACHMENT B. CHRONOLOGY:

7 WHA resolutions + 25 select stakeholder documents explicitly address health workforce data

WHA Resolutions	Year	Select Stakeholder Document/Event
	2000	<ul style="list-style-type: none"> <li>• WHO Report: Health Systems (WHO)</li> </ul>
WHA 55.23	2002	
	2003	
	2004	<ul style="list-style-type: none"> <li>• Joint Learning Initiative (JLI) HRH: Overcoming the Crisis (JLI)</li> <li>• Action Plan to Prevent Brain Drain (Physicians for Human Rights)</li> </ul>
	2005	
WHA 59.27	2006	<ul style="list-style-type: none"> <li>• World Health Report, Working Together for Health (WHO)</li> </ul>
	2007	<ul style="list-style-type: none"> <li>• Everybody's Business: Strengthening Health Systems (WHO)</li> </ul>
	2008	
	2009	<ul style="list-style-type: none"> <li>• IOM The US Commitment to Global Health (IOM)</li> </ul>
WHA 63.15 WHA 63.16 WHA 63.27	2010	<ul style="list-style-type: none"> <li>• HRH Country Coordination &amp; Facilitation (WHO)</li> </ul>
WHA 64.6 WHA 64.7	2011	<ul style="list-style-type: none"> <li>• Keeping Promises, Measuring Results: Commission on Information and Accountability Women's and Children's Health (WHO)</li> <li>• Second Global Forum HRH, Bangkok, From Kampala to Bangkok: Reviewing Progress Renewing Commitments (GHWA)</li> <li>• Country Health Information Systems (Health Metrics Network)</li> <li>• HRH Observatories: Evidence Informed HRH Policies (WHO)</li> </ul>
	2012	<ul style="list-style-type: none"> <li>• Independent External Review Group Established (iERG) (WHO)</li> </ul>
	2013	<ul style="list-style-type: none"> <li>• Population Dynamics: Dhaka Declaration (Global Leaders)</li> <li>• Comprehensive Health Labor Market Framework (Sousa and Scheffler)</li> <li>• Labour Market for Health Workers in Africa (Soucat and Scheffler)</li> <li>• Transforming the Global Health Workforce (DeLuca and Soucat)</li> <li>• 3rd Global Forum on HRH, Recife, Political Declaration on HRH (GHWA)</li> <li>• Recife, Country and Stakeholder Commitments (GHWA)</li> <li>• A Universal Truth: No Health without a Workforce (GHWA)</li> </ul>
	2014	<ul style="list-style-type: none"> <li>• Delivering on the Data Revolution in Sub-Saharan Africa (Center for Global Development)</li> <li>• A Commitment to Community Health Workers (FHWC)</li> <li>• 19 Countries save \$149m on health worker info systems (Capacity Plus)</li> <li>• Follow-up of the Recife Political Declaration on HRH (WHA)</li> <li>• Health Workers Count: Civil Society Pledge (HWAI)</li> <li>• State of Midwifery Report 2014 (UNFPA)</li> </ul>

# Global Health Service Partnership: First Year Findings

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## **Abstract**

The Global Health Service Partnership (GHSP) is a public-private-partnership between Seed Global Health, a US non-profit; Peace Corps, a US Government agency; and host country health education systems. The program attempts to address the global shortage of skilled health professionals by sending US doctors and nurses as medical and nursing educators to training institutions in Uganda, Malawi and Tanzania. The program has sent 73 volunteers of myriad specialties over two years to 13 institutions. Through volunteer self-reporting and stakeholder interviews, the program was evaluated for early quantitative outputs and

qualitative impact. Volunteers improved clinical and classroom teaching, new teaching methods, reduced local faculty workloads and modelled professionalism. Challenges cited included difficulty adapting to the setting and existing practice. GHSP is a new program whose full impact will be better understood over time. The first year revealed numerous opportunities for pedagogical innovation, professional modelling and infrastructure investment.

### Introduction

Many models of engagement between global north and the global south healthcare entities/institutions have proliferated over the past two decades. Many aim to address disparities in healthcare access and outcomes between economically advantaged and disadvantaged populations through direct service provision, whereas others focus on biomedical or biosocial research. Few, however, focus primarily on improving the formal education and training of the next generation of the local healthcare workforce. To help address Africa's growing shortage of healthcare professionals, in 2012, Seed Global Health, a US-based not-for-profit, collaborated with the US Government agency Peace Corps to develop an innovative public-private pilot partnership called the Global Health Service Partnership (GHSP). GHSP sends US health professionals to serve as faculty for one year to resource-limited countries institutions to help train their future physicians and nurses.

According to a 2013 World Health Organization (WHO) report, 83 countries do not meet the minimum threshold of 23 health workers per 10,000 people needed to provide basic services (World Health Organization Global Health Workforce Alliance [WHOGHWA] 2013). The shortages are profound among skilled health professionals such as doctors, nurses and midwives. In Liberia for example, there are only 2.8 such skilled health professionals for every 10,000 people (Global Health Workforce Statistics 2014). Countries with a shortage of skilled health professionals not only lack enough doctors, nurses and midwives to provide care,

but they have even fewer to teach their successors.

In many countries, the human resource gap in healthcare delivery is driven by persistently low production of newly graduated professional providers. Thirty-one of the 83 aforementioned countries are in Africa (WHOGHWA 2013), yet sub-Saharan Africa does not train enough medical professionals. The continent produces only 6,000 physicians and 26,000 nurses and midwives annually for a population of one billion (Frenk et al. 2010; Kinfu et al. 2009). This represents less than 2% of the current estimated deficit of 1.8 million skilled health professionals in the region (WHOGHWA 2013). Of the 2420 medical schools worldwide, there are only 168 medical schools in sub-Saharan Africa. Furthermore, 11 of the 47 countries in the region have no medical school; 24 countries have only one (WHO 2013). Within an already small pool of institutions, average annual class sizes are small, resulting in low total enrolment at a national level (Frenk et al. 2010; Greysen et al. 2011; Mullan et al. 2011; Soucat et al. 2013). High student attrition rates also contribute to the production shortage; and the dropout tendency has been associated with a lack of academic infrastructure, inadequate student mentoring and support and increasing cost of education (Chen et al. 2012; Soucat et al. 2013).

Shortage of healthcare professionals in these settings also results from emigration. A significant number of professionals seek careers in, or are actively recruited to, higher-income countries (Hagopian et al. 2004; Sawatsky et al. 2014). In a cross-sectional

survey of medical and nursing students, 26% of African medical students and 33% of African nursing students surveyed reported that it was very likely they would work abroad in the first five years post-training (Silvestri et al. 2014). Reasons for emigration include push and pull factors. Pull factors lure professionals away and are frequently defined as higher wages, better working conditions, better professional development and continuing education opportunities or active recruitment by institutions inside or outside of the country (Liese and Dussault 2004; Soucat et al. 2013; WHO 2013). Push factors drive health professionals from their current setting and include poor or unstable social, economic or political conditions in home countries.

The shortage of new practitioners coupled with internal and external “brain drain” of a country’s brightest healthcare providers is problematic for health education systems. In many sub-Saharan countries, there is a crisis of a massive shortage of qualified faculty to staff medical and nursing schools. In a survey of sub-Saharan African medical schools, a majority reported a shortage of faculty in basic and clinical sciences, with substantial loss of staff over five years (Mullan et al. 2011). The nursing profession faces similar challenges. For example, in Tanzania, only 14 PhD-educated nurses work in the country, yet roughly 4000 new nurses graduate from training programs annually (Mselle 2015). The main issues challenging the physician and nursing production and retention of physician and nurse faculty include low salaries, increased teaching load, limited teaching resources and poor potential for career advancement (Mullan et al. 2011). In addition, there is little opportunity for faculty to develop and improve pedagogical skills (Greysen et al. 2011).

### **The Global Health Service Partnership**

The broad aims of GHSP are to assist in increasing the supply of available healthcare providers and to enhance the quality of current healthcare education in regions of great

need. GHSP is funded in part by PEPFAR, a US Government program organized primarily to combat the HIV/AIDS epidemic. Operationally, GHSP approaches potential host country Ministries of Health and Education to assess receptivity to the program. Once invited, GHSP works with school and faculty leadership at bi-laterally identified training institutions to further refine pre-clinical and clinical teaching investments for any given year.

Eligible US citizen physicians and nurses are recruited to serve as Peace Corps Volunteers (termed “GHSP volunteers”) within these host African training institutions for a minimum of one full year. Physicians must be board-eligible or board-certified and nurses must have a Bachelor in Nursing degree, an additional advanced degree as well as a minimum of three years of clinical experience. Sites review the recommended candidates prior to final placement. As embedded pre-clinical and clinical-educator faculty, GHSP volunteers fully integrate into institutional roles, serving as lecturers, course directors and clinical mentors and supervisors.

All GHSP volunteers undergo a comprehensive orientation both in the US and in their host country. They are introduced to tropical medicine, refreshers on core clinical skills and procedures, challenges to working and teaching in resource-limited settings, the local health and education systems, local culture norms and basic language training. Seed provides technical educational and clinical support throughout the year of service, and offers debt repayment stipends of up to US\$30,000 for each year served.

In its inaugural year 2013-2014, 169 applications were received, 52 offers extended and 31 volunteers (15 nurses and 16 physicians) placed in Malawi, Uganda and Tanzania at 11 host institutions. In its second year, the program expanded. While 179 applications were received and 54 offers extended, 42 (23 nurses and 19 physicians) were placed at 13 institutions in the same countries; this

included four first-year volunteers who renewed their service for a second term. In addition, Seed placed two physician educator volunteers in Uganda and Malawi outside of the GHSP program. Recruitment involved outreach through traditional Peace Corps mechanisms, specific invitations to US clinical program directors and medical and nursing national societies, presentations at national and regional conferences, media coverage and announcements through social media and selected mailing lists.

Of the GHSP nurse volunteers accepted in the 2013–2014 cohort, 47% had over 8 years of work experience; in 2014–2015, this rose to 60%. Nursing specialties in the first year included community/public health, medical

surgical nursing, midwifery, paediatrics, peri-operative nursing, psychiatric nursing and women's health. In the second year, nursing specialties added intensive care and emergency medicine (Table 1).

GHSP physician volunteers were bi-modally distributed in terms of clinical experience for both cohorts: most were directly out of residency/fellowship training, or approaching/in retirement. Physicians' specialties in both years included anaesthesiology, family medicine, internal medicine, obstetrics and gynaecology and paediatrics. The first year also included physicians trained in cardiology and psychiatry; in Year 2, GHSP deployed a pulmonologist, general surgeon and orthopaedic surgeon (Table 1).

**Table 1. Placement of GHSP volunteers**

Country	Region	2013–2014			2014–2015		
		MD	RN	Total	MD	RN	Total
Malawi		5	6	11	6	7	13
UM–COM	Lilongwe District	1	–	1	3	–	3
	Blantyre District	4	–	4	1	–	1
	Mangochi District	–	–	–	2	–	2
Mzuzu University	Mzimba District	–	2	2	–	2	2
Kamuzu College of Nursing	Lilongwe District	–	2	2	–	3	3
	Blantyre District	–	2	2	–	2	2
Uganda		6	5	11	6	7	13
Gulu University	Gulu District	3	–	3	3	–	3
MUST	Mbarara District	3	3	6	3	4	7
Lira University College	Lira District	–	2	2	–	3	3
Tanzania		5	4	9	7	9	16
MUHAS	Dar es Salaam Region	2	–	2	1	1	2
Mirembe School of Nursing	Dodoma Region	–	2	2	–	2	2
MVUMI Clinical Officers Training Center	Dodoma Region	1	–	1	1	–	1
Bugando	Mwanza Region	–	2	2	–	2	2
Sengerema	Mwanza Region	2	–	2	1	–	1
University of Dodoma	Dodoma Region	–	–	–	2	2	4
HKMU	Dar es Salaam Region	–	–	–	2	2	4

UM–COM: University of Malawi – College of Medicine; MUST: Mbarara University of Science and Technology; MUHAS: Muhimbili University of Health and Allied Sciences; HKMU – Hubert Kairuki Memorial University.

Note: The independently Seed-placed family medicine doctor and pathologist in Malawi (COM) and Uganda (MUST), respectively, are not included in the above table.

## Methods

Volunteers self-reported teaching hours and a breakdown of specific educational activities on a quarterly basis. Additionally, 68 interviews and select focus groups were conducted with 110 stakeholders during site visits to Malawi, Tanzania and Uganda in 2014 (Table 2). Stakeholders included volunteers, students, local faculty and host leadership (e.g., Deans). The interview and focus groups followed structured interview guides that contained sections on: educational and clinical environment at the institutions; stakeholders experience's working with GHSP volunteers; volunteers' impact on students, faculty and institutions; and other impact on host sites.

## Quantitative Results

In Year 1, 31 GHSP volunteers taught over 107 courses or workshops to 2853 trainees (Table 3 and Table 4). GHSP volunteers logged over 32,000 service hours, of which 60% were in classroom education, clinical teaching and/or mentoring. Physicians taught classroom and clinical courses on internal medicine, obstetrics and gynaecology, paediatrics, HIV management and general and child

psychiatry. They also provided in-service and skills training on cardiovascular diagnostics, neonatal and paediatric resuscitation, ultrasound techniques and labour and delivery. Nurse volunteers taught a wide variety of classroom and clinical courses, including community health, health assessment, medical surgical nursing, fundamentals of nursing, midwifery, paediatrics, psychiatric nursing, sociology and medical anthropology. Nurse volunteers provided additional training on ultrasound techniques, paediatric palliative care and vaccination procedures.

## Qualitative Results

Clinical mentoring and teaching were identified by the majority of local stakeholders as the most valuable contributions provided by GHSP volunteers. Local student stakeholders reported that GHSP volunteers left lasting impact, as demonstrated by their work ethic, their friendly and open approach to relationships with students and faculty and their humility in recognizing their limitations and desire to learn. GHSP volunteers were noted to have a different style of teaching from local faculty. Across all three countries, students described the volunteers' style as flexible,

**Table 2. Composite of stakeholder interviews**

Number	Stakeholder	Number	Interview type
12	GHSP physician volunteers	12	Individual
12	GHSP nurse volunteers	12	Individual
14	Members of nursing school/department leadership	7	Individual
		1	Group
10	Members of medical school leadership	6	Individual
		1	Group
9	Nurse counterparts	9	Individual
8	Physician counterparts	8	Individual
6	Additional physician faculty	2	Individual
		1	Group
22	Nursing students	5	Focus groups
17	Medical students and postgraduates	4	Focus groups
110	Total	68	Total

All eleven 2013–2014 GHSP sites in Malawi, Tanzania and Uganda were visited.

**Table 3. GHSP Physician Volunteers: Courses, training and number of trainees by site – Year 1**

Site	Course	Class year	# Trainees
Malawi Physician Volunteers			
College of Medicine	Introduction to pediatrics	3rd-year medical students	92
	Pediatrics and child health clinicals	3rd-year medical students	22
	General psychiatry	4th-year medical students	92
	General psychiatry clinical rotation	4th-year medical students	96
	Obstetrics and gynecology clerkship	4th-year medical students	90
	Obstetrics and gynecology clerkship	5th-year medical students	72
	BSc Obstetrics and gynecology specialist	Clinical officers upgraders (ob./gyn)	8
	BSc Pediatric Specialist	Clinical officers upgraders (pediatrics)	12
	Pediatric rotation	Interns	30
	Obstetrics and gynecology rotation	Interns	30
	Introduction to child psychiatry	MMed (psychiatry)	3
	Obstetrics and gynecology rotation	MMed (ob/gyn)	3
Tanzania Physician Volunteers			
MVUMI	HIV management	Not reported	40
	Pediatric history taking	1st-year clinical officer students	50
	Internal medicine 1	2nd-year clinical officer students	45
	Internal medicine 2	2nd-year clinical officer students	45
	Internal medicine examination review (2013)	3rd-year clinical officer students (previous academic year)	45
MUHAS	Introduction to clinical medicine	3rd-year medical students	180
	Introduction to clinical medicine	5th-year medical students	200
	Basic Cardiac Catheterizations	MSc Cardiology fellows	8
	Seminar series	MSc Cardiology fellows and faculty	8/3
	Advanced cardiac biographics	MSc Cardiology fellows	8
	Basic electrocardiography	Postgraduates, MSc Cardiology fellows and Critical Care nurses	16/10/7
	Complications of acute myocardial infarctions	MSc Cardiology fellows, ICU nurses and staff physicians	5/14/8
Sengerema	Obstetrics and gynecology clinical rotation	2nd-year assistant medical officer students	20
	Obstetrics and gynecology review	3rd-year clinical officer students	123
	Clinical Officers Review Course	3rd-year clinical officer students	123
	Pediatric Ward Rotations (treat & train)	3rd-year medical students	20
	Electrocardiogram (ECG) interpretation	Hospital physicians, AMOs and COs	15
	Surgical mentoring and teaching	Hospital physicians, AMOs and MMeds	12/1/2
	Ultrasound conference	Hospital nurses and technicians	15
	Neonatal Resuscitation	Labour and delivery nurses	45
	Neonatal and Pediatric Resuscitation	Mixed course (staff and nursing students)	70
	Labor ward in-service	Nurses	45

Table 3. Continued

Site	Course	Class year	# Trainees
Uganda physician volunteers			
MUST	Clinical skills in pediatrics	3rd-year medical students	21
	Internal Medicine Theory	3rd-year medical students	40
	Internal Medicine clinical 1 and 2	3rd-year medical students	39
	Chest X-ray tutorials	5th-year medical students	10
	Clinical skills in pediatrics	5th-year medical students	21
	Internal Medicine theory	5th-year medical students	36
	Masters in medicine	Postgraduates/MMeds	8
	Tutorials in pathology	Postgraduates/MMeds	2
	CAMTech Innovations Hack-a-thon project mentoring	Undergraduates	3
	Peace Corps Regional HIV Symposium	Outside students (not MUST)	30
	Portable ultrasound (VScan) training	Hospital staff	27
Gulu	Internal Medicine clerkship	3rd-year medical students	73
	Pediatrics and child health 301	3rd-year medical students	73
	Medical subspecialties	4th-year medical students	60
	Pediatrics and child health 501	5th-year medical students	63
	Internal medicine clerkship	5th-year medical students	63
	Internal Medicine rotation	Clinical officers students	15
	Intern case conference in pediatrics	Interns	5
	Internal medicine rotation interns	Interns	8
	Cardiovascular diagnostic training	Hospital staff	23

Table 4. GHSP nurse volunteers: courses, trainings and number of trainees by site – Year 1

Site	Course	Class year	# Trainees
Malawi nurse volunteers			
KCN	Infection prevention	1st-year BSN students	70
	Introduction to psychiatric nursing	2nd-year BSN students	215
	Medical surgical nursing	2nd-year BSN students	221
	Psychiatric mental health nursing clinicals	2nd-year BSN students	48
	Child health nursing 300	3rd-year BSN students	166
	Child health nursing 301 clinicals	3rd-year BSN students	166
	Low risk midwifery theory	3rd-year BSN students	169
	Low risk midwifery clinical (2013)	3rd-year BSN students (previous year)	111
	High risk midwifery theory	4th-year BSN students	111
	High risk midwifery clinical (2013)	4th-year BSN students (previous year)	109
	Rabies vaccination training	Health centre staff	20
	One Stop Center mentoring	Hospital staff	6
	Portable ultrasound (VScan) training	Nursing faculty	7
St. John of God	Psychiatric mental health nursing	1st-year students	19

Table 4. Continued

Site	Course	Class year	# Trainees
Mzuzu	Fundamentals of nursing I	1st-year BSN students	53
	Fundamentals of nursing II	1st-year BSN students	52
	Pediatric clinical precepting	1st-year BSN students	6
	Medical surgical nursing I clinical	2nd-year BSN students	42
	Medical surgical nursing II	2nd-year BSN students	42
	Pediatric clinical rotations	3rd-year BSN students	32
	Pediatric theory	3rd-year BSN students	32
	Multiple choice exam training	Nursing faculty	4
	NEPI Clinical Preceptor Course	Nursing staff	47
	Pediatric Palliative Care Day training	Nursing faculty	5
Tanzania nurse volunteers			
BMC	Midwifery 1	2nd-year diploma students	32
	Midwifery 2	2nd-year diploma students	32
	Medical surgical nursing 2	3rd-year diploma students	35
	Midwifery clinical precepting	3rd-year diploma students	35
	Maternal Child Health	3rd-year BSN/pre-service and 2nd-year BSN/in-service students	31
	Community Health	3rd-year BSN students	24
	Maternal and child nursing	BSN Education, 3rd-year	27
	Midwifery	In-service upgraders	28
Mirembe	First Aid & CPR	1st-year diploma students	42
	Medical surgical nursing 1	1st-year diploma students	42
	Medical surgical nursing 2	1st-year diploma students	42
	Community Health 1	2nd-year diploma students	41
	HIV	2nd-year diploma students	41
	Introduction to Primary Health Care	2nd-year diploma students	41
Uganda nurse volunteers			
MUST	Clinical skills lab	2nd-year BSN/direct students	19
	Health assessment I	2nd-year BSN/direct and 1st-year BSN/completion students	31
	Health assessment II	2nd-year BSN/direct and 1st-year BSN/completion students	32
	Medical and emergency ward rotations	3rd-year BSN/direct students	40
	Medical Clinical rotation	3rd-year BSN/direct students	30
	Surgical Nursing 1	3rd-year BSN/direct and 1st-year BSN/completion students	43
	Advanced clinical skills	4th-year BSN/direct students and 2nd-year BSN/completion students	26
	Clinical rotations Emergency Ward	4th-year BSN/direct students and 2nd-year BSN/completion students	26
	Nursing Education	4th-year BSN/direct students and 2nd-year BSN/completion students	26
	Professional Nursing	4th-year BSN/direct students and 2nd-year BSN/completion students	26

Table 4. Continued

Site	Course	Class year	# Trainees
Lira	Introduction to nursing and clinical settings	1st-year BSN students	50
	Introduction to psychology	1st-year BSN students	50
	Microbiology	1st-year BSN students	50
	Psychopathology	1st-year BSN students	50
	Sociology and medical anthropology	1st-year BSN students	50

interactive, approachable and supportive; local faculty was described as more formal in manner and expectation. Students reported that volunteers' lessons emphasized practical and critical thinking skills over traditionally heavier attention to theory and "textbook learning."

Local faculty across all three countries reported that volunteers reduced stress on faculty by sharing the substantial workload and that their presence improved clinical and classroom training. Faculty also noted the volunteers' introduction of innovative teaching methods such as "meet the professor" rounds, and "morbidity and mortality" conferences. With respect to professionalism, local faculty noted that volunteers were consistently punctual to and attended all of their teaching assignments. They encouraged professional collegiality, which included encouraging local faculty to interact positively with students. They also impacted faculty career aspirations by motivating locals to continue with their own professional education. Volunteers were also noted to model inter-professionalism between nurses and physicians.

Both local and volunteer stakeholders reported the positive impact of participation in local cultural activities and social interaction with their colleagues. Several GHSP volunteers identified a positive change in their working relationships after they shared tea or a meal with a colleague or attended community and holiday events.

Local faculty, students and leadership and GHSP volunteers identified several challenges. All believed that language ability was a

significant limitation. Students reported that volunteers' accents were difficult to understand. Volunteers felt incapacitated by not being able to communicate directly with patients. In some sites, local dialect was an informal language of education. While classroom and clinical teaching was in English, follow-up conversation would be in vernacular. GHSP volunteers reported frequently missing important parts of discussion.

Local faculty also noted differences regarding standards and expectations for formal grade evaluations; many expressed concern that testing and grading conducted by volunteers was too lenient. Volunteers acknowledged having different approaches to testing, yet believed they tested appropriately to material covered in lectures and lessons.

Another challenge reported by local leadership, faculty and students was the GHSP volunteers' lack of familiarity with the clinical setting. They noted that volunteers struggled with decision-making in a resource-poor setting; they did not understand referral systems, and had different clinical standards and protocols than those in use at their host site. All stakeholders noted that adapting to a resource-limited context took time and volunteers used different coping mechanisms to manage. A few volunteers were perceived to be too assertive, wanting to see quick change and displaying easy frustration with local infrastructure/resource challenges.

GHSP volunteers reported struggling to balance clinical and educational activities. Physicians, in particular, reported having a difficult time setting boundaries to prioritize education when clinical need was great. The

intensity and volume of patient care was overwhelming for many volunteers. Institutional leadership acknowledged a need to protect the volunteers from being completely absorbed by clinical duties and to preserve their function as teaching faculty. Nurse volunteers reported spending a larger portion of their time preparing for or providing formal classroom lectures than teaching at the clinical bedside.

A challenge commonly cited by both local partners and GHSP volunteers was limited available technology and public services. Electricity was tenuous at multiple sites and its loss made both patient care and classroom preparation difficult. For surgical, anaesthesia and obstetric specialties, it was especially challenging, as ventilators, suction and oxygen were often electricity-dependent. Internet was the other service of major concern and was often intermittent or slow. With a paucity of reference materials, journals and textbooks, access to the Internet was viewed as an essential teaching tool for all faculty. Several local leaders noted a need for a systematic “partnership inventory,” as numerous organizations have funded isolated infrastructure improvements without necessarily considering the overall context and priorities of the institution.

Local stakeholders offered mixed responses as to whether the long-term presence of GHSP volunteers could impact recruitment and retention of students and/or faculty. Many reported the program would not address financial difficulties confronting students. Faculty specifically noted that recruitment and retention within the health education system is often out of their institutional control.

Unless otherwise noted, the key findings detailed were repeatedly reported across all sites and interviewee groups. When there was divergence in responses, it typically fell in one of three categories: country-specific (difference in response between countries owing to the impact of local issues and context); program-specific (difference in response between nurses and physicians);

or population-specific (difference in responses between interviewee groups owing to role and perspective).

## Discussion

GHSP’s first year revealed a number of predictable findings. For example, it is not surprising that the greatest perceived impact was thought to be in clinical teaching and mentoring. In many African health education systems, faculty at medical and nursing institutions are supported by the Ministry of Education and are not necessarily responsible for any clinical- or hospital-based teaching. Meanwhile, staff doctors and nurses working in hospitals are supported by the Ministry of Health, and are often not tasked with prioritizing educating trainees as a part of their duties as direct service providers. Thus, clinical bedside teaching for students and fresh graduates falls in a grey zone not clearly addressed by either.

Specific to nursing, there is a historical precedent of nursing education focusing on classroom instruction over clinical mentorship. This need for clinical nursing instruction is increasingly recognized and there is a shift to help increase nursing training on the wards. GHSP could help provide innovation and structure to enhance this aspect of nursing education.

The first year also revealed numerous opportunities for pedagogical innovation and possible re-evaluation of current competency/examination standards. Local faculty and GHSP volunteers felt a clear tension regarding the assessment of students. Volunteers’ perception of unnecessary high failure rates, punitive approaches to learning and a formal and rigid hierarchy between student and teacher all contributed to this tension. Students appeared to respond favourably to GHSP volunteers’ relaxed and collegial style of instruction, and modelling of positive clinical reinforcement. With time, it is possible that this modelling could encourage behaviour change among local faculty and adoption of teaching

methods that appear to better bring out the capabilities of students, assuming they come to accept that competency is not compromised.

The GHSP volunteers and counterparts all acknowledged the need for more infrastructure investment. Volunteers noted the difficulty in teaching well without additional simple tools. For example, many sites made requests for LCD projectors and printers. The latter were needed to ensure text materials could be made available to all students. Practice manikins and skill-building equipment was also identified as a need. Several GHSP volunteers procured small grants from local Peace Corps funds or through Seed to help build skills labs and computer labs, purchase core equipment for wards or to provide books and other teaching materials. These examples illustrate a need to create a systematic process of infrastructure investment for each institution to support its teaching mission.

### **Conclusion: GHSP and the Global HRH Challenge**

The GHSP experiment is young and limited in scope. Its hypothesis is that through dedicated, sustained and directed investment in specific educational inputs within an existing healthcare system, modest improvements in the quantity and quality of provider outputs can be achieved.

Addressing human resource challenges in resource-limited settings is a complex problem. There are many interrelated and entrenched influences including political, social and economic forces, which converge to perpetuate the crisis in these places. The crisis is especially urgent in Africa where a majority of countries lack the needed numbers and skill mix to address their current and future needs. Comprehensive, across-the-board solutions are lacking. Given the enormity of the problem, it is not surprising that many models

attempting to address the crisis are narrowly designed to maintain a manageable focus, and therefore limited in potential for impact. Additionally, there is a predictable tension between an immediate, understandable moral compulsion to “simply” provide care (and possibly exacerbate dependency states), and a longer-term approach to building locally responsive, accountable and sustainable efforts.

GHSP’s greatest impacts initially are likely to be at the level of individual interactions with students and locally vested faculty. It is too early in the program to appreciate, let alone measure, any downstream long-term effects of this educational investment. Anecdotes and qualitative assessment of stakeholders’ experience provide some signals of impact and are important to improve the program iteratively. It is clear that there is a deep and abiding appetite within the African health education systems with which GHSP has partnered to improve teaching and training environment in real time on the ground.

Attending in real time to “lessons learned” provides opportunities to adapt, experiment differently and to strengthen our collaborations. Success with this model is dependent on mutual trust, joint investment in outcomes and combined interest in problem solving for small and large challenges. It is critical to partner with institutions genuinely eager for collaboration rather than receiving “charity.” This shared commitment fuels local motivation, which can spur change. The critical truth in human resources for health capacity building is that it takes time. This is difficult, frustrating long-term and rewarding work for all stakeholders, which often is glossed over in today’s easier celebrations of “global health.” Success will need to come from programs building up from the ground and wider international policy changes.

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# Improving Access to Care among Underserved Populations: The Role of Health Workforce Data in Health Workforce Policy, Planning and Practice

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### Abstract

Universal health coverage (UHC) is central to the post-2015 development agenda. In Namibia, optimal organization of HIV and high-priority health services requires robust, policy-relevant health workforce evidence. This paper examines Namibia's use of the Workload Indicators of Staffing Need (WISN) tool, which estimates staffing requirements based on health facility workload. Namibia's public health sector applied WISN regionally and nationally. We analyzed four health workforce decision-making scenarios (staff redeployment, scarce skill allocation, staffing norms and task sharing) and used spatial analytic techniques to consider facility under/overstaffing in association with regional HIV prevalence, finding significant staff shortages in densely populated regions with high HIV burdens. Innovative use of WISN results by health systems managers and policymakers can help rationalize staff deployment, provide concrete information on staffing needs and model the impact of potential policy changes. These examples illustrate WISN's value for policy and practice decisions that can further global commitments to achieve UHC.

### Background

Globally, efforts are underway to define the post-2015 development agenda. For the health-related goals, the cornerstone is country movement toward universal health coverage (UHC), which aims to ensure that all people obtain the health services they need without suffering financial hardship. The global community has also reached a "defining moment" in its response to HIV, as ending the epidemic becomes an attainable goal (WHO 2014a). The relationship between UHC and HIV is closely interconnected, according to the WHO (2014a), which notes that the global response to HIV has been a trailblazer for UHC (WHO 2014a). In settings where UHC or conditions approximating universal coverage are lacking, the uneven distribution of health services and resources will typically result in inequities and underserved populations.

The UHC agenda requires attention to country-level human resources for health (HRH) needs (WHO 2014b). Nearly a decade ago, the WHO (2006a) suggested that 2.28 health workers (physicians, nurses and midwives) per 1,000 of the population represents the HRH threshold necessary to achieve 80% population coverage to provide attended childbirths and immunizations, which are core Millennium Development Goal health indicators. According to some, however, this "minimalist" threshold vastly underestimates meeting population health needs and required HRH stock, masks regional/national disparities and ignores shortages of other cadres (O'Brien and Gostin 2011).

Health worker shortages and imbalances represent a particular challenge in Africa, where three-fifths (63%) of the WHO-designated HRH crisis countries are located (Mdege et al. 2012; Moosa et al. 2014;

Naicker et al. 2009; O'Brien and Gostin 2011; WHO 2006a and 2006b). Namibia has a clear commitment to achieving universal access to care (Ministry of Health and Social Services [MoHSS] 2010). The public health sector has been planning for the redesign of the MoHSS's organizational structure and staffing to improve healthcare equity, access and quality. In this context, the global conversations about HRH and UHC are highly salient. Although Namibia meets the minimal WHO health worker density threshold for nurses and midwives (2.775/1,000) (WHO 2014c), professional nursing and other cadres of health workers are disproportionately distributed within the country, with some facilities and regions severely understaffed (McQuide et al. 2013). Namibia reports 0.374 physicians per 1,000 (WHO 2014c), considerably higher than many other African countries (Kinfu et al. 2009), but inadequate in number given population health needs and demands and the increasing availability of sophisticated interventions that require physician skills. The high attrition rates of health workers from practice in Namibia are also cause for concern (African Health Observatory [AHO] and WHO 2014; MoHSS 2009).

To optimize the organization of HIV and other high-priority health services in Namibia, decision-makers desperately need robust and policy-relevant health workforce evidence (Callaghan et al. 2010). This paper contributes to the evidence by examining Namibia's use of the Workload Indicators of Staffing Need (WISN) method (Shipp 1998; WHO 2010), a WHO human resources management tool that can be used to guide HRH decision-making, as well as promote UHC objectives. Using quantitative, qualitative and geo-spatial representations of Namibia's WISN results, we analyze five scenarios that illustrate how the WISN method can provide immediately useful information and data to health systems managers and policymakers seeking to promote UHC access, equity and quality (WHO 2014a).

### **The WISN Method**

In Namibia, IntraHealth International (through funding by the U.S. Agency for International Development [USAID]) supported the MoHSS in carrying out first a regional pilot and then a national WISN application in all four tiers of the public health sector for physicians, nurses, pharmacists and pharmacist assistants (McQuide et al. 2013). Developed by the WHO, the WISN method estimates the number and types of staff a health facility needs based on actual workload. Key requirements to customize the WISN tool to the Namibian context included defining workload components; setting activity standards (the time it takes a trained, well-motivated member of a particular cadre to perform an action to acceptable professional standards in the context of the country); determining the available working time; and identifying available workload statistics, including outpatient, inpatient and human resources data (WHO 2010). The analysis calculates the required number of full-time equivalents (FTEs) of staff, which is then compared with the number of existing FTEs to produce the WISN ratio. The ideal WISN ratio is 1, indicating that the number of FTEs required is equal to the number available. These steps, and the process that followed, to implement the WISN method in Namibia are described in further detail elsewhere (McQuide et al. 2013). Overall, Namibia's national-scale WISN application highlighted the severe shortage of physicians (and pharmacists), maldistribution of nurses and inflexible staffing norms (McQuide et al. 2013). The policy and practice implications of the results have been widely discussed, raising policymakers' awareness about their utility for evidence-based decision-making.

Use of the WISN method in Namibia has taken place in the context of the tool's widespread use since the late 1990s elsewhere in Africa and Asia. Generally used to calculate health worker requirements and assess workload pressure, the WISN method can be

particularly useful to understand “the gap between a policy commitment to an essential package of services and the resources available on the ground” (Hagopian et al. 2012). WISN findings typically highlight the inadequacies of traditional staffing norms, workload variation between comparable facilities, mixed patterns of staffing shortages and excesses and informal task shifting. Although careful applications of the WISN method can generate a rich array of policy- and practice-relevant evidence, few published reports describe whether, or how, WISN results have been used to shape subsequent policy and practice responses. Hospital-based studies in Uganda and Ghana report a small number of outcomes, such as the establishment of minimal staffing needs in Uganda hospitals (Namaganda 2004) and internal redistribution of staff and development of a WISN-informed human resources plan in a Ghanaian hospital (Asamani 2013).

By pinpointing staffing requirements per cadre and facility based on current workload, service statistics and practice norms, WISN results can have immediate and practical implications for staffing. More broadly, given the vast amount of data that a national WISN analysis can generate, it is possible to synthesize and present WISN data in various ways, including displaying data geo-spatially using a geographic information system. In Namibia, the WISN results have been presented in various fora to support management and policy decisions by the Ministry of Health and Social Services Restructuring Committee, as well as by other policymaking bodies. Below we present stakeholder feedback and five examples of tailored WISN analyses that illustrate the versatility of WISN results for a variety of practice and policy decisions. The scenarios highlight decision-making regarding redeployment of staff, scarce skill allocation, staffing norms, task sharing and utilizing geo-spatial analysis.

### **Redeployment of Staff**

WISN analyses can be shaped to focus on individual health facilities as well as larger units of analysis such as districts or regions. In an exercise conducted in one region in Namibia with a perceived maldistribution of health workers, WISN calculations revealed that the district hospital in one of the region’s major towns had an excess of 28 nurses, whereas the hospital in another large town 30 km away had a deficit of 20 nurses. Such results illustrate how, with relatively little effort, both hospitals could meet their staffing requirements, an essential step towards providing greater access to services.

In a series of informal conversations between IntraHealth and human resources (HR) managers at the MoHSS in Namibia, HR managers expressed the value of these types of WISN calculations for guiding decisions about staff redeployment. One HR manager confirmed that WISN “...helps you with distribution [of staff].” In southern Namibia, where grape farms attract influxes of seasonal workers during the six-month harvesting periods, one clinic was “overwhelmed,” while the nearby health centre was “idling,” according to another HR manager at the Ministry. On the basis of the WISN results, district managers recommended a staffing adjustment between the two facilities in their strategic plans.

### **Scarce Skill Allocation**

Given the severe staffing shortages among several cadres of health professionals in Namibia, managers must ensure that staff with scarce skills are deployed to the facilities with greatest need. In one region, for example, the WISN analysis calculated that the required number of pharmacist assistants was 131, although only three pharmacist assistants were actually deployed (Table 1). While acknowledging that a staff shortage of this magnitude cannot be eliminated in a short period, decision-makers can

nonetheless use WISN results to decide where to deploy the scarce staff. Where the distances between facilities are relatively small, for example, one pharmacist assistant might cover two or more facilities. Ranking clinics to identify those most in need of pharmacist assistants could enable regional decision-makers to redeploy the limited number of pharmacist assistants currently available to where the needs are greatest, while also informing planning for preservice education and continuing professional development, as well as helping prioritize future staffing decisions as more pharmacist assistants become available.

**Table 1. Existing and required pharmacy assistant staff in clinics**

Facility	WISN-required pharmacy assistants
Clinic 1	2.69
Clinic 2	1.48
Clinic 3	0.76
Clinic 4	0.58
Clinic 5	0.50
Clinic 6	0.46
Clinic 7	0.23
Clinic 8	0.14

### Staffing Norms

Many countries use fixed staffing norms to guide health worker recruitment, budgeting and staffing levels at public health facilities. Staffing norms are often determined by facility type and scope of services expected at a given facility level. However, staffing norms based only on institutional size or catchment population size cannot account for the many other factors that shape demand, need and use of health services (Ozcan and Hornby 1999). WISN results incorporate actual use of health services at a given facility. Additionally, static norms ignore distinctions between high-uptake and low-uptake facilities, whereas WISN results allow policymakers to

consider staffing norms in light of actual levels of service use, or even to determine whether an individual facility should be reclassified as another type of facility based on use.

Table 2 shows WISN-calculated staffing requirements for nurses at clinics, health centres and district hospitals, sorted into subcategories within each facility type. For the staffing range represented by each subcategory, we used the median required FTE to express a staffing recommendation for that subgroup. For example, of the 278 clinics in Namibia, 63% require just one to three nurses, which is consistent with Namibia's existing 10-year-old staffing norms of two nurses per clinic. However, another 13% of clinics require five to nine nurses (median = 7) and 8% require nine or more (median = 12). Similarly, at health centres and district hospitals, there are no single staffing norms that would meet the needs of most facilities. What is evident from parsing the WISN data in this manner is that using one staffing norm for each facility type does not sufficiently address the variations in staffing requirements displayed by all facilities within that category of facility. When some clinics require only one nurse and others require up to 26, setting a norm of four nurses per clinic fails to address the staffing needs of a sizeable subset of clinics in the country. This type of WISN analysis also raises the question of whether a clinic requiring over nine nurses should continue to be considered a clinic or should be reclassified as a health centre.

Namibia's MoHSS has not yet implemented the WISN-recommended staffing norms nationwide. However, in several specific cases, this information has supported requests for additional positions at specific facilities. For example, after the medical superintendent at an intermediate hospital used the WISN data to advocate for more physicians, the Ministry approved additional positions for physicians at the hospital.

**Table 2. Nurse staffing requirements by type of facility and workload**

Facility type	WISN-calculated staffing requirement (range)	Number of facilities (%)	Staffing recommendation (median)
Clinics (n = 278)	01–3.00	174 (63%)	2
	3.01–5.00	48 (17%)	4
	5.01–9.00	35 (13%)	7
	9.01–26.90	21 (8%)	12
Health centres (n = 34)	3.00–7.00	12 (35%)	5
	7.01–13.00	10 (29%)	9
	13.01–22.00	11 (32%)	11
	57.00	1 (3%)	57
District hospitals (n = 29)	18.00–38.00	9 (31%)	28
	38.01–53.00	11 (38%)	43
	53.01–63.00	4 (14%)	60
	68.00–101.00	5 (17%)	77

**Making the Case for a Team-Based Approach to Care**

The minimal WHO health worker density threshold was set before the widespread advent of antiretroviral therapy (ART). Countries with high prevalence rates of HIV must manage the high demand for professional health workers, given the goal to maintain hundreds of thousands of people on ART. In Namibia, a “high, generalized and mature HIV prevalence country” with an estimated 14% prevalence among adults aged 15-49 (MoHSS 2013; MoHSS and ICF International 2014; UNAIDS 2013), responding to HIV clinical needs as part of integrated care delivery is a top priority. Among other consequences, the HIV epidemic has had an enormous impact on maternal health in Namibia, where the maternal mortality rate in 2013 was estimated at 385 deaths per 100,000 live births (MoHSS and ICF International 2014). At 13.9%, Namibia has one of the highest rates of reported maternal deaths in Africa associated with HIV (WHO 2014d).

Within the country, the HIV burden varies across Namibia’s 14 regions. According to the 2013 Demographic and Health Survey, the seven regions with the highest prevalence (range 16.4% to 30.9%) are all in the more densely populated north (MoHSS and ICF International 2014). Clearly, HIV will continue to place considerable demands on the healthcare system for some time to come. Thus, a significant element of achieving UHC in Namibia involves addressing equitable provision of HIV services.

In 2014, Namibia launched its three-year HIV/AIDS strategic plan (2014–2017). One of its goals is to reduce the rate of new HIV infections by 50% and ensure provision of free, quality integrated HIV services (MoHSS 2014). The plan seeks to accelerate achievement of the UNAIDS and U.S. President’s Emergency Plan for AIDS Relief (PEPFAR)-endorsed 90-90-90 treatment targets by 2020 (PEPFAR 2015; UNAIDS 2014), which call for 90% of Namibians to know their HIV status, 90% of HIV-positive individuals to be accessing sustained ART and 90% of ART

patients to have a suppressed viral load. Meeting the 90-90-90 targets will be challenging, given the country's chronic scarcity and maldistribution of health workers and the potential to exacerbate understaffing. Considering just ART services, the MoHSS (2013) estimates that 220,317 adults will need services in 2015, an 87% increase from the roughly 118,000 Namibians on ART as of March 2013.

Given the magnitude of HIV healthcare needs in Namibia, the evidence generated by the WISN application could be useful in supporting a rational team-based model of coordinated care that enables each cadre to work at the top of their professional license and skill set. Expanding the scope of practice of professional nurses specific to HIV treatment (McCarthy et al. 2013; Moosa et al. 2014) could substantially increase access to HIV services. Nurse-initiated management of ART (NIMART) has become increasingly pervasive in Africa. A 2014 systematic review of literature on NIMART found moderately strong evidence that quality of care is not compromised by NIMART and that its practice may decrease patient loss to follow-up (Kredo et al. 2014). Evaluation of a NIMART trial in South Africa noted that successful implementation of the approach involves reorganizing health services "to accommodate the...effects of shifts in practice" (Georgeu et al. 2012). This requires carefully rethinking nurse and physician roles and articulating professional scopes of practice so that each professional cadre practices "to the full extent of their skills" (Wilson et al. 2012), within the terms of their professional license. Health professional councils are generally the regulatory bodies responsible for setting scopes of practice and for maintaining licensure requirements for qualified health professionals to protect both the public and professionals.

Namibia's MoHSS (2013) admits that, to date, ART scale-up "has been compromised by lack of adequate competent human resources equipped with the right knowledge and skills

to manage ART." The NIMART strategy can enable more efficient use of available HRH for HIV treatment and care (Callaghan et al. 2010). In the context of NIMART, the use of healthcare teams that allow nurses to practice at the top of their education and training provides access to HIV-specific care for otherwise underserved patients, and enables the health system to more efficiently use physicians.

In the absence of WISN or similar modelling tools to estimate clinical skill needs, task sharing policy decisions may fail to fully examine the impact of shifting practices across cadres. In considering the possible rollout of NIMART nationally in Namibia, the WISN results can support a more evidence-based policy decision by modelling the impact of transferring selected clinical practice functions from physicians to nurses prior to implementing the policy change. Specifically, the WISN modelling estimated that an additional 536 physicians would be required to supplement the current 282 physicians in Namibia's public sector if ART remained solely in physicians' purview. However, with changes to allow prescribing of ART by registered nurses through NIMART, and associated policy and practice changes, training and certification, WISN calculations indicate that only nine additional nurses would be required on top of the 4,251 nurses who currently practice in Namibia's public facilities. Given the shortage of physicians and the imbalance across the professional cadres, adoption of NIMART in Namibia makes eminent sense.

Official policy states that only physicians are allowed to enrol patients in ART, with nurses providing subsequent care and treatment for most patients. Under the NIMART strategy currently being considered, registered nurses would take on the practice function of enrolling patients into ART, while continuing to provide care and treatment post-enrolment for all but the most critically ill and complex patients. Using the WISN tool, we estimated the increased workload for nurses that would

result if NIMART were implemented in one region with high HIV prevalence. Using data for the period from April 1, 2011 to March 30, 2012, a total of 1,715 new patients had been enrolled in ART in that region, and 213,358 patient care and treatment visits were provided. In the prevailing scenario where only physicians enrol patients in ART (30 minutes per patient) and provide care and treatment for 50% of patients (15 minutes per patient), the WISN standards require 17.38 physician FTEs to deliver the two services. Under that same scenario, nurses spend only 5 minutes per patient on support activities for ART enrolment such as taking blood pressure while also providing care and treatment services for 50% of patients (15 minutes per patient), resulting in a requirement of 16.93 nurse FTEs. The total staffing requirement for the two cadres for this scenario is 34.31 FTEs (Table 3).

Under the alternative NIMART scenario, the WISN standard would be modified to 30 minutes per patient for physicians to enrol 10% of patients in ART, and 15 minutes per patient to provide care and treatment for 20% of patients (Table 3). Registered nurses, on the other hand, would spend 30 minutes per

patient to enrol 90% of patients in ART (a five-minute time efficiency), and 15 minutes per patient to provide care and treatment for 80% of patients. The assumption is that physicians would still see the most acute cases, while nurses would care for the majority of less complex patients. Although the total staffing requirement after NIMART would remain unchanged at approximately 34 FTEs, the number of physicians required would decrease from 17.38 to 6.87 FTEs, and the number of nurses would increase from 16.93 to 27.93 FTEs. This staffing requirement aligns more closely with the availability of physicians and nursing cadres in the country.

As this example illustrates, these types of data can assist managers in planning prior to introducing a new strategy. When this information was shared with a high-level Ministry official, he remarked, “I understand, more fully, why nurses have displayed reluctance to adopt the NIMART approach, which they view as adding to their workload without adding more staff.” Policies of this type need to be implemented responsibly and in full recognition of the country context. They should be accompanied by appropriate inter-professional training, revision in scopes of

**Table 3. Comparison of physician and nurse staffing requirements before and after implementation of NIMART in one region**

Task	Pre-NIMART		Task	Post-NIMART	
Physicians	Standard	Staffing required (FTE)		Standard	Staffing required (FTE)
Enrol ART (100%)	30 minutes/patient	0.54	Enrol ART (10%)	30 minutes/patient	0.05
Provide care and treatment (50%)	15 minutes/patient	16.84	Provide care and treatment (20%)	15 minutes/patient	6.73
<b>Total physicians</b>		<b>17.38</b>			<b>6.87</b>
Nurses	Standard	Staffing required (FTE)		Standard	Staffing required (FTE)
Support ART enrolment (100%)	5 minutes/patient	0.09	Enrol ART (90%)	30 minutes/patient	0.49
Provide care and treatment (50%)	15 minutes/patient	16.84	Provide care and treatment (80%)	15 minutes/patient	26.94
<b>Total nurses</b>		<b>16.93</b>			<b>27.93</b>
<b>Total staffing</b>		<b>34.31</b>			<b>34.80</b>

practice, diligent management of team-based healthcare, supportive working conditions and adequate regulatory oversight (Callaghan et al. 2010).

**Geographic Representations**

Representing health information spatially is a powerful tool that allows decision-makers to quickly examine how different layers of health information (data) are related in space and time. Figure 1 is a geographic representation of the distribution of nurses across Namibia. The map displays several layers of data representing the association between HIV prevalence by region (red choropleth

base layer) and the calculated WISN ratio (2014) by facility for nurses (red, green and blue dots).

The red base layer map shows different intensity of colour to display region-to-region changes in HIV prevalence (MoHSS and ICF 2013). A more intense red represents higher HIV prevalence, whereas a lighter shade represents lower prevalence. It is easy to see that the highest prevalence areas are located in the northern part of the country. Similarly, the insert (right side) displays a map of population density by region. The highest population densities in Namibia are also found in the northern regions.

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examples of WISN calculations exist in the literature, this is one of the few papers that presents innovative ways to use WISN results to influence health policy, planning, management and practice. In Namibia, policymakers confirm the practical utility and policy relevance of WISN results in advocating for increased staffing and making decisions on where best to deploy existing health workers. The medical superintendent of a Namibia state hospital stated, “With the help of WISN, we realize the implication [of HRH needs].... We started understanding our real needs [and] it helped us to ‘get to the bottom’ of the problem. Previously we were saying that we needed people. Now we are equipped with an approach, a method.”

With the goal to broaden access for underserved populations and also closer to where they live, the WISN method can provide concrete and specific information on current health workforce staffing and distribution. WISN estimates complemented by data on why health workers migrate away from higher-need but remote areas and what would motivate them to stay would be powerful tools to inform putting mechanisms in place to address health worker distribution.

WISN can also model the impact of policy changes. WISN modelling of the NIMART approach demonstrated that if registered nurses are allowed to practice at the top of their education and training in ART prescription and HIV management, the size of the current nursing health workforce in Namibia has the capacity to increase access to lifesaving ART. The overall aim of expanding the scope of practice of select cadres within a healthcare team is to improve quality, increase access and strive for equity, providing “a streamlined, rationalized chain of care that relieves pressure on each worker involved while maintaining quality standards for patients and increasing access to interventions” (Callaghan et al. 2010). At the same time, it is crucial to recognize and respond to challenges such as workload constraints and altered working

relationships between health team members (Georgeu et al. 2012). Changes to nurses’ scopes of practice must be accompanied by training, appropriate preparation and support.

Under a task sharing scenario, each cadre’s scope of practice should be evaluated to ensure that the new duties are included in the official scope before any policy is introduced. Professional councils play a critical leadership role in planning for such policy changes. In Namibia, where NIMART has been piloted on a small scale (MoHSS 2013), the Nursing Council revised nurses’ scope of practice in October 2014 to encompass NIMART (Government of Namibia 2014). However, associated training and certification requirements must be set. Before the final NIMART decision is made, multiple actors must give their approval, including the MoHSS, medical and pharmacy councils, the Office of the Prime Minister and the Public Service Commission. Task sharing may also require creation of new cadres of specialized practitioners with clearly defined scopes of practice. The WISN method could also be used to model the impact of expanding practice for other functions that are gaining global attention and acceptance, such as broadening nurses’ and midwives’ scopes of practice for the provision of family planning (including long-acting reversible contraceptive methods), implementation of Option B+ and provider-initiated HIV testing and counselling.

Considering ways in which WISN results could be further refined and extended, analyses of scenarios such as NIMART could go a step further and demonstrate the cost savings associated with utilizing nurses to provide services. For example, maximizing the use of nurses, whose salaries are lower than those of doctors, will result in cost savings for the health system as a whole.

Another area where WISN data could be useful is to model the FTEs needed in response to changing uptake of services owing to increased demand. For example, countries are

making efforts to increase the rates of facility-based births to decrease maternal and infant mortality. In the face of the success of these efforts, staffing needs will increase. WISN analyses should be repeated on a regular basis using updated service delivery rates. Indeed, Namibia's MoHSS has already requested an updated WISN analysis using 2014 figures.

WISN estimates could also be used to respond to emerging health needs, such as the increasing burden of non-communicable diseases or the needs of aging populations. Countries that are considering adding a cadre of health worker new to the setting (for example, nursing assistant, physician's assistant, physical therapist) can use WISN to model required numbers and distribution of the cadre. Finally, the WISN model could be used to forecast staffing needs based on trend analysis to inform future training requirements.

There are some limitations associated with the WISN method. First, while WISN results can be an important tool for planning, if additional resources are not likely to become available to add or redeploy staff, the short-term effect of conducting a WISN analysis may be limited. On the other hand, as the comments of Namibia policymakers illustrate, dissemination of WISN results can raise awareness and change the climate in which health workforce policy decisions are made.

Second, WISN results are only as good as the data they are based upon. WISN modelling depends on accurate and agreed-on standards of the amount of time it should take to provide each type of service (activity standards). If the activity standards are over- or underestimated, the WISN results will over- or underestimate staffing needs. Time-motion studies (Odendaal and Lewin 2014; Zheng et al. 2011) measuring the actual amount of time it takes a provider to deliver services can be compared with the standards set forth in WISN to improve estimates of activity standards. However, time-motion studies also capture "real world" inadequacies. For example,

providers may not practice according to accepted standards if their health facility lacks sufficient staff, infrastructure or supplies. The WISN method assumes the time it takes for a trained, well-motivated health worker to perform an action to acceptable professional standards of practice. As more countries adopt the WISN method and expand their capacity to use this health service-based workforce planning tool, internationally accepted service activity standards may be set, helping to avoid over- and underestimates.

### Conclusion

The objective of this paper is to demonstrate the myriad ways that WISN estimates can be used to inform health workforce planning and help human resource managers rationalize staff deployment to contribute to achievement of UHC. The WISN tool is readily available and can be used by governments and private, non-profit and faith-based sectors to meet current and future HRH challenges. In today's rapidly changing global health environment – where new treatments are becoming available, new health concerns are emerging and widespread staff shortages continue to prevail – the WISN method is a valuable tool to guide policy and ensure best distribution and availability of health workers who are essential to achieving health and well-being for all.

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*Edited by Dr. Jennifer Zelmer, University of Victoria*

# Human Resources for Health: A Critical yet Challenging Pathway to Universal Health Coverage in Indonesia

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## **Abstract**

In 2014, Indonesia launched the much-awaited National Health Insurance (NHI) to provide universal health coverage to an estimated 250 million inhabitants by 2019, thus becoming one of the largest social health insurance globally. In the first year of implementation, NHI has exposed many issues that deserve urgent attention related to the complexity of the scheme as well as to pre-existing health system failures. This article focuses on the particularly challenging conditions of health human resources. It is argued that NHI magnifies chronic deficiencies in availability, performance and accountability of health workers and highlights the urgency of finally addressing them, if NHI is to deliver on the promises of accessibility, equity and improved health outcomes. Quality improvement efforts need to be intensified and current reforms need to be linked to NHI, so that the workforce can serve as the critical pathway to achieve universal health coverage.

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### One Year of National Health Insurance

Recently, Indonesia joined the ranks of lower- to middle-income countries aiming to provide universal health coverage (UHC) to enhance access to healthcare and reduce the risk of financial hardship. In 2014, after a decade delay, the much-awaited National Health Insurance or NHI (Jaminan Kesehatan Nasional or JKN) mandated by the 2004 National Social Security Law was finally rolled out. Managed as a single pooled fund by the Social Security Management Agency (BPJS), NHI aims to enrol 121.6 million Indonesians in the first year and achieve universal coverage of an estimated 250 million by 2019 (Simmonds and Holt 2013), thus becoming one of the largest social health insurance globally.

NHI integrates previous schemes for the poor, public employees and formal workers into a single pooled fund and makes participation compulsory. Fees for the poor and vulnerable, estimated at 86 million people, remain the responsibility of the State, while workers in the formal sector are to share the prescribed contribution of 5% of their wages with employers. Self-employed and workers in the informal sector are required to pay a monthly premium, which varies according to ward class (Sciortino 2014).

The Ministry of Health (MOH) sets guidelines for NHI and the provision of related health services through a mix of public and private providers. Government-owned health facilities are automatically included, while private physician practices and hospital facilities are contracted after meeting accreditation criteria. Payments are made through a combined system of capitation for basic primary healthcare facilities and INA-CBG (a modified Indonesian version of case-related groups or CRGs) service output payments for secondary and tertiary hospitals (Simmonds and Holt 2013; Mboi 2015). Currently, mainly curative services are financed, but there is pressure to include primary prevention packages such as immunization and diagnostic

screening for cancer, which are at the moment managed as separate MOH programs.

Public and policy support for the provision of UHC is widespread, and there is appreciation for its goal to enhance people's welfare, offer social protection and reduce health and socioeconomic inequities. Yet, among experts, concerns are rife about the complexity of implementing such a large insurance scheme and sustaining it over time. The first year of NHI has exposed many issues that deserve urgent attention. These include: an inadequate funding and reimbursement system; adverse participant selection and burden of chronic, expensive diseases; low level and limited collectability of monthly premiums; funding overlapping with project-oriented efforts by MOH and the National Family Planning Board (BKKBN); inefficiency and risk of corruption in disbursement and use of funding; and failure of health system infrastructure due to poor quality and unequal distribution of health facilities and a malfunctioning referral system (see also *The Economist* 2015).

This article focuses on the particularly challenging conditions of health human resources and their inadequacy to meet NHI expectations. Building on literature and direct experience,<sup>1</sup> it is argued that NHI magnifies chronic deficiencies in availability, performance and accountability of health workers and highlights the urgency of finally addressing them. If NHI is to deliver on the promises of accessibility, equity and improved health outcomes, greater attention is needed to strengthen the health workforce to enable it to fulfil its role as the "critical pathway to achieve UHC" (Jimba et al. 2010).

### High Demand on Limited Human Health Resources

In the past decade, health needs have been expanding in Indonesia, bolstered by a growing and aging population, with the proportion of elderly projected to sharply increase and peak by 2040. Health needs have also

become more diverse because of changing epidemiological conditions: while the profile of communicable diseases, under-nutrition and poor maternal and child health persists, the burden of non-communicable diseases such as cancer, diabetes and heart disease and accidents increases (Kosen et al. 2014).

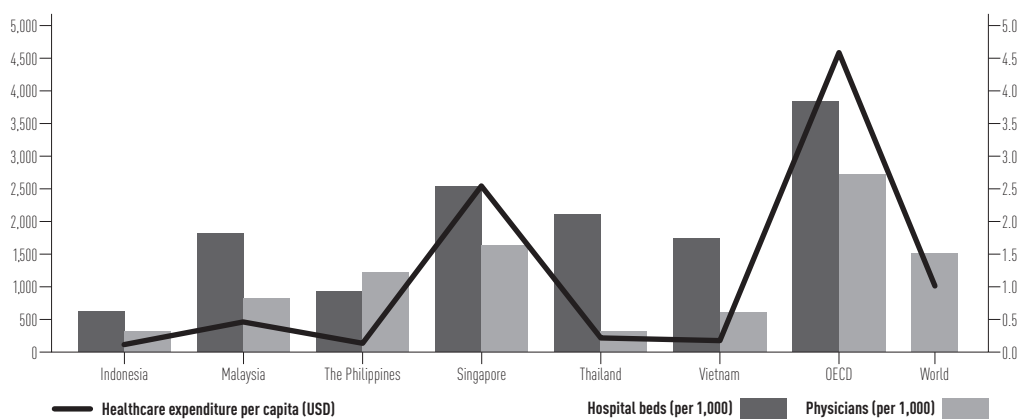
High and differentiated demand for health services followed, facilitated by increased incomes and the introduction of policies directed at reducing financial barriers for the poor. Outpatient and inpatient utilization rates have progressively risen, especially among the bottom 40% of the population. From 2004 to 2012, outpatient utilization rates<sup>2</sup> reached 12.9% for all income groups, up from 10.1% for the wealthier 60% of the population and 9% for the remaining 40%. Inpatient utilization rates<sup>3</sup> nearly doubled from 1% for the wealthier 60% and 0.6% for the bottom 40% in 2004 to 1.9% by 2012 for both socioeconomic segments (National Socio-Economic Survey data in Dorkin et al. 2014).

With the launch of NHI, further growth in demand and utilization of healthcare is expected, especially for the more costly in-patient services, also considering that before NHI, Indonesia reported low hospital bed occupancy and utilization rates compared

with other countries in Southeast Asia (Awofeso et al. 2013). The 2013 National Basic Health Survey (Riskesdas) projected an increase in inpatient utilization rate from 5.0% in 2015 to 9% in 2019 (Kosen et al. 2014). Observations from the first year of NHI appear to confirm this trend, and media have widely reported on the surge in demand and the strain it places on the health system and its workers. As noted in the Financial Times, “The number of patients visiting some hospitals has jumped by four times and many doctors and nurses are unhappy...” (Bland 2014).

The NHI-induced demand indeed imposes an additional burden on the already limited human resources for health. In spite of significant improvements in the ratio of health workers to population – which increased from 0.95/1,000 people in 2006 to a projected 2.63/1,000 by 2014 (BPPSDM in Meliala and Anderson 2014) because of growth in private health education institutes and accelerated education programs for midwives – Indonesia has a lower density of key health workers, especially physicians, when compared with other mid-income countries in the region and globally, reflecting the low expenditure on health and lack of infrastructures (Figure 1).

**Figure 1. Comparison of healthcare expenditure, infrastructure and physicians**



Source: Adapted from the Economist 2015: 15.

The shortfall is both at the primary health-care facility level (community health centre or *puskesmas*) and at the hospital level, and it hampers preventive and promotive activities as well as curative service provision (Meliala and Anderson 2014). A 2011 survey of community health facilities (Rifaskes Puskesmas) found that only 60% of health centres are served by a dentist, and that many other health competencies, including trained nutritionist, sanitarian, community empowerment specialist and health promotion specialist, were lacking in a greater number of *puskesmas* (Balitbangkes 2012).

With regards to physicians, in 2013, their total reached 88,000 or 0.33 physicians per 1,000 persons, below the 0.4 recommended by the World Health Organization (WHO). Imputed, this brings the estimated shortage to

12,371 physicians (Listyanti 2013). Specialists are scarcer, with only 42,000 covering the entire population, mainly because of the high cost and length of specialized education (Tjokro 2014). Of concern is that the numbers of graduating general practitioners and specialists have been declining since 2009 for reasons still poorly understood (Meliala and Anderson 2014).

More generally, the current and projected production capacity of educational facilities is unlikely to meet the growing health worker needs as forecasted by MOH for the period 2014-2019 based on the increase in life expectancy and population (Table 1), let alone to meet the yet-to-be-estimated health worker needs to enable NHI to scale up to full coverage of the population in the same timeframe.

**Table 1. Indonesia: health worker needs projections 2014 and 2019**

Type of HRH	2014		2019	
	Ratio per 100,000 population	Numbers	Ratio per 100,000 population	Numbers
Specialist	12.00	29,452	24.00	62,157
General practitioner	48.00	117,808	96.00	248,627
Dentist	11.00	26,998	11.00	28,489
Nurse	158.00	387,785	158.00	409,199
Midwife	75.00	184,075	75.00	194,240
Dental nurse	16.00	39,269	16.00	41,438
Pharmacist	12.00	29,452	24.00	62,157
Pharmacist assistant	24.00	58,904	48.00	124,314
Public health	12.00	29,452	24.00	62,157
Sanitarian	15.00	36,815	30.00	77,696
Nutritionist	24.00	58,904	48.00	124,314
Physiotherapist	6.00	14,726	12.00	31,078
Medical technician	9.00	22,089	18.00	46,618

Source: BPPSDM (Adapted from Meliala and Anderson 2014).

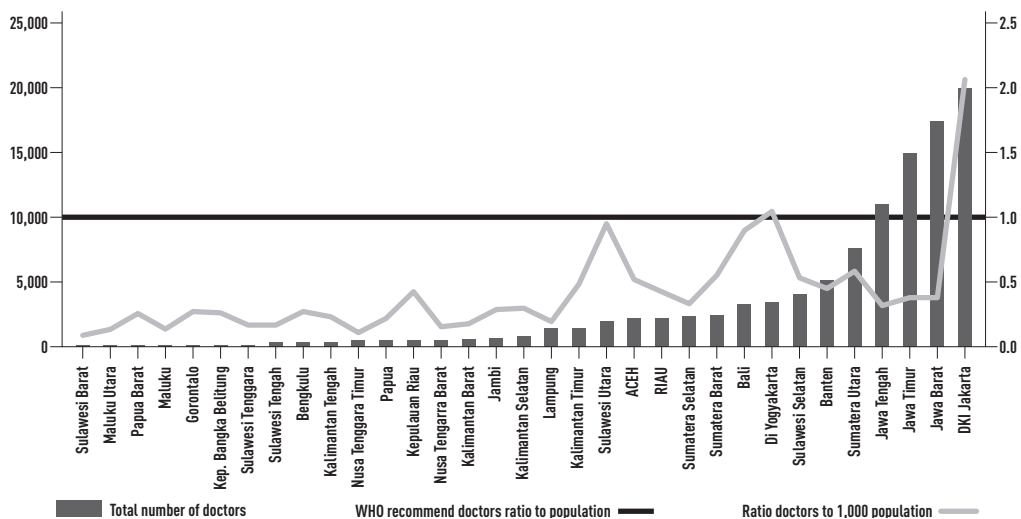
The impact of health worker shortage on the ability to deliver UHC and realize its goal of equitable access to essential health services across the country is exacerbated by the maldistribution of health human resources, especially physicians. The most populous and wealthy island of Java and tourist-attraction Bali are at the highest end with 45.08% of health workers, followed by Sumatra (27%), while the regions of Nusa Tenggara (3.9%) and Papua (2.44%) in socio-economically disadvantaged Eastern Indonesia are at the lowest end (Listyanti 2013).

Across Indonesia’s provinces, there are also significant gaps, which are only partially explained by population density. For physicians, only the capital DKI Jakarta and Yogyakarta meet recommended WHO standards, closely followed by Bali and North Sulawesi, while the other 29 provinces rank much lower (Figure 2; Meliala and Anderson 2014). Concentration, especially for specialists, is in urban areas due to preferred living conditions, higher incomes and greater opportunities of professional development. MOH data for March 2014 indicate that 938 *puskesmas* or 9.8% of all the community health centres were short of the required number of physicians or had none (Kemkes 2014).

Interventions currently underway to reduce inequities in the distribution of the health workforce, such as the placement of contract physicians and the assigning of health workers teams to remote areas under the “Nusantara Sehat” (Healthy Archipelago) program (Kemkes 2015a) are temporary and not harmonized with the NHI needs. Furthermore, facilities in disadvantaged areas with scarcer health human resources are at risk of being penalized by the NHI arrangements, as they lack infrastructure and personnel capacity to absorb the allocated NHI fee-based budget, as already observed in the Eastern Indonesia’s province of Nusa Tenggara Timur or NTT (Nappoe 2014).

At the facility level, the system of capitation for community health centres, which is based on the number and type of available health workers (Menkes 2014), translates into reduced budget allocations for under-resourced primary health facilities. Poorly staffed community health centres cannot claim the maximum capitation fee of approximately \$6 per person living in the coverage area (Koamesah 2014), although the minimum number of 155 diseases to be treated is the same. In the private sector, smaller facilities, most often present in rural

**Figure 2. Ratio and distribution of physicians per province in Indonesia**



Source: BPPSDM 2012 in Meliala and Anderson 2014.

and remote areas, have difficulty meeting the personnel requirements as part of the quality criteria set by the government for accreditation under the NHI scheme due to lack of health workers, especially the required physicians and specialists. The dilemma is then whether NHI requirements should be relented, as lobbied for by disadvantaged local governments and private sector providers, but if so, to what extent it would jeopardize already unremarkable quality of care?

### **Greater Access to Services, But of What Quality?**

Despite progress over time, the overall quality of health services remains low partly because of the providers. As noted by the 2014 Health Sector Review, their quality and performance require comprehensive “improvement from the production stage (accreditation of health personnel, schools, curriculum) to utilization (certification of health personnel, training) and competency examination” (AIPHSS 2014).

Health professional education is marked by inadequate pedagogic methods and curricula, scarce resources and limited opportunities for pre- and in-service training (Rokx et al. 2010; Meliala and Anderson 2014). Despite efforts by the Ministry of Education with support by the World Bank to improve the quality assurance system through the Health Professional Education Quality program (World Bank 2015), 52% of the schools lack accreditation and graduate certification by a nationally standardized competency testing remains a priority (Meliala and Anderson 2014).

Poorly trained health workers demonstrate limited knowledge and capacity in the field. In the latest 1997 Indonesia Family Life Survey, health workers’ responses to the diagnostic vignettes presented were only 50% correct, and it is generally assumed that improvements thereafter, if any, have been marginal (Rokx et al. 2010; Anderson et al. 2014). More recently, in 2010, it was found that the growth of village

midwives did not contribute significantly to reducing maternal mortality most probably because of limited competency and insufficient practical training (APAAHRH 2014). Accuracy of treatment practices has also been questioned: overuse of antibiotics marked by unnecessary prescription in 50-80% of hospitals (Sinar Harapan 2014), and high rates of Caesarian-section are two of the most striking examples. Common patients’ complaints include lack of courtesy, responsiveness, time and willingness to provide explanations (Billy 2010). Owing to limited numbers of health workers, and compounded by high rates of absenteeism, which reaches 40% among physicians, responsibilities are inappropriately delegated. A decade-long practice is for nurses to provide curative services in community health centres as well as in small private facilities and their own semi-formal practices, even if not sanctioned by law (Sciortino 1995; Rokx et al. 2009).

With all their gaps, health professional education and services are barely prepared for NHI. Health professional education devotes little time to NHI and the role of health personnel therein. A recent World Bank study reports that three-year medical school programs dedicated only 2–16 hours to NHI (Meliala and Anderson 2014). Examination and certification systems also do not test for needed knowledge of NHI and health provider responsibilities under the scheme.

At the facility level, socialization of NHI has been poor, with the result that both upcoming and current health workers, especially at the primary level, insufficiently understand NHI and its modalities and are hampered in properly fulfilling their role and providing information to the community (Ciputranews 2014). Many are weary of the changes and concerned about increasing work burdens due to intensified and more diverse demand, and are reluctant “to deliver optimal care services for [NHI] participants as they claimed they [are] being underpaid” (Faizal 2014). There is

opposition to the INA-CBG, notwithstanding regular revisions, and preference for the fee-for-service payment system even if the government does not support it. In the words of the former Health Minister Nafsiah Mboi:

We don't agree with the fee-for-service system. This will only allow unnecessary medication prescriptions. There should be changes in doctors' attitudes in delivering care services, improving the efficiency and effectiveness of treatment (Faizal 2014).

Health personnel's performance and attitudes are also of concern to NHI members who complain of more rushed examinations after longer waiting times. Issues of sub-standard care have also been raised, especially by patients who perceive that medical treatment and providers' responsiveness were better under their former public and private employees schemes now integrated under NHI. The persistence of a segmented system where not only ward types, but also the quality of treatment given varies according to fee streams has also been highlighted. Media report stories of patients experiencing delayed treatment or who have been rejected at times with tragic consequences. Unduly practices such as compelling patients to pay additional fees for standard drugs and tests and referring them to more expensive private facilities or higher types of public hospitals entitled to higher INA-CBG tariffs have also made it to the news (Kompas 2014; Kompasiana 2014), exposing conflicts of interest and corruption in a health system where multiple job holdings by health workers is entrenched.

### **Who's Interest?**

In Indonesia, it is common for physicians, midwives and nurses working in public facilities to have private practices and/or work in private hospitals to complement their public employee salaries. Recent studies estimate

that up to 70% of physicians and 93% of midwives engage in dual practice (Rokx et al. 2010; Rokx et al 2009), with proportion of private incomes ranging between 66 and 81% (Meliala et al. 2013).

Although the government positively views dual practice as a way to mobilize resources and retain qualified staff and the World Bank has stressed its contribution to broadening access in rural areas (Rokx et al. 2010; Hipgrave et al. 2013), concerns remain that it threatens the quality of health services. Already in the mid-1990s, a study of primary healthcare centres in Java reported that dual practitioners used public funding, drugs and goods for private purposes, with the public sector ending up subsidizing the private sector. The findings suggested that dual practice compromised the quality of public services, as health workers (especially physicians, nurses and midwives) encouraged patients to use their private practices and were absent from their public setting duties. Moreover, as they could not be present in all the facilities they supposedly served, their affiliations were merely a well-paid formality for facilities to comply with regulatory requirements, while positions were actually filled by less qualified staff (Sciortino 1995).

To improve the situation, licences by the Provincial or District Health Office were eventually required for each private practice, and the Medical Practice Act No 29/2004 has restricted the number of private practices per physician to two in addition to their position in the public sector for a total of three workplaces. However, enforcement is weak and job skirting and absenteeism remain widespread in pursuit of the greater incomes from non-government options. A recent study found that in a provincial city, some specialist physicians were still working in up to seven locations, only spending few hours per week in their public job (Meliala et al. 2013). Misappropriation of scarce public sector resources for private purposes also remains an

issue along with health workers' malpractice of offering lower-quality services in the public sector to incentivize use of owned or affiliated private options (Meliala and Anderson 2014).

If not tackled, the NHI has the potential to encourage such perverse practices. A recent report from the Corruption Eradication Commission of Indonesia warns about the opportunity for increased fraud, as the NHI, contrary to former schemes for the poor, permits patients from low socioeconomic classes whose premiums are paid by the government to be treated in private facilities with guarantee of payment. Entrusted by NHI with the key role of "gate-keepers" in the referral system, health workers in community health centres have more possibilities to refer to the practice or private facilities with which they are affiliated. As the capitation system offers health workers the autonomy to decide how to allocate funds, the "profit" is double, by concentrating *puskesmas* funding in advantageous posts and earning again through their private role (Hukum Online 2015). Even when referring to non-affiliated options, health personnel can also derive unofficial incomes. As a midwife recently noted in a class discussion held by one of the authors in Yogyakarta, she prefers to refer women to private facilities for delivery because she may receive a \$30 equivalent fee, while in public option settings, she would be compensated only equivalent to \$7.

The capitation system can be further abused by false claims to be present in a facility to take advantage of the point system that determines payment to the health workers, which is based on functional positions as well as absentee level. In hospitals, identified fraud opportunities for health personnel include submitting claims for medical interventions that have not been conducted; up-coding to indicate more complex, and thus more expensive, interventions than actually undertaken; and/or conducting more expensive treatment procedures than necessary (Fajriadinur 2015; Kemkes 2015b). These acts not only cause

financial damage to NHI, but also affect its credibility among the public and policymakers and thus compromise its future.

### Towards a Better Staffed NHI

The previous sections demonstrate that NHI is being introduced in a context where shortcomings in the availability, performance and accountability of the health workforce pose daunting challenges to its implementation and to the realization of improved health outcomes. At the same time, NHI exacerbates these conditions with increased and more diverse demand and with insufficient governance systems for the newly introduced funding mechanisms.

Yet, somehow paradoxically, NHI also brings the promise and an opportunity for the much-awaited improvements of the overall health system. The introduction and up-scaling of such a major reform increases the urgency of strengthening health infrastructures and personnel if NHI is to perform. Closer scrutiny by parliament, the media and the public and a more critical consumer base who feel entitled to quality healthcare because of the NHI premium that they pay or is paid for them will pressure the responsible agencies to devote greater attention to the persistent inadequacies of human resources for health that compromise accessibility, equity and quality of health services.

The government is aware of the need to focus on the health workforce and its performance indicators for 2019 are set to: increase the density of health workers and improve the ratio doctor/nurses in disadvantaged areas; strengthen team-based and compulsory deployment; conduct regular competency testing; and ensure minimum configurations for health personnel in hospitals and community health centres in compliance with the regulations. As Meliala and Anderson (2014) argue "UHC requires 100% coverage of these indicators by 2019," but it would be more realistic to operationalize them in feasible targets and resource the activities to achieve them.

Complementary measures to speed up production and placement of health workers may facilitate NHI implementation by addressing availability and mal-distribution concerns. Task shifting may also be considered, for example, by formally allowing and training nurses and midwives to conduct simple curative procedures if there is no physician available (Anderson et al. 2014) – something that, as said above, actually already happens, but in the shadow of the law and without the due preparation. Interventions that are context-specific also need to be developed for those areas that are geographically and/or culturally diverse and present poor health conditions. Although not discussed in this article owing to limited space, the role of district governments in ensuring quality healthcare provision ought to be central to innovations at the local level, as under the decentralization law, health services are their responsibility. Tensions between the centralized NHI system and the placing of health workers also need to be addressed. As outcomes will not be immediate, short-term NHI-specific interventions are needed to revise the capitation system to include geographical diversity considerations and reduce negative biases for health resource-poor settings.

Most importantly, greater policy attention is required to improve the skills, competency and performance of health workers. Quality improvement efforts ought to be intensified both for health professional education and for health service delivery. The various reforms underway on accreditation, licensing, competency testing and graduate certification need to be linked to NHI. For instance, facilities may only be accepted to operate under the NHI scheme if the staff are properly credentialed or licensed and show understanding of NHI procedures. NHI knowledge should be integrated in education curricula and become part of an expanded offer of pre-service and

in-service training for all cadres.

At the service level, the introduction of INA-CBG and well-defined clinical protocols may become important tools to foster quality healthcare by reducing unnecessary treatment and inefficiencies if properly enforced. Close monitoring by government and public auditing agencies and the Corruption Eradication Commission will also be key to limit excessive dual practice and to rein in conflicts of interest and corruption. Over the longer term, NHI can provide an occasion to reconsider the dual practice regulation, especially for urban areas in privileged regions where there is no shortage of health human resources.

This and other measures are only few examples of the concerted efforts required to address the chronic failures in planning, developing and managing adequate health human resources. In designing and implementing them, it will be key to ensure consistency with the UHC NHI system to enhance its efficiency and effectiveness. Indonesia has a “challenging pathway” ahead to improve its workforce, but one that has to be entered if UHC is to be attained.

## Notes

1. Sciortino was Senior Advisor with AusAID to design the Australia–Indonesia Health System Strengthening program in 2009–2010 and continues to provide advisory services to other bilateral projects in Indonesia, while Tjong is involved in a number of policy working groups, civil society organizations and health enterprises.

2. Proportion of the population reporting a need and utilization of outpatient care in the past 30 days.

3. Proportion of population utilizing inpatient care in the past 12 months.

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# Thai Health Promotion Foundation: Innovative Enabler for Health Promotion

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## Abstract

Thai Health Promotion Foundation (ThaiHealth), founded in 2001, is the first organization of its kind in Asia and serves as an innovative enabler to enhance health promotion and a healthy society and environment for all people in Thailand. This paper describes ThaiHealth's structure, accomplishments and lessons learned to help inform other settings in their national health promotion efforts.

Established under the Health Promotion Act, ThaiHealth's budget is obtained from surcharge excise taxes on tobacco and alcohol, a financial mechanism that facilitates a sustainable funding source for ThaiHealth to continuously support health

promotion programs. The Foundation provides its partners financial and technical support and ongoing monitoring and evaluation. ThaiHealth aims to facilitate sustainability by promoting structural change. Its tri-power strategy, knowledge creation, social mobilization and policy advocacy, is central to ThaiHealth's working scheme.

## Introduction

The concepts and principles of *health promotion*, initially discussed in 1984, have been developed throughout the years (World Health Organization 2009). The Ottawa Charter for Health Promotion (1986), one of the most significant milestones in health promotion, provided a paradigm shift in addressing public health issues by emphasizing the crucial role of non-health sectors and socio-ecological approach to public health (World Health Organization 2009). The significant impact of daily living conditions and the underlying structural drivers of health inequity are now well-recognized, and call for immediate actions (CSDH 2008). Addressing such social determinants of health could benefit from a multi-sectoral approach, a concept closely related to the Health in All Policies (HiAP) approach and the whole-of-government approach (Armstrong et al. 2006).

Health promotion is well-recognized for its high cost-effectiveness with contributions aimed at various health issues, including both communicable diseases and non-communicable diseases (NCDs), injuries and others (Bayarsaikhan and Muiser 2007). The cost of implementing "best buys" interventions to address the risk factors associated with NCDs in low- and middle-income countries (LMICs), which align with a health promotion approach, was estimated at only US\$170 billion, a miniscule amount compared with the estimated US\$7 trillion owing to economic loss from 2011 to 2025 if NCDs are left unattended (Bloom et al. 2011).

The current situation of health inequity in low-income countries further highlights the need for health promotion. These settings

have not made health prevention and promotion a priority or made the needed resource investments. In recent decades, however, efforts to establish sustainable systems for health promotion are evident in some countries (Vathesatogkit et al. 2013).

Health promotion also plays a crucial role in universal health coverage (UHC) policy. As UHC has become the top objective on the global health agenda (Averill 2013), it will continue to raise governments' expenditures on health services. Sustainable health promotion programs can help reduce government's financial burden of healthcare (Vathesatogkit et al. 2013), and allow for UHC to be financially feasible (Coe and de Beyer 2014).

## Thai Health Promotion Foundation

Established by the Health Promotion Foundation Act (2001), Thai Health Promotion Foundation (ThaiHealth) is an autonomous government agency outside the bureaucratic system of the Ministry of Public Health (Health Promotion Foundation Act B.E. 2544 2001). It acts as an innovative enabler, whose mission is "to inspire, motivate, coordinate, and empower individuals and organizations in all sectors for the enhancement of health promotive capability as well as healthy society and environment" (Thai Health Promotion Foundation 2011).

ThaiHealth is administered by two governing bodies: the Board of Governance and the Evaluation Board. The Board of Governance oversees ThaiHealth's governance and operations, policy development, budget allocation and regulation enactment. It is chaired by the Prime Minister, with the Minister of Public Health and independent experts as the first and second vice-chairman,

respectively. The board's members consist of representatives from nine ministries, independent experts from eight different fields and seven consultative committees. The role of the Evaluation Board, which consists of seven independent experts appointed by the Cabinet according to recommendation from the Minister of Finance, is to evaluate the overall performance of ThaiHealth's policies, activities and operations, as well as to assess and resolve conflicts of interest identified by the Board of Governance.

Currently, there are 15 master plans that ThaiHealth has endorsed as its strategic plans for health promotion (Box 1). All ThaiHealth's plans are proactively and strategically executed through its partners, except for the *Health Promotion Innovation and Open Grant Plan*, which functions as a channel for engaging the public in health promotion.

ThaiHealth's annual revenue, currently about US\$120 million, is derived from the additional 2% of excise taxes on tobacco and alcohol products. This financial model, which could not have been established had ThaiHealth been set up within the bureaucratic system, provides a regular and sustainable budget for ThaiHealth. The surcharge excise taxes serve as powerful tools

for controlling tobacco and alcohol consumptions, two of the biggest risk factors for NCDs. Although the funding may appear to be large in some contexts, it is minuscule when compared with the financial expenses of other state agencies in Thailand's health system. For example, ThaiHealth's annual budget is approximately 5% of the Ministry of Public Health's annual expense (Bureau of the Budget 2015), and only 0.73% of the total national health expense (The International Health Policy Program [IHPP] 2012).

As ThaiHealth aims to promote social impact and improve the quality of life among the people in Thailand, the most effective way it can use its resources is in the role of an innovative enabler, or a catalyst, rather than an implementer. Given the large number of actors, ThaiHealth has potential to promote considerably more impact as a catalyst than in the role of an additional ubiquitous reagent.

The role of innovative enabler places ThaiHealth in a very unique position. Most importantly, ThaiHealth works as an overseer that aims to understand the entire scope of key public health issues. It seeks to identify what needs to be done by analyzing gaps and leverage points to be acted upon and coordinates various cross-sector stakeholders,

#### Box 1. ThaiHealth: 15-Item Master Plan

1. Tobacco control plan	
2. Alcohol and substance abuse control plan	
3. Road Safety and Disaster management plan	
4. Health risk control plan	<b>Issue-based approach</b>
5. Physical activity promotional plan	
6. Healthy food promotion plan	
7. Healthy media system and spiritual health pathway promotion plan	
8. Health promotion plan for vulnerable populations	
9. Health child, youth and family promotion plan	
10. Healthy community strengthening plan	<b>Area/Settings-based approach</b>
11. Health promotion in organizations plan	
12. Health promotion in health service system plan	
13. Health promotion innovation and open grant plan	
14. Health promotion mechanism development plan	<b>System-based approach</b>
15. Health literacy promotion plan	

working to break down barriers that would otherwise impede synergistic collaboration. It works with various partners, including government agencies, private organizations and civil society organizations. In addition, despite being perceived by many solely as a funding agency, ThaiHealth supports its partners, the actual implementers, by providing various resources, both financially and technically.

### **ThaiHealth's 10-Year Goals: Identifying Core Businesses**

As changes in the public's health, especially those related to chronic diseases, typically take time to exhibit significant change, it is rational to establish long-term goals and evaluation mechanisms. Approved by the Board of Governance in 2011, ThaiHealth established 10-year goals (2012–2021) for long-term evaluation.

The long-term goals also serve to shape ThaiHealth's core businesses, and help to maximize the efficient use of its limited resources. Besides the general goals to increase the life expectancy of the population and good health, ThaiHealth has identified 10 specific strategic goals for its 10 core operation areas: tobacco consumption, alcohol consumption, sexual health, food and nutrition, physical activities, child obesity, road safety, mental health, family relationships and local community strength. These 10 goals guide ThaiHealth's three-year master plans and annual execution plans ensuring that ThaiHealth's operations and funding are strategically focused without becoming merely a collection of scattered good projects.

### **Shared Goals and Strategies: Creating Collective Impacts**

In view of ThaiHealth's role as a catalyst, the standards for each goal are set upon the agreement among related strategic partners who are the actual implementers. As in the case of tobacco consumption control, the National Strategic Plan for Tobacco Control

(NSPTC) was developed by cross-sector strategic partners, including Ministry of Public Health, Tobacco Control Research and Knowledge Management Center, Southeast Asia Tobacco Control Alliance, National Health Security Office and the Action on Smoking and Health Foundation Thailand. The NSPTC was then approved by The National Committee for Control of Tobacco Use, and consequently approved by the Cabinet as the national strategic plan. The second and current NSPTC (2015–2019) identified six tobacco control strategies: (i) enhance Thailand's capacity on tobacco control, (ii) prevent new smokers, (iii) assist quitting, (iv) control and reveal ingredients in tobacco products, (v) facilitate smoke-free environment and (vi) levy tax to control tobacco consumption.

Despite the complex process of building area-specific collaborations, shared goals and strategies help facilitate the key mechanisms for working on issues of interest, create a platform for collaboration and encourage contribution from each partner.

### **Gap Analysis: Formulating ThaiHealth's Strategic Plan**

To identify its program objectives, ThaiHealth analyzes the public health gaps, and assesses the current environment and situation. For tobacco consumption, despite the decrease in overall smoking prevalence, the age of smoking initiation has been decreasing (National Statistical Office 2012), and the smoking prevalence remains high in rural areas, especially in the south and southeastern regions (Pitayarangsarit et al. 2014). In response, ThaiHealth's Tobacco Control Plan identified strategies to address tobacco consumption among the rural population, and to prevent initiation of smoking, especially among adolescents. And, as the prevalence of secondhand smoke exposure has increased, especially in public spaces such as bus stops, markets and restaurants, ThaiHealth's tobacco control plan includes

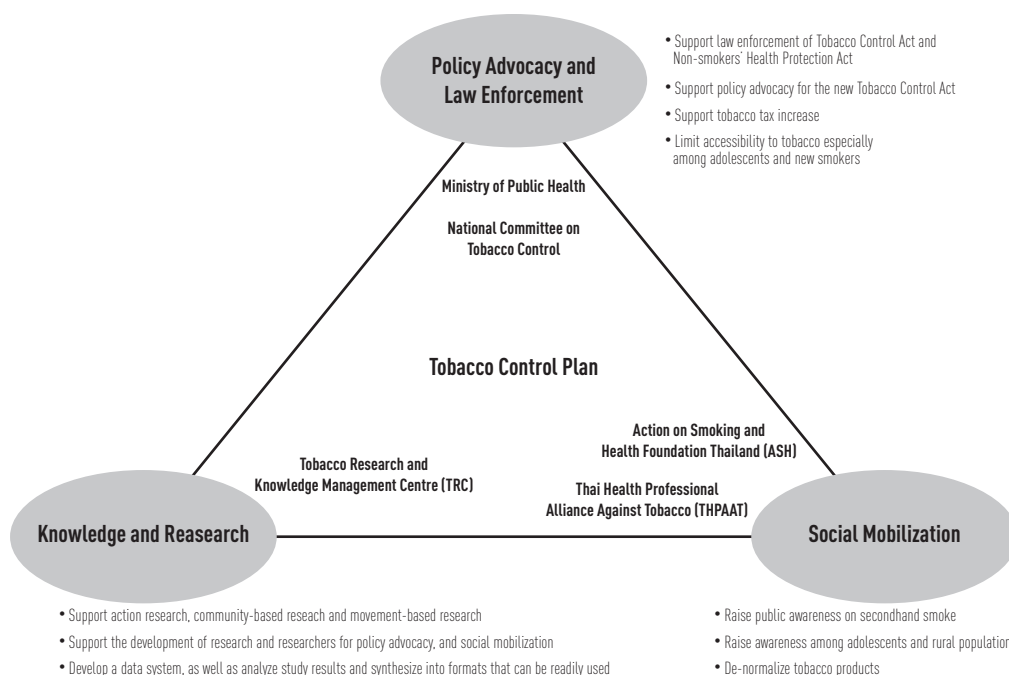
the support of campaigns and law enforcement according to the Non-smokers' Health Protection Act, B.E. 2535 (1992), to reduce population's exposure to secondhand smoke.

Central to how ThaiHealth works is the tri-power strategy model (Wasi 2000), also known as "Triangle that moves the mountain," that provides a crucial conceptual framework for developing strategies for each of ThaiHealth's plans. The model includes (i) creation of knowledge and evidence through research, (ii) social mobilization and (iii) policy advocacy. These three interconnected points need to be aligned to bring about social change. Valid and relevant *knowledge* created through research and studies helps inform policymakers and assists them to make more informed decisions. It also serves as a powerful tool to educate the public, leading to stronger *social mobilization* that also influences the policymakers' decisions. Finally, *policy advocacy*, strengthened by the two other parts of the triad, can lead to policy change when a window of opportunity

opens. Such structural change can help facilitate new social and physical environments to promote healthier lifestyles in sustainable fashion. ThaiHealth's strategies on tobacco control were formulated with this strategic model, with various cross-sector partners (Figure 1).

Considering the significant impact of social determinants of health on public health, ThaiHealth's multi-sectoral approach is at the core of its working scheme. It works with partners, both individuals and organizations, not only from the health sector, but also with other sectors, including government agencies, private organizations, civil society organizations, universities and local communities. Since its initiation in 2001, ThaiHealth has collaborated with more than 15,000 partners. Its multi-sectoral approach, which is also reflected in the backgrounds of various members of the Board of Governance, is consistent with the HiAP approach (Sihto et al. 2006), and has proven to be necessary highly effective (Dora and Racioppi 2003;

**Figure 1. ThaiHealth's tobacco control plan**



Jousilahti 2006; Martuzzi 2006) in dealing with most, if not all, public health issues, with increasing expectation of its application for public health issues (Elinder et al. 2006; Hämäläinen and Lindström 2006; Tigerstedt et al. 2006).

### Monitoring and Evaluation

ThaiHealth's performance is monitored and evaluated at three levels: (i) plan and program, (ii) master plan and (iii) organizational. The monitoring and evaluation process is conducted by the Monitoring and Evaluation Unit. The results are mandated to be reported to the Evaluation Board. On the organizational level, the Evaluation Board conducts annual evaluations. The Evaluation Board prepares and submits a report to the Cabinet and both Houses of Representatives, as required by the Health Promotion Act.

Besides the evaluation of ThaiHealth's performance based on key performance indicators as described above, evaluations of other aspects, such as good governance and social return on investment, are also conducted to provide a holistic view.

Long-termed evaluation of ThaiHealth is performed by external agencies once every five years. Experts from both domestic and international agencies, including the World Bank Group, World Health Organization and Rockefeller Foundation, conducted the most recent 10-year evaluation in 2012.

### Achievements: Outcomes and Social Impacts

In a decade plus, ThaiHealth has made numerous achievements in addressing public health issues in Thailand. However, considering ThaiHealth's role as a catalytic and innovative enabler, these achievements cannot be attributed solely to ThaiHealth, but are to be recognized as collective contributions by its partners and collaborating organizations (Aduyanon 2012).

Among the achievements of Thailand's health promotion is the decrease in smoking prevalence from 25.47% (2001) to 19.94% (2013), the first time that smoking prevalence fell below 20% (National Statistical Office 2013). One of the most significant interventions that contributed to the downtrend is the increase in tobacco excise tax from 75% in 2001 to 87% in 2012. Since 2013, pictorial warnings are also required to cover at least 85% of both sides of cigarette packets. Other measures on tobacco control include anti-smoking media campaigns, ban on point of sale display and expansion of smoke-free zones.

The average pure alcohol consumption among adults decreased by 13% between 2006 and 2011 (Thamarangsi et al. 2013). The decrease in consumption is largely attributed to the enactment of the Alcoholic Beverage Control Act in 2008, the first comprehensive alcohol control law in Thailand. Another example of alcohol control measures is the *Alcohol-free Buddhist Lent Period Program* (a period between July and October), during which the number of road accidents caused by drunk driving also decreased by 20.7% from an average of 554 cases per month in 2002 to 440 cases per month from 2003 to 2008 (Thamarangsi 2010). The program, now well-received by the public, is an innovative health promotion program initiated by ThaiHealth and its partners, the Ministry of Interior, Ministry of Public Health, National Office of Buddhism, StopDrink Network and Chulabhorn Research Institute.

A 2012 study on the social return on ThaiHealth's investment conducted by experts from Chulalongkorn University and Thailand Development Research Institute reports that ThaiHealth's investment on health promotion provides high return to the public (Hanvoravongchai et al. 2014). Among the seven areas of ThaiHealth's investment evaluated in the study, the investment on road safety was shown to yield highest return at 130.2 baht for each baht invested.

### International Landscape: Networks of Health Promotion Foundations

Increased globalization has generated complex public health challenges that call for stronger international networks and collaborations to promote health. Working beyond its borders, ThaiHealth supports the development of health promotion mechanisms in other countries. It is sharing its experiences internationally and in support of the development of health promotion mechanisms in other countries. It provides technical support to countries that are interested in initiating a Health Promotion Foundation (HPF), or equivalent organizations. So far, ThaiHealth supported the establishment of HPFs in Malaysia, South Korea, Mongolia and Tonga, and Tobacco Control Funds in Vietnam and Lao PDR. ThaiHealth has also joined the International Network of Health Promotion Foundations (INHPF). Established in 1999, the INHPF serves as platform for collaboration for existing HPFs to further reinforce their performance in health promotion, and to aid formation and development of new HPFs. Currently, the INHPF consists of eight HPFs from seven countries: Australia, Austria, Malaysia, South Korea, Taiwan, Thailand and Tonga.

### Lessons Learned

ThaiHealth's role as an innovative enabler and not just a mere granting agency has been key to its success to date. Early in its work, ThaiHealth initiated a number of good projects, but they were rather scattered. As an example, before the Healthy Media System and Spiritual Health Pathway Promotion Plan was formed, ThaiHealth supported numerous children's media production projects. However, these projects were disorganized and separate from one another. In addition, most productions from the projects could not find an appropriate broadcast channel to disseminate their productions. In response, ThaiHealth began the practice of bringing together stakeholders to formulate a

strategic plan. From these efforts, the Healthy Media System and Spiritual Health Pathway Promotion Plan was produced and a number of media re-organizations were spawned, including the establishment of the Thai Public Broadcasting Service (Thai PBS), which is Thailand's first public broadcasting service. Efforts also helped foster the enactment of the Safe and Creative Media Development Fund Act, B.E. 2558 (2015).

Looking back on 14 years of ThaiHealth's operation, four main features of ThaiHealth have contributed to its achievements: (i) sustainable financial mechanism, (ii) strategic multi-sectoral approach, (iii) cutting-edge innovations and (iv) proficiency in policy advocacy and social marketing.

ThaiHealth's secure financial mechanism is fundamental to its achievements. Conventionally, health promotion is given a low priority with insufficient and irregular budget, which is also prone to be diverted for other proposes, especially in LMICs (Vathesatogkit et al. 2013). ThaiHealth's financial model, 2% surcharge excise taxes on tobacco and alcohol products, establishes financial sustainability for the foundation. It not only secures and protects funding from diversion for health promotion, but also serves as a health-promoting tool itself. The model is rooted in the polluters pay principle, which demands responsibility from the tobacco and alcohol industries for population health damages (Atapattu n.d.). And as the revenue is derived from *surcharge* excise tax, it is assured that no amount will be deducted from the Ministry of Finance's excise tax revenue, which helps reduce political conflicts during the time of its initiation.

ThaiHealth works strategically with a multi-sectoral approach that allows it to optimize resource allocation, regarding both issues (what needs to be done) and potential partners (who should do it), to address health promotion needs. This was made possible because of its autonomous status, which frees it from the rigid and complex structures of a

bureaucratic system and allows it to work seamlessly with various cross-sector partners. However, it is crucial to emphasize that ThaiHealth does not merely work with different partners, but rather strategically identifies gaps and potential partners, as described throughout this paper. Bringing different stakeholders together to agree on a common goal is a tough task. It is important to conduct stakeholder analyses thoroughly and identify mutual benefits for all stakeholders to attract them to participate. It is also important to carefully identify roles for each stakeholder, considering both what they should be doing and what they are keen to do. Essentially, the tri-power model serves as a critical tool for ThaiHealth when crafting its strategies to bring about structural change, often a key to sustainability.

Based on evidence and new knowledge along with thorough monitoring and evaluation, ThaiHealth consistently seeks innovative new ways to promote health. One of its most prominent health promotion innovations is the *Alcohol-free Buddhist Lent Period Program* described above. The program creates an opportunity to reduce or stop drinking while enhancing awareness on inverse effects of alcohol at the same time. Despite specific cultural context, the religious logic used for the program is considered socially preferable by the public and minimized resistance from the alcohol industry (Thamarangsi 2008).

ThaiHealth is well-known for its proficiency in policy advocacy and influential social marketing campaigns. It not only conduct directs advocacy, but also utilizes its networks of partners as channels for advocating health promotion policies. Furthermore, social marketing campaigns are proactively used for this purpose. ThaiHealth's marketing campaigns are primary tools for policy advocacy raising awareness and behaviour change. The Foundation realizes that awareness, in the absence of a conducive environment, may not promote behaviour change (Galbally et al. 2012).

### Limitations

The limitation of this case study of ThaiHealth is the specific context of Thailand as its inherent social, cultural, economic and political structures, which limit generalizability. Despite the contextual specificity, we believe that the experiences of ThaiHealth can be beneficial to other countries that are embarking on health promotion initiatives by drawing from ThaiHealth's experiences and lessons learned and incorporating them to their country context.

Despite 14 years of experience, ThaiHealth considers itself still on a learning curve. Public health phenomena are dynamic with new issues constantly emerging, and ThaiHealth needs to be poised to adapt its strategies to new challenges.

Finally, as the authors are part of ThaiHealth, a certain degree of bias is inherent. However, the lessons presented could not be presented as such by external researchers who have limited understanding of the complexity of ThaiHealth's work.

### The Way Forward

Despite the accomplishments ThaiHealth and its partners have achieved over the past 14 years, rapidly and ever-changing lifestyles and environments challenge us to continue to work together to improve the health and well-being of the public. For the next phase, to achieve the 10-year goals, the Board of Governance identified five key directions that ThaiHealth shall pursue:

1. Integrate health promotion programs across different ThaiHealth's master plans to promote health equity, with effective monitoring and evaluation.
2. Involve more beneficiaries by engaging new partners, and promoting health awareness and literacy among the general population.
3. Establish sustainability by facilitating mechanisms, promoting health culture, building capacity of partners

and networks and expanding ThaiHealth's work in the international landscape.

4. Encourage innovations among all health promotion programs to cope with emerging trends and situations and establish more systematic processes for innovation development.
5. Strengthen individuals' capacity as well as prepare the social environment and systems for an aging society.

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# Findings from a Survey of an Uncategorized Cadre of Clinicians in 46 Countries – Increasing Access to Medical Care with a Focus on Regional Needs Since the 17th Century

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### Abstract

With the United Nations Development Programme (UNDP) Post-2015 Development Agenda upon us, it is increasingly important to address the worldwide deficit of human resources for health. Ironically, there is a unique subset of regionally trained healthcare providers that has existed for centuries, functioning often as an “invisible” workforce. These practitioners have been trained in an accelerated medical model and serve their communities in over 46 countries worldwide. For the purpose of this paper, “medical model” is defined as the evidence-based and scientific manner of training and practice that defines physicians globally.

Inconsistent nomenclature, however, has resulted in these workers practicing as a virtually unidentified and disjointed cadre on the margins of health policy planning. We use the term Accelerated Medically Trained Clinician (AMTC) here as a categorical designation to encompass these professionals who have been referred to by various titles.

We conducted an exploratory, systematic review for AMTCs in over 70 countries to assess if there is such a cadre, the name or title of their cadre, period of and curricula of training and existence of credentialing. This paper reports our findings and aims to serve as a springboard for future, in-depth studies on how we can better categorize and utilize these clinicians.

### Introduction

The escalating global crisis of the health workforce shortage is alarming. The Global Health Workforce Alliance (GHWA) estimates that by 2035, the global shortage of healthcare providers will be well over 12.9 million (Global Health Workforce Alliance Strategy 2013-2016 2012). Current estimates indicate that over one billion people do not have access to healthcare providers today (Crisp and Chen 2014). The paucity of appropriately trained healthcare providers worldwide limits access to fit-for-purpose healthcare. Maldistribution and migration of skilled healthcare workers, as well as limited-skills training, also contribute to the current health workforce deficit. The International Labour Organization (2015) recently published *Global Evidence on*

*Inequities in Rural Health Protection: New Data on Rural Deficits in Health Coverage for 174 Countries*, noting that the “fundamental rights to health and social protection remains largely unfulfilled for rural populations.” It goes on to note, “while 56% of the global rural population lacks health coverage, only 22% of urban populations are not covered.” They estimate that “23% of the world’s health workforce are sent to rural areas, while more than 50% of the population live there.” One of the most significant inferences of this paper is a worldwide call for additional fit-for-purpose health workers to meet this basic fundamental right (Scheil-Adlung 2015). The importance of a more harmonized system for data collection of human resources for health was also a key point.

**Figure 1. Global distribution of AMTCs as reported in this study**

Dots denote country of confirmed AMTC

To promote quality-driven, efficient health-care, we must make best use of existing assets. Limited resources necessitate a collaborative approach and a clearer understanding of the roles and scope of practice of clinicians. For decades, Accelerated Medically Trained Clinicians (AMTCs) have existed worldwide under various titles: physician assistant, clinical officer, medical assistant, associate clinician, health assistant, medex, community health officer, feldshers and so on, depending on where they practice. These professionals are trained in a medical model framework, typically focused on diagnostic, therapeutic and preventive care in a condensed time frame of study that is regionally specific, flexible and cost-effective. Accelerated and regionally specific trained clinicians are responsive to their host health system, which makes them invaluable to the community they serve.

AMTCs are trained to perform various functions traditionally under the purview of physicians, but their training is shorter in duration. It stresses medical science and clinical decision-making with a focus on patient history, physical examination, diagnosis and treatment. In many countries, the focus of education has been on primary care, as this is where they often practice as the only providers. Their education often includes public health, epidemiology and medical practice management. In some countries, the

training focus narrows rapidly during their clinical training to the specialty area of practice. For example in India, they have become vital team members in subspecialty surgery, where they can be seen in surgical roles as first assist as well as coordinators in areas such as transplant. In some African countries, career ladders have been developed to provide services closer to the rural population needs, and AMTCs are further trained in emergency obstetric care, surgery, ophthalmology and psychiatry. They are trained to work within teams to maximize team member roles and increase access to care. While their scope of practice has broadened globally, they share a common training in the medical model.

Designating a categorical title for a cadre of clinicians, one must consider what already exists. The categories “physician” and “nurse” are globally recognized, and yet, can vary widely in training, scope and title. Table 1 displays examples of physician and nurse training and titles in several countries. Yet, despite the variation in training and titles, physicians and nurses are categorically linked and recognized by the public and policy-makers, allowing their clinical capacity to be considered within health systems planning.

AMTCs are unique in that they have historical and cultural identities in the countries they serve. Many have originated independently out of need, yet are remarkably similar

in the services they are trained to provide. In the majority of African countries, they are the front-line clinician and the link between rural and the next level of care. Often referred to as “non-physician clinicians” or “mid-level workers” (Dovlo 2004; Cobb et al. 2015;

Lehman 2008; Global Health Workforce Alliance 2013; McKimm et al. 2013; Mullan and Frehywot 2007), there is much uncertainty surrounding the training, scope and global representation of this cadre of health workers. In some instances, these terms

**Table 1. Examples of physician and nurse training and titles**

Country	Education	Degree/title awarded
<b>Global examples of training/titles for cadre = physician</b>		
New Zealand	6-year undergraduate	MBBS=Bachelor of Medicine, Bachelor of Surgery
	2-year rotations	House Officer/House Surgeon/Intern FY1/FY2/PGY1/PGY2/RMO/junior doctor
	3+-year training program	Registrar/Resident/Registrar Medical Officer
	Specialist or consultant	Specialist Medical Officer/Specialist/Consultant Medical Officer/MOSS/Staff Grade/Board Eligible
US***	Post 4-year undergraduate degree 4 years medical school	Medical Doctor – MD
	Residency/fellowship: 3–8+ years	Medical Doctor – MD
	Doctor of Osteopathy – DO/Chiropractic Doctor – DC all recognized as “doctor”	
India	5.5 years undergraduate	MBBS=Bachelor of Medicine, Bachelor of Surgery
	3 years post grad	Doctor of Medicine – MD General practice
	2–3 years post MD	Doctor of Medicine – DM Super specialty
	3 years post grad	Master of Surgery – MS Surgery
	2-3 years post MS	Magister Chirurgiae – MCh Super specialty surgery
	Allopathy, Homoeopathy, Siddha, Naturopathy and Unani all recognized as “doctor”	
<b>Global examples of training/titles for cadre = nurse</b>		
USA	1 year program vocational/technical school/ community colleges	Licensed Practical Nurse: LPN* Licensed Vocational Nurse: LVN*
	2 years	Associate Degree Nursing: ADN
	Assoc + 2 years or 4 years	Bachelor of Science in Nursing: BSN
	BSN + 2 years**	Master of Science in Nursing: MSN
	Variable 2-4+ years  DNP 2 years post MSN 3-4 years post BSN PhD 3-7 years post MSN or other MS degree	Advanced Practice Nurses: nurse-midwives, nurse anaesthetists, clinical nurse specialist Also Doctoral: DNP DP – focus on evidence-based practice [EBP] research, stress physical assessment skills Typically sought as terminal degree for APNs PhD – research and nursing science-based education Considered more academic, scholarly with strong research methods training, preferred faculty prep

Table 1. continued

Country	Education	Degree/title awarded
India India Nursing Council	Training in College of Nursing Graduate 12th class + 2 years	Multi Purpose Health Worker Female training (ANM or MPHWF)
	Graduate 10th class + 1.5 years	Female Health Supervisor training (HV or MPHS-F)
	Graduate 12th class 3.5 years = 2 years practice/1 year community health nursing and midwifery/6 month administration or 6 months research	General nursing and midwifery (GNM)
	4 years	Bachelor of Nursing Course – B.Sc Nursing
	Regular: GNM + 2 years Distance: GNM +3 years	Bachelor of Nursing Course (post certificate) Regular B.Sc (post basic) Distance B.Sc (post basic)
	BSc + 1 year exp/ BSc + nursing post certificate	Master of Nursing MScN Nursing Medical Surgical Nursing, ob/gyn nursing, pediatric nursing, mental health nursing, community health nursing
	Full time 1 year with thesis	Master of Philosophy Program in Nursing -MPhil
	3 years	Doctorate of Philosophy in Nursing – PhD in Nursing
Ghana	Graduate 12th class + 3 years	RN (diploma)
	Graduate 12th class + 4 years	RN (bachelor's degree)
	Graduate 12 class + 3 years	Registered Psychiatric Nursing (RPN)
	Graduate 12th class + 2 years	Community Health Nurse (CHN)
	Graduate 12th class + 3 years	Registered Midwife
	RN +3 years working experience +1.5 years	Post Basic Diploma: critical care, operating room, ophthalmic nursing, ENT nursing, psychiatric
	RN + 2 years	Post Basic University Diploma: nursing education, nursing management
	RN + 1st degree/diploma + 2 year sandwich course	Master's degree in: education, management
	RN + 2 years	Registered Psychiatry Nurse – RPN
	Graduate 12th class +RN + 2 years	Registered Midwife – RM (post RN)
	Graduate 12th class +2 years CHN training + 2 years	Registered Midwife (post enrolled CHN)

\*LPN /LVN are non-professionals with limited scope of practice and brief training

\*\*US select BSN programs offer accelerated BSN to PhD program

\*\*\*US growing number of medical students earn a master's in Public Health or PhD as part of their medical education

combine nursing professionals and AMTCs. This increases ambiguity; leads to fragmentation, underutilization and inadvertent omission of an already existing core of skilled medical personnel, in the human resources for health “count”; as well as calls for increased numbers of fit-for-purpose clinicians.

AMTCs have been termed “agents of change,” as they often were introduced, and in many regions organically developed, as a health workforce to serve in the most rural and impoverished areas. Historically, AMTCs can

be appreciated as early as the 17th century, when Peter the Great introduced them into the Russian armies to provide primary care to rural areas (Zdravoohranenija et al. 1974). Today, they continue to be recruited for training from areas of need in the hope that they will return to serve their home communities. Regionally specific training and titles often prevent AMTCs from migrating across borders, where a neighbouring country lacking in resources could utilize their skills. There have been no international recognition

or educational standards developed for these clinicians, unlike physicians and nurses, so the exodus from developing to developed countries does not apply to this cadre.

The WHO (2008) reports that the literature on outcome studies on mid-level health workers is sparse. While Mullan and Frehywot (2007) and Dovlo (2004) studied the use of the non-physician clinician, their research was limited to Africa and included nurse-based clinicians. McKimm et al. (2013) explored the “expanded and extended healthcare workforce” in the Pacific region, separating out the non-nurse and nurse mid-level practitioners. They agreed that the “one size fits all” approach for these clinicians is *not* appropriate and that regional and community diversity will necessitate unique approaches. The distinctions between professional Advanced Practice Nurses (APNs) and AMTCs are their distinct practice frameworks and education and training. APNs are educated and trained within a nursing science framework. Nursing science views patients as unique individuals, in constant interaction with their environment. This “systems approach” views disease and illness as deviations from health. Nursing interventions aim to promote and return patients to a maximum state of health. Nurses use a holistic approach in their practice, as they assess, plan, intervene and evaluate their patients’ needs and responses to care disease and illness. APN curricula prepare nurses for more independent practice and include physical assessment, pharmacology and care management, typically for a specialty practice such family health, mental health or paediatrics. AMTCs are trained in a model based on physician training. In the United States, they are the only other profession, other than physicians (MD and DO), licensed to “practice medicine.” While there is lack of standardization of curricula for these clinicians, flexibility often facilitates training responsive to regionally specific needs (Lehman 2008), while compounding the lack of consistent categorization of these practitioners.

This study inventoried the global distribution of AMTCs across 46 countries and describes the various regional titles, when the profession was established, the duration of training, scope of practice and the governing regulatory body by region. The research attempts to identify and unite an existing clinical workforce and categorizes them to enable them to be distinguished and fully utilized within the healthcare team and health systems.

### Methods

This descriptive, exploratory study systematically reviewed the education, training, scope of practice and credentialing of a group of front-line clinicians workforce that has not been consistently designated. We conducted a literature review using the following databases: *Pubmed*, *Medline* and *Google Scholar*. Keyword search terms included assorted AMTC nomenclature: “non-physician clinician,” “midlevel clinician,” “health workforce,” “physician assistant,” “clinical officer,” “medical assistant,” “health assistant,” “clinical associate,” “feldsher,” “human resources for health (HRH) strategy,” “auxiliary health worker” and “medex”. Source inclusion criteria encompassed publications in peer-reviewed journals, country reports by the World Health Organization and World Bank and other country reports from well-known international professional bodies. Literature within a maximum time frame of 10 years from (2005 to 2015) was included, except when researching the history of a specific assembly of workers, in which case the time frame was extended. We included only published works written in English. The literature search revealed matches of various AMTC analogues in over 45 countries.

We accessed contacts in the 46 countries, primarily through government health professionals and websites, country-specific health professional associations and websites and the professional networking service LinkedIn®. The contacts included AMTCs who served as clinicians, educators and AMTC organization

representatives. Regional and national policy makers also provided assistance. Data were collected through communication by email or phone and queried for: (1) title of the profession, (2) year it was established, (3) education and training, (4) scope of practice, (5) regulation and (6) number of AMTC professional cohorts in each respective country. One researcher verified the accuracy of the data collected.

We used a snowball sampling technique to continue gathering information about AMTCs by country and region. We used this technique, as it was difficult to locate subjects who practice in remote rural areas. Researchers asked subjects whether they would be willing to recommend other potential contacts. They were informed that they had the right to decline to provide this information.

In the event that an in-country contact was not identified or available, the researchers gathered data from resources such as WHO or local government reports on health professionals. For two countries, researchers uncovered a health workforce that was previously operational, but now defunct. WHO in-country offices and the country's Ministry of Health confirmed these findings.

We cleaned the data using a three-step process involving repeated cycles of screening, assessing and editing data with suspected abnormalities. In the screen step, data were evaluated for lack/excess of data and inconsistencies. In the assessment step, data were evaluated for errors as well as true extremes or norms. In the final editing step, data were corrected, deleted or left unchanged. Data were then assembled by query question: (1) title of the profession, (2) year profession was established, (3) education and training, (4) scope of practice, (5) regulation and (6) number of AMTC professional cohorts in each respective country to allow comparison of the AMTCs across countries that were surveyed.

## Findings

**Africa** (See Table A at [longwoods.com/content/24296](http://longwoods.com/content/24296))

Africa has 20 AMTC-type providers. The titles vary widely on this continent and include health officer, medical assistant, clinical officer, physician assistant, community health officer, community healthcare officer, clinical associate, associate clinician and medical licentiate. The earliest noted AMTCs in Africa are Malawi's Medical Assistants, established in the 1890s (Muula 2009). Next, the Ugandan medical assistant was introduced in 1918 and the Kenyan Clinical Officer was introduced in 1928 by the British colonial government to provide health services in remote and less developed rural areas (Clinical Officer Council, website 2015).

Overall, AMTC training in African countries is a minimum of three years, with some countries, such as Kenya, Malawi, Tanzania and Zambia, having formal paths for more advanced training that include surgery (emergency obstetric), ophthalmology and psychiatry. Gabon's Assistant Medicals are trained in neighbouring countries such as Togo and return to practice in their communities in Gabon. There is a varied range of degree- as well as non-degree-granting educational processes; however, all are focused on the allopathic medical model of education in both public and private AMTC training institutions.

Generally, the scope of practice for African AMTCs is primary care, with the majority of AMTCs working in rural areas or with marginalized populations in community health centres. In larger cities, AMTCs can be found working in secondary and tertiary care centres providing specialized care in more progressive settings. In many African countries, AMTCs are not only responsible for providing primary care for entire villages but they are also responsible for organizing and

These findings (tables A through D) are included in this PDF, directly after the article.

managing the resources necessary to oversee their local community health structure. Regulation of AMTCs, although varied, was existent in all African countries surveyed.

**Asia** (See Table B at [longwoods.com/content/24296](http://longwoods.com/content/24296))

Asia has over 13 AMTC-type providers. Titles of the AMTC in Asia include the feldsher, *baga emch*, physician assistant, medical assistant, sub-assistant community medical officer and health assistant. The earliest known AMTCs began in the USSR in 1600s as apprentice physicians or physician assistants (Farmer et al. 2003). The feldsher training schools were established in the 1870s (Farmer et al. 2003). Russia, Armenia, Kazakhstan, Kyrgyzstan, Mongolia and Uzbekistan have continued to utilize feldshers/*baga emchs* since the fall of the USSR (Kulzhanov and Healy 1999.; Hakobyan et al. 2006; Roberts et al. 2011; World Health Organization and Ministry of Health Kyrgyzstan 2005; World Health Organization and Ministry of Health Mongolia 2012; World Health Organization and Ministry of Health Uzbekistan 2007). Training ranges from two to four years, with some training programs awarding degrees upon completion. The scope of practice in Afghanistan, Bangladesh, Nepal, Russia, Armenia, Kazakhstan, Kyrgyzstan, Mongolia and Uzbekistan is most often providing primary care in rural communities. India's AMTCs were established secondary to the brain drain of Indian cardiothoracic physicians over 20 years ago, and have largely served in specialty care since then. There is a resurgence of primary care focus for the Indian AMTCs currently (Abraham et al 2014). Of the Asian countries surveyed, AMTCs have regulatory oversight, except in Afghanistan, India and in the Kingdom of Saudi Arabia, where it is pending.

**Europe/North America/South America**

(See Table C at [longwoods.com/content/24296](http://longwoods.com/content/24296))

Europe has over four AMTC types working in Germany, The Netherlands, Ukraine and the United Kingdom, recently including in Scotland. In North America, both the United States and Canada employ AMTCs. Although programs vary, most offer two to three years of postgraduate training and award master's degrees. Most functioning AMTCs in Europe, Canada and South America work in the primary care capacity, with the exception of The Netherlands, where AMTCs function in the surgical capacity. All have oversight bodies.

Most recently, the UK's Faculty of Physician Associates at the Royal College of Physicians assumed this function (July 2015).

The United States has over 100,000 physician assistants practicing in all areas of medicine. In the United States, the AMTC profession was developed when highly skilled medics returned from war in Vietnam to civilian life. The medics, with relatively little training, were positioned to provide effective and efficient much-needed primary care.

In South America, Guyana has AMTCs called *medex*, who, with governmental oversight, serve the primary care needs of the country (Goede 2014). While there are mentions of "community health technicians" in Colombia, Mexico and Peru (Yokwe Online 2011), the authors were unable to confirm the current practice, training, scope or regulation of such practitioners.

**Oceania** (See Table D at [longwoods.com/content/24296](http://longwoods.com/content/24296))

Oceania has at least six AMTC types that have been identified. The AMTCs provide primary care in the remote regions and outlying islands (Lane 2008). Their titles include physician assistants, physician associates, health extension officers, health assistants, health officers and *medex* (Keni 2006; Lassi et al. 2013; Lehman 2008; World Health

Organization Western Pacific Region 2001). Training in the medical model varies from 18 months to 4 years. Owing to limited resources, some AMTC students are trained in neighbouring countries before returning to their home country to work. The University of Hawaii was training AMTCs in the medex model for Chuuk, Kiribati, Pohnpei and the Marshall Islands (Lassi et al. 2013). Regulation of Australia's AMTCs is pending, while Fiji is currently utilizing nurse practitioners after phasing out the use of medical assistants in 1984. The AMTCs in New Zealand, Papua New Guinea and Marshall Islands have processes in place for regulation. The literature surveyed was limited and often more than 10 years old at the time of this publication. Countries that were unable to be verified were not included in the tables.

### Discussion

It is critical to account for and understand the variations across cadres of the health workforce. Effective and regionally fitting health systems planning requires a clear understanding of the workforce in terms of stock, skill-mix and distribution. While the roles of physicians, nurses, midwives, pharmacists and dentists are clearly defined by entities such as the Global Health Workforce Statistics database (WHO), International Labour Organization and the International Standard Classification of Occupations, they often vary in training, regional titles and scope of practice. Cadres trained in an accelerated medical model that encompass the AMTC category have historically been either excluded or placed in categories that do not adequately represent their training and skills. Many of them have served on the margins of the health sector and their contributions to healthcare delivery continue to be largely overlooked. As countries strive to strengthen and reconstruct their health systems, it is critical to include AMTCs as vital members of the global health workforce. They are a

flexible workforce that can rapidly and cost-effectively be morphed based on the health system's needs that they are part of. They work within teams and are culturally engaged within the countries they serve.

For centuries, the AMTC workforce has provided primary care services to rural and marginalized populations (Cobb et al. 2015; Crisp and Chen; 2014; Dovlo 2004; Global Health Workforce Alliance 2013; Lehman 2008; Mullan and Frehywot 2007). In 1978, the International Conference of Primary Health Care and the WHO issued the Declaration of Alma-Ata, expressing the need for "all governments and the world community to protect and promote the health of all the people of the world" (Global Health Workforce Alliance 2013; Lehman 2008; Health Bulletin 2013.) The Third Global Forum on Human Resources for Health (2013) was the largest attended convening to date focused on HRH. Dr. Etienne (WHO Regional Director, Americas) highlighted that "One of the challenges for achieving universal health coverage is ensuring that everyone – especially people in vulnerable communities and remote areas – has access to well-trained, culturally-sensitive and competent health staff... The best strategy for achieving this is by strengthening multidisciplinary teams at the primary health care level... Training of health professionals must be aligned with the health needs of the country."

Overall, AMTCs are valued in high- to low-income countries alike – from the 2,000 medical licentiates who serve in Zambia (doctor to population ratio 0.1/1,000) to the 100,000 physician assistants who serve in the United States (doctor to population ratio 2.5/1,000) (World Bank 2015). Their places in health systems are in line with the Declaration of Alma-Ata and The Third Global Forum on HRH.

While the midlevel workforce has been broadly documented in Africa (Dovlo 2004; Lehman 2008; Mullan and Frehywot 2007), and more recently in the Pacific region

(McKimm et al. 2013), comparing titles, education, scope of practice and regulation produces discordant findings. By identifying and clarifying this “invisible” global workforce, governments, policymakers and communities can begin to unite and mobilize these healthcare providers to meet the current health worker crisis. Broad and non-descriptive nomenclature such as “non-physician clinician” or “mid-level” has also contributed to the obscure classification of AMTCs (Lassi et al. 2013; Lehman 2008). The ambiguity of this profession is further compounded because of variations in training, degrees procured, scope of practice and the presence (or absence) of a regulatory body. This overview sought to differentiate and define the AMTC with the initiation of a census.

The training outlined in Tables A through D (at [longwoods.com/content/24296](http://longwoods.com/content/24296)) provides basic information on topical focus within AMTC training. They include basic diagnosis, treatment and prescriptive ability. The majority of programs offer post-secondary education, ranging from 18 months to 4 years. Those programs that offered training in less than two years generally drew from an existing pool of clinically experienced nurses. Of note, African AMTCs have been vocational pioneers, offering progressive training in emergency obstetric care, ophthalmology, psychiatry and dermatology to individuals seeking career advancement. However, as Lehman (2008) and Mullan and Frehywot (2007) note, fragmentation in training necessitates standardization of international AMTC core competencies to further unite and advance these health professionals. Similar work is ongoing, yet much advanced, within the nursing and physician professions (Royal College of Physicians and Surgeons Canada 2015; World Health Organization 2009).

Understandably, ever-changing political climates and lack of infrastructure sometimes

necessitate that AMTCs receive training from nearby countries. This non-nationally-based training can not only leave a void in regulatory processes, but can lead to a lack of support for the AMTC, as he/she returns to home communities to meet a critical healthcare need. Gabon is facing such challenges, as their Assistant Medical Officers are trained in Togo. In Fiji (Keni 2006; World Health Organization Western Pacific Region 2001), the profession was not maintainable and ended nine years after its establishment.

Regulation and management of AMTCs vary widely. In some countries, the Ministry of Health guides both training and practice oversight. In others, it is the Ministry of Education that is engaged in the clinician’s didactic training, but provides no regulation for practicing AMTCs. Some countries have non-governmental professional bodies involved in training and practice supervision. Ghana began regulation of its AMTCs (physician assistants) through the Medical and Dental Council 40 years after the AMTCs were established and were providing primary care services to populations in rural communities (Adjase and Cobb 2014; Cobb et al. 2009). Countries like India and Sierra Leone are seeking authoritative medical supervision after the AMTCs have been a part of the workforce for more than five years.

Physician involvement and oversight of the AMTC is variable and merits further exploration. In some countries (United States, Canada, The Netherlands and South Africa, for example), AMTCs function under the supervision of a physician. Globally (particularly in the rural areas where AMTCs serve), direct physician supervision may not always be feasible owing to the shortage of physicians, geographical location and resources available in the clinical setting.

In the post-2015 era, integrating AMTCs into health systems will provide a vital addition, in building a health workforce to meet current and future population needs.

### Study Limitations

There were many challenges collecting data for this study. The peer-reviewed literature and websites that provide information on ATMC training and regulation are sparse. There is a general paucity of published information for many of these professions, particularly in resource-poor countries. Published information utilized for this study was not always available from primary sources, but instead came from external sources such as WHO country documents, non-governmental organization aid agency reports and foreign journal articles. There is simply not enough published primary source information regarding this cadre of health professionals within respective countries.

Verification of existing AMTCs reported in literature was challenging, as the information was often outdated. Accurately identifying comparable AMTCs was difficult owing to the numerous country-specific titles given to this workforce. Inconsistent designations could suggest a gross under-representation of actual personnel available. There were several limitations to the snowball sampling technique. First, the researchers had to rely on the recommendations from their existing contacts. Therefore, representativeness of this cadre of healthcare workers was not guaranteed. Next, there was a concern for sampling bias. As the researchers' contacts tended to nominate people they knew well, it was possible that the nominees obtained only a small subgroup of the existing cadre.

The challenges of desk research are numerous, especially in terms of validity and timeliness. Primary in-country data collection would allow for a broader informational structure. Primary research and data gathering would allow for greater understanding of the skills and contribution of AMTCs as healthcare providers and their capacity to positively impact and improve national health indicators.

### Recommendations: The Way Forward

The GHWA "Global Key Messages" (January

2014) forecasts a global deficit of 12.9 million health workers by 2035 using an arbitrary threshold of 34.5 skilled health professionals per 10,000 population. Their proposed solutions are critical when considering the AMTC workforce.

- "Health begins with health workers" – the support and empowerment of *all* health workers is essential.
- Assembly of a health workforce is a priority.
- "The role of the *mid-level* and community health workers should be maximized in order to make frontline health services more accessible and acceptable in support of Universal Health Coverage (UHC) plan."
- Improved HRH databases are critical and will aid in the planning and improvement the workforce.

The GHWA Board (February 2015) statement on the post-2015 health workforce agenda stresses that "substantive and strategic investments in HRH are needed in order to ensure the right to universal access to safe and quality healthcare, a life of dignity for all, and to attain the health, education, employment, equity, gender and wider development targets under consideration in the Sustainable Development Goals (SDGs)." AMTCs are ideally suited to contribute to the post-2015 agenda, expansion of universal health coverage and equity. They function as members of an interprofessional, multi-cadre team, and are rapidly and medically trained and regionally specific with skills and competencies that can contribute to improving population health while they bridge the socio-cultural dynamics of the local healthcare systems.

Identifying and clarifying the various roles within the health workforce is key to moving forward to meet the challenge posed by the Declaration of the Alma-Ata. Engaging WHO's Department of Human Resources for Health or GHWA to request member

countries to participate in comprehensive human resources for health studies could dramatically assist in broadening the global understanding of available resources. This could be particularly important to reinforce the post-2015 agenda of the WHO, and the United Nations Sustainable Development Goals, which will serve all countries. As we seek to improve and strengthen current health systems, we are reminded of countries like Liberia who, during the Ebola crisis, suffered unimaginable losses, as 150 Liberian physicians struggled to give adequate care to a population of 4.3 million. Sadly, there was little mention of the over 1,000 Liberian AMTCs who served and continue to serve in the most remote parts of their country.

This research not only inaugurates a current census of global AMTC categories of health workers, but also aims to propose an official designation for AMTCs as the “encompassing” classification for this professional workforce. While the “Accelerated Medically Trained Clinician” terminology is primarily descriptive of the training process, it considers the regional titles these professionals have

held for years, while acknowledging core similarities. Future work needs to establish regulatory parameters for education, training and competencies. A categorical designation can enable conversations with stakeholders around these aims and facilitate policymakers, stakeholders and national officials to fully utilize AMTCs as vital members of regionally specific healthcare teams, especially when exploring existing resources for health and health systems planning.

The Future Considerations table (Table 2) provides examples of the various stages and processes for sample regions with AMTCs. Regional, national and global organizations should bring forward best practices, lessons learned and work as advocates. As this process occurs, the ability to track and collect data in a thoughtful manner that encompasses each of the variables listed in Table 2 and assess the economic and health impacts realized by scaling up of this cadre will help guide future regulatory policy.

The post-2015 agenda calls for a paradigm shift to increase access to care, with a focus on primary care that is patient-centred and

**Table 2. Future considerations**

Pre-training	Education	Scope	Regulation
Student, faculty recruitment from areas of need – to return to area	Global/ regional competencies	Regionally specific, driven by health system they are in	Accreditation and standardized of regional curricula
Public awareness of the AMTC so applicants understand profession	Regional accreditation of educational programs	Adequate support (experts, physicians) available	Regulation of practice, regionally/nationally
Development of bridge-type programs to enable success in formal training program for students from rural, marginalized populations	Social determinants of health and primary care at core of training to enable this workforce to be versatile in where they work	In-service training opportunities  Access to continuing medical and professional education	Formal organizations at regional, national and global levels
	Team-based training with interdisciplinary learners, faculty and practitioners	Career ladder options	Advocacy at policy levels for health teams with integration of social determinants of health
	Community-engaged transformational experiences throughout training		
	Consider degree levels of training globally		
Scholarly activities led by the AMTC cadre	Scholarly activities led by the AMTC cadre	Scholarly activities led by the AMTC cadre	Scholarly activities led by the AMTC cadre

personal. Care across the life span with attention to the social determinants of health starting with health teams at the very most rural community level will not only empower the communities, but will enable them to be more productive. This will ultimately increase their socioeconomic status, opportunities for their children and development of a less divided society.

Indeed, AMTCs have broad impact and provide proven quality healthcare with global and regional variation. They are well-aligned and must be included in the post-2015 global health workforce agenda. It is vital that this essential cadre within the health team is summoned from the fringes of the health sector, categorized and fully utilized. To achieve universal health coverage and be part of the solution to the current health workforce crisis and the development of future health systems, it is time for AMTCs to rise and be regarded.

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# Findings from a Survey of an Uncategorized Cadre of Clinicians in 46 Countries – Increasing Access to Medical Care with a Focus on Regional Needs Since the 17th Century

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**TABLE A. African Accelerated Medically Trained Clinicians**

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Angola	Clinical Officer	– secondary school – Education– 3 yrs. (Emigration of Drs 71% based on early 2000 data)	Medicine minor surgery obstetrics (no CS) Work in rural and urban areas	Information not available	Info not available on # CO in Angola MD ratio .011/10,000 Population: 19 million
Burkina Faso	Clinical Officer – 1942 Also : – attaché's desanté' Medical assistant – Attaché de santé' en chirurgie – 1965	Secondary school – 3 years  Medical officers can upgrade to CO's with 6 month curriculum in emergency medicine	Medicine, minor surgery – General practitioners – Emergency obstetrics at district hospital – Can deal with obstructive labor – C sections – Work in urban and rural areas	Organization – the Association Health Attaché in surgery	1241 Clinical Officers as of March 2015  MD ratio .0047/10,000 Population: 18 million
Cabo Verde	Health Officer per literature review– per WHO and MOH in Cabo Verde these do not exist – no other info available				MD ratio 2010 .3/1,000 Population: 538,535
Ethiopia	Health Officer 1954  discontinued in 1974  started again 2004	4 years  According to Health Sector Development Program: accelerated program of Health Officer training (generic and upgrading) began in 2005.	95% practice in primary Health care unit (District HC) both in rural and urban  Manage health center & district health offices	Directorate of Health Facilities and Professionals Licensing under Health and Health Related Services and Products Regulation Agency	Health Officers 2008 > 900 had graduated 3,168 were under training– per WHO Health Sector Development program MD ratio 2009 .025 /1000 Population: 96 mil

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Gabon	Assistant Medical Officer 1995	Clinicians trained in Togo—no training institution in Gabon	Primary Care— rural and urban health centers — first level of health system	Ministry of Health	14 Assistant Medical April 2015  MD ratio 2004 0.29/1,000 Population: 1.67 million
Ghana	Medical Assistant  1969	Direct entry: 4 years Post RN 3 yrs: 18 months training Bachelors: 4 years  7 training programs	Primary Care: rural/under-served areas 80– 120 patients/day  Specialty training in psychiatry, dermatology post graduate	Ghana Medical and Dental Council regulatory body Physician Assistant (PA) umbrella of PA– Medical =Medical Assistant PA Dental =Community Oral Health Officer PA– Anesthesia= Nurse Anesthetist	2,500 in service 72% PA– Medical  MD ratio 2010 .1/1,000 Population: 25.7 million
Guinea– Bissau	Clinical Officer  Unclear on year of profession establishment	Secondary school finishers 3 years pre– service/ 1 year internship	Medicine – rural and urban areas	Information not available on regulation	Information not available on # CO in Guinea– Bissau MD ratio 0.07/1,000 (2009)  Population: 1.7 million (2014)
Kenya	Clinical Officer 1928  Originally: hospital assistants, clinical assistants, medical assistants	2 levels: *3 yr. diploma in clinical medicine and surgery, *4 yr. bachelor of clinical medicine and community health.  mandatory 1– 1.5 years internship  – 18 Diploma 6 BSc Clinical Medicine	Primary Care, pediatrics, reproductive health (c–sections), ophthalmology, orthopedics	The training, registration, and licensing is regulated by the Clinical Officers Council  Registered licensed as independent practitioners.	Over 15, 000 have been registered by Clinical Officer Council  MD ratio 2011 .2/1,000  Population: 45 million
Liberia	Physician Assistant  1960's	Apply post high school. 3 years didactic and clinical training  3 programs – but all on hold because of ebola epidemic	Primary care	Ministry of Health and Social Welfare	Liberian MD : 50– 150 total PA= 1,000 approx  Population: 4 million
Malawi	Medical assistant  1890's	Medical Assistant: 2 years formal  Medical assistants can upgrade to CO's after completing a 2 year bridging course  18– month training program in orthopedic, ophthalmology or anesthesia CO programs.	Primary Care	MOH administrative control only	MA 1,262  MD ratio 2009 .019/1,000  Population: 17 million

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
	Clinical Officer 1979	CO – 3 year training—post MA extensive surgical focus	surgical skills— hernia repair, abdominal surgeries and cesarean sections  tertiary and district hospitals.	MOH administrative control only	2011– 2016 Malawi Health Sector strategic plan CO 2,726
Mozambique	Tecnicos de Medicina (Clinical Officers) 1975  Tecnicos de Cirurgia 1984	TM: prior RN, MW  TC: 3– 2.5 years of pre– service, 1– 1.5 year internship	TM: Primary care Rural and Urban care  TC: Rural hospitals Surgery/obstetric/ trauma care (are the backbone of emergency surgical care – 90% 57	Ministry of Health Mozambique regulates health workers	Information not available on # TM, TC in Mozambique MD ratio 2008 0.03/1,000  Population: 25 million (2015)
Mauritius	Community Health Care Officer	Secondary school finishers 3 years pre– service/ 1 year internship	Rural clinical care/ obstetrics but no c– sections	Information not available on regulation	Information not available on # CHCO in Mauritius MD ratio 2010 .1/1,000 Population: 1.3 million
Rwanda	Physician Assistant 1996	4 years Bachelor of Science in Clinical Medicine and Community health	Primary Care & Manage health centers	Rwanda Allied Health Professional Council and the Ministry of Health.	176 Physician Assistants December 2014  MD ratio 2010 .1/1,000 Population: 12 million
Senegal	Health Officer  Unclear on year established – the National School of Social and Health Development started in 1992 to consolidate schools, paramedical and social to better interate and coordinate these professionals	National School of Social and Health Development attached to the MOH. State diploma Training in 18 Sections through 3 depts: Dept of Basic Studies in Health Sciences Dept of Special Studies in Health Sciences Dept of Studies in Social Science	Primary care – rural and urban centers and district hospitals	Director of Human Resources within the Ministry of Health and Social Action oversees regulation	953 March 2015 HRH MOH Senegal  MD ratio 2010 .1/1,000  Population: 13.6 million
Sierra Leone	Community Health Officer: 1980  Originally Medical Assistant	3 years plan to upgrade to Bachelor of Science (BSc)	Primary Care as well as management of Community Health Centers Surgical and mental health CHO being piloted	Draft CHO licensing act for CHOs recently submitted to Parliament for approval  All CHOs appointed into Primary Health Units under Ministry of Health and Sanitation.	500 CHOs MD ratio 2010 0.02/1,000 Population 2015 5.7 million

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
	Clinical Officer	4 years Bachelor of Clinical Medicine  – shorter courses for those w' diploma of nursing/ Community Health Sciences	At District Hospital : provide in– patient and surgical care vs. primary health	Pending further information from MOH	Training curriculum and facility developed – pending matriculation of first class. Currently roll– out on hold as Makeni facility converted into an Ebola Holding Unit as part of national Ebola response plan.
South Africa	Clinical Associate  2008	3 years with a BCMP earned  3 programs	Primarily in district health centers, scope of practice under the delegation of the physician	Medical and Dental Board of the Health Professions Council of SA registers qualified graduates	2015: 516 CA  MD ratio 2013 .8/1,000 Population: 48 million
Republic of Southern Sudan	Clinical Officer 1998  Govt helps recruit students from rural areas	3 years internship after the program	Primary care perform minor surgical procedures  99% end up working in rural health centers	COs are regulated by the MOH, Republic of South Sudan.	Clinical Officers – – 475 December 2014  MD ratio – not available = 189 total in– country MOH Strategic Plan 2011– 2015  Population: 11.5 million
Tanzania	Clinical officer (CO)  Associate Medical Officer (AMO) 1960's	CO– 3 year training preparing clinicians to work in rural areas  Assistant Medical Officer –CO + 2 years advanced training in curative and preventative medicine	AMO usually found in district hospitals, health centers, training institutions and PHC programs.	Tanganyika Medical council under the Medical Practitioners and Dentists Ordinance of 1968 Cap 409.	940 medical officers, 1400 assistant medical officers, 6900 clinical officers 2004  MD ratio 2006 0.01/1,000  Population 2014: 49.6 million
Togo	Medical Assistant 1972  Togo Ministry of Health has requested specialization as seen in scope column	3 year training – post secondary education	Rural health centers; urban health centers and hospitals – initially all primary care – now with specialties: – Surgical assistant – Radiology Assistant – Hygiene and Environmental Health Assistant – Ophthalmology assistant – Laboratory assistant	Association des Assistants Medicaux du Togo	1390 Medical Assistants in December 2014  MD ratio 2010 .1/1,000 Population: 7 million

TABLE A. African Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Uganda	Clinical Officer  Started after World War 1 as Medical Assistant – 1918  In 1996, name changed to Clinical Officer	3 yr. post secondary education.  – Graduate with a diploma in clinical medicine and community health.	Primary healthcare Specialty Psychiatry and Ophthalmology	Allied Health Professionals Council and Ministry of Education	Total enrollment per year 2,100  MD ratio 2010 .1/1,000 Population: 35.9 million
Zambia	Associate Clinician 1936  Medical Licentiate 1989	Assoc. Clinician: 3– 4 yrs post secondary  Med. Licentiate: 3 yrs post AC or 4 post secondary  1 public, 7 private training programs	Associate Clinician: rural areas Primary Care  Medical Licentiate: 90% rural areas Level 1 referral district hospitals Medical care Pediatric care Surgery Comp. Obstetric Emergency Care Specialized Clinical Officers provide: Anesthesia Ophthalmology Dermatology/venereology Psychiatry	Health Professions Council of Zambia registers and regulates their practice	2,000 in service 300 graduates/year currently  MD ratio 2010 .1/1,000  Population: 14.6 million

MD ratio: World Bank Country ///Population : The World Factbook (CIA) – est July 2014

TABLE B. Asian Accelerated Medically Trained Clinicians

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Afghanistan	Physician Assistant 2012	24 months of training at Kabul National Military Hospital.	To work under the supervision of a physician	Pending	145 students (5 females) MD .234/1,000  Population: 31 million
Bangladesh	Medical Assistant 1979  Renamed: Sub-Assistant Community Medical Officer 2015	Medical Assistant Training Schools (MATS) – 3 year training didactic & clinical  8 MATS– government run 134 MATS private sector	Rural health centers; union health and family welfare centers	Bangladesh Medical and Dental Council	Annual production capacity 9,241 (2013)  MD ratio 2011 .4/1,000  Population: 166 million
India	Physician Assistant 1992	3– 4 yr bachelor training 2– 3 yr post graduate training  10 University programs in conjunction with 47 institutes	Originally cardiology/ cardiac surgery as of 2004 general medicine & other specialty focus.	Indian Assoc. of Cardiothoracic Surgeons to conduct certifying exam for physician assistants working in area  Discussion of development of Allied Health Council by the Indian government	1,300 (2012 info)  MD ratio 2012 0.7/1,000  Population: 1.2 billion
Israel	2015/2016	In development	In development	Israeli Ministry of Health	MD ratio 2011 3.3/1,00 Population: 7.8 million
Nepal	Health Assistants  1970's	Completion of secondary school prior to admission  3 year training program – certificate in General Medicine  post graduation can sit for Bachelor in Public Health  > 20 programs in Nepal	Primary care focus	Council for Technical Education and Vocational Training – approves/ oversees pre– service curriculum  Licensure through the Health Professional Council of Nepal	April 2015 = 15,000  MD ratio 2011 .21/1,000  Population: 30.9 million
Mongolia	Baga Emch / Feldsher 1931 – shortened training  1934 – 3 yr curriculum developed	Post secondary – 3 year program Medical diploma earned  2013 last class graduated of Baga Emch – training has stopped – will continue practice until all retired	Rural primary care/ health education / antenatal/ prenatal care–providing care from their own tents for the rural nomadic population. They have prescriptive rights Also at Soum (district) level	Ministry of Education, Culture and Sciences – education oversight  Health Law of Mongolia – licensing every 5 years	1,100 – 1,200 currently practicing  MD ratio: 27.3/10,000 (2010)  Population: 2.9 million (July 2014)

TABLE B. Asian Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Myanmar	1953 Health Assistants  Condensed Health Assistant  Bachelor of Community Health	CHA (Condensed Health Assistant) Certificate Course – One year Three modules within (9) months Bedside training at hospitals for (2) months Field training and research for (1) month Bachelor of Community Health 4 year training course including 3 month clinical training at hospitals and 2 month research and field activities	Primary care / Pre– Referral treatment at rural health centers.  They are not allowed to practice in general practice in private clinics	Department of Health, Ministry of Health oversees/ regulates clinical practice. Township Health Department also oversees work.  Department of Medical Science and University of Community Health, Magway – oversight of curriculum.	Government posts HA – 1,800 HA Grade 1 – 365 THA (Township Health Assistant) – 96  INGOs and Myanmar Health Assistant Association – 250  MD ratio 2012 .6/1,000 Population: 55 million
Russia  Post USSR: Armenia Kazakhstan Kyrgystan Uzbekistan	1600's Physician Assistant/ Apprentice Physician 1870's Feldshers	3– 4 year training schools 'middle grade medical personnel'  1974 – 500 schools training over 130,000 Feldshers (non specialized)	Feldshers– generalists Feldshers mid– wives Feldshers in industrial work Feldshers seagoing/river going vessels Feldshers in emergency services Feldsher– sanitarian Feldsher – child/adolescent care	Ministry of Health/ Ministry of Higher and Special Secondary Education	Russia MD 2010 4.3/1,000 Population: 142 million Armenia 2012 2.7/1,000 Population: 3 million  Kazakhstan 2012 3.6/1,000 Population: 17.9 million  Kyrgystan 2012 2/1,000 Population: 5 million  Uzbekistan 2012 2.4/1,000 Population: 28.9 million
Kingdom of Saudi Arabia	Physician Assistant 2010	28 months of training in a master program. One program at Prince Sultan Military College of Health Sciences	To work as a 1st Lt. medical officer (Physician Assistant) under the supervision of a physician	Pending	22 male graduates that are practicing in the military  MD ratio 2010 .9/1,000 Population: 27 million



TABLE C. Europe/North America/South America Accelerated Medically Trained Clinicians

Country/Europe	Title Established	Education/Training	Scope	Regulation	Numbers
Republic of Ireland	Physician Associate 5/2015 Royal College of Surgeons Ireland starts two year pilot program; Irish Health Care System	Development of PA thru UK, US, Canada, Dutch PAs filling 2 year contracts in surgery – two year pilot program starting 2015	Breast surgery Upper gastroenterology surgery Lower gastroenterology surgery Orthopaedic surgery Vascular surgery	Planned Education: UK & Ireland Universities Board for Physician Associate Education	Md/ratio=27/10,000 4.6 million
Germany	Physician Assistant 2005	36 months – bachelors degree	Primary Care as well as Emergency medicine, orthopedics, urology and cardiothoracic surgery	Training Accredited through Study Program in Health and Social Sciences State Examination to practice	2013 – 100 graduates  MD ratio 2011 3.8/1,000 Population: 80.9 million
Netherlands	Physician assistant 2001	30 months 20 hours per week  Work study model that is tied to one specialty. Physicians supervise and train their own PAs  Master's degree	Mainly in surgical specialties  About 75% of Dutch PAs work in hospitals	Accredited by Dutch Flemish Accreditation Review Commission on Education (NVAO), thru Ministry of Health, Welfare and Sport and the Ministry of Education, Culture and Science.	over 1,000 PAs  MD ratio 2010 2.9/1,000  Population: 16.8 million
Ukraine	Feldshers started in Ukraine during WWII	Post high school entrance. 3 cycles of training – didactic and clinical.	Primary care focus – usually in rural clinics, also work on ambulances	Government oversight of all	16,000 in 2001  MD ratio 2012 3.5/1,000 Population: 44 million
United Kingdom England	Physician Associate 2003 – England	2 years  Degrees: PGDip/ MSc in Physician Associate Studies  5 Univ training programs	General practice as well as multiple specialties including, but not limited to: Emergency medicine critical care surgery community psychiatry	Pending through Royal College of Physicians gain statutory regulation.	191 PAs qualified in the UK. There are a further 107 students  MD ratio 2012 2.79/1,000 Population: 63.7 million
Scotland	Physician Associate 2013 first graduating class	Post graduate program 2 years in duration PgDip Physician Associate Studies	Wide variety of areas – working in teams within in the scope as agreed on by supervising physician	Education: UK & Ireland Universities Board for Physician Associate Education Must pass the National Examination – register with UK Association of Physician Associates to work in the UK as a PA	26 in training currently/ new class in 9/15

TABLE C. Europe/North America/South America Accelerated Medically Trained Clinicians – continued

Country/ North America	Title Established	Education/Training	Scope	Regulation	Numbers
Canada	Physician Assistants 1984 (Canadian Armed forces)  2008 start of non- service programs	24– 28 months in duration  4 PA programs	Primary care, internal medicine, Emergency medicine, surgery	Physician Assistant Certification Council of Canada  Academics: Canadian Medical Associations’ Conjoint Accreditation services	11/14 PA: 475 working  MD ratio 2010 2.1/1,000 Population: 34.8 million
United States	Physician Assistant  1965	Programs an average of 26 months long  Bachelors as well as masters’ degrees awarded  179 training programs	Practice medicine as part of a team with physicians and other healthcare providers in all areas	National education accreditation: ARC– PA  National certifying body: NCCPA  State licensing bodies	100,000 in service  MD ratio 2011 2.5/1,000 Population: 318.8 million
Country/ South America	Title Established	Education/Training	Scope	Regulation	Numbers
Guyana	Medex 1977	18 month post RN career 42 month post secondary school	Primary care in rural/remote areas/ health center management/ oversight of CHW	Medex Act /Ministry of Health	2013 70 – serving 747,884 population  MD ratio 2010 .2/1,000 Population: 735,554

MD ratio: World Bank Country ///Population : The World Factbook (CIA)– est July 2014

TABLE D. Oceania Accelerated Medically Trained Clinicians

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Australia	Physician Assistant  2011 first graduates in Australia from Queensland.	3 year Bachelors program offered, in Queensland, with a new cohort every two years	Queensland Health approved controlled scope of practice and prescription rights for PAs written into Policy.  Local positions within specialties: Orthopedics Spinal Clinic General Practice Surgical assistance Critical care Emergency Department Community health Aboriginal Health Private Mining Support	Pending	Approximately 12 in service, remainder in waiting  MD ratio 2011 3.27/1,000  Population: 22 million
Fiji	Medical Assistant 1975– 1984 (Nurse Practitioners since then)	Medical model	Primary Care	1978 Ministry of Health – Medical Assistant Council	61 trained during years  MD ratio 2010 .4/1,000 Population: 903,207
New Zealand	Physician Associates Ongoing trial in 2 phases that began in 2006– 07 and will conclude early 2015	2 year post– graduate training model pending	Primary and specialty care under doctor supervision	New Zealand Ministry of Health	< 10 overseas trained physician assistants  MD ratio 2010 2.7/1,000 Population: 4 million
Papua New Guinea	Medical Assistant 1910 Health Extension Officer 1970s	4 year bachelor training	Primary care services in rural and under-served communities	Papua New Guinea National Department of Health	452 Health Extension Officers  MD ratio 2010 .1/1,000 Population: 6.5 million
Marshall Islands	Health Assistant 1970s– training ended over 30 years – Medex training now	18 month training – medex model trained outside (Hawaii)	Primary care to the 49 outer island health centers	Ministry of Health – Health Services Act	80 Health Assistants  MD ratio 2010 .4/1,000 Population: 70,983

TABLE D. Oceania Accelerated Medically Trained Clinicians – continued

Country	Title Established	Education/Training	Scope	Regulation	Numbers
Tonga	Health Officer 1977	2 year training	Tonga's 14 health care centers are staffed by 1 health officer & 4 nurses – they support about 7,200 people	unknown	Unknown number of Health Officers  MD ratio 2010 .6/1,000 Population: 106,440

MD ratio: World Bank Country /Population : The World Factbook (CIA)– est July 2014

TABLE C. Europe/North America/South America Accelerated Medically Trained Clinicians – continued

TABLE C. Europe/North America/South America Accelerated Medically Trained Clinicians – continued

# The Effect of the Conflict on Syria's Health System and Human Resources for Health

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### Abstract

Prior to the conflict, Syria's health system was comparable with that of other middle-income countries; however, the prolonged conflict has led to significant destruction of the health infrastructure. The lack of security and the direct targeting of health workers and health facilities have led to an exodus of trained staff leaving junior health workers to work beyond their capabilities in increasingly difficult circumstances. This exodus together with the destruction of the health infrastructure has contributed to the increase in communicable and non-communicable diseases and the rising morbidity and mortality of the Syrian population. Strengthening the health system in the current and post-conflict phase requires the retention of the remaining health workers, incentives for health workers who have left to return as well as engagement with the expatriate Syrian and international medical communities.

### Introduction

The conflict in Syria, which began in 2011, has resulted in a complex humanitarian emergency, with 7.6 million internally displaced people and 4 million refugees out of a total estimated population of 22.5 million (UNOCHA 2015). The conflict and the resultant destruction of the health infrastructure have led to a severe public health crisis, which has further impacted the health of the population (Cousins 2015).

Recent papers present detailed reviews of particular health issues relating to the Syrian conflict, including public health (Ben-Taleb et al. 2015), infectious diseases (Sharara and Kanj 2014), non-communicable diseases (NCDs) (Coutts and Fouad 2013) and mental health (EMRO 2013). The present paper compares the state of Syria's health system and public health profile before and after the conflict and its effect on the retention of health workers; it concludes with policy recommendations for meeting population health needs and the retention of human resources for health (HRH) both in the current and post-conflict period.

### Section 1: Syria's Health System

#### Syria's Health System before the Conflict

Before the conflict that started in March 2011, Syria's health system was comparable

with other middle-income countries; it consisted of a mix of government-run hospitals and primary care facilities, with advanced medical care concentrated in major cities such as Damascus and Aleppo (Sharara and Kanj 2014). However, the health infrastructure was suboptimal, particularly outside of major cities, with insufficient facilities and inadequate equipment. The Ministry of Health (MOH) was the main provider for primary healthcare, but other medical services including secondary care were also supported by other major ministries, including that of education, defence, interior and social affairs and labour (Ahmad 2014). The Syrian constitution stated that the provision of healthcare was the responsibility of the state and this was mostly implemented through the 14 governorates; however, state funding had been declining, with only 2.9% of government expenditure dedicated to health (Kherallah 2012).

Attempts to increase the autonomy of private-sector providers led to increasing inequality in access to care, with a particular impact on those living in rural areas (Ben Taleb et al. 2015; Kherallah 2012). Public-private partnerships in the hospital sector grew, and up to 20% of major public hospitals became "autonomous organizations" with some independence from the MOH. The private sector was focused in major urban

areas, particularly Damascus and Aleppo, leaving rural areas under-resourced (Ahmad 2014).

Childhood and adult mortality rates were declining between 2000 and 2010 (World Bank 2012), with an epidemiological transition from communicable diseases to NCDs (WHO 2011, 2012). Life expectancy at birth in 2010 was 75.9 years (UNRWA 2015). In 2012, child mortality was 15 per 1,000 live births and Syria was on track to meet the Millennium Development Goal 4 target; this was owing to the high vaccination rate for children and the universal coverage of skilled birth attendants and availability of institutional deliveries (Save the Children 2014).

Coronary heart diseases accounted for at least half of all-cause mortality (Ben-Taleb et al. 2015), and Syria had the highest proportion of cigarette smokers in the Arab region with a high prevalence of chronic obstructive pulmonary diseases (Coutts et al. 2015). Pre-conflict, mental healthcare in Syria was neglected, with 70 psychiatrists and 2 public psychiatric hospitals serving the entire population, and there was extensive stigma towards mental illness (EMRO 2013).

There are little robust data from either public or private hospitals before the conflict owing to a number of factors, including lack of accountability, poor morale, poor health information systems (HIS) and lack of trained staff to use existing HIS (Ahmad 2014).

### **Syria's Health System after the Conflict and the Destruction of Health Infrastructure**

Since the conflict began in March 2011, there has been a health system collapse with closures of medical facilities; this has contributed to rising morbidity and mortality both as a direct and indirect result of the prolonged conflict (UNRWA 2015). Only 50% of primary health centres that were present before the war were functional at the end of 2014. The impact on hospital infrastructure is greater with, until March 2015, 233

deliberate or indiscriminate attacks on 183 medical facilities with the Syrian government responsible for 88% of the recorded attacks (Baker and Brown 2015). Given the suboptimal nature of the health infrastructure before the conflict, there was no cushioning effect once the crisis began (Cousins 2015).

Damage to health facilities has led to restructuring of health facilities inside Syria to meet the medical and humanitarian needs of the affected populations; these new facilities include "field hospitals". These facilities have been set up in factories, farms, houses, cultural centres and caves (Alahdab 2014), but often lack the required equipment to be effective at dealing with massive casualties (Alahdab 2014). They have become more developed with time; however, given the exodus of trained physicians, these facilities now not only lack equipment but also trained staff. Although attacks against medical facilities are against International Humanitarian Law and the Geneva conventions (Baker and Brown 2015; PHR 2014), these underground health facilities have been constantly targeted by armed forces. In 2014, a health worker was, on average, killed every other day (Baker and Brown 2015; PHR 2014).

Life expectancy at birth has fallen to 55.7 years at the end of 2014 (UNRWA 2015). Estimated direct mortality as of March 2015 is 210,000 (UNRWA 2015) and the number of wounded is 840,000, putting a strain on an already damaged Syrian health system and on countries hosting the Syrian refugees (UNHCR 2015).

### **Communicable Diseases and NCDs**

The prioritization of trauma and immediate life-threatening conditions has led to neglect for the provision of primary healthcare, public health and immunization services. Outbreaks of infections that were previously well-controlled, including measles, hepatitis A, leishmaniasis, poliomyelitis, meningitis and scabies (Sharara and Kanj 2014), have increased in prevalence and further strained

the health service and vulnerable populations. The WHO estimates that routine immunization coverage has fallen from 90% before 2011 to 52% in March 2014 (SMSNA 2014). The spread of infectious diseases has been further affected by the lack of clean water in conflict-affected areas leading to a lack of sanitation and hygiene; water pumping in some areas has decreased by up to 90% compared with the pre-war state (PHR 2014).

Accurate data for NCDs since 2011 are scarce, though some estimates exist. The International Diabetes Federation estimate that 7.4% of the adult population in Syria is diabetic, with an estimated case load of 875,700 in 2014 (IDF 2014); projected estimates suggest that this is likely to increase significantly over the next decade (Al Ali 2013).

The management of complex medical conditions, including cancer and end-stage renal diseases (ESRD), has presented further challenges to the Syrian healthcare among internally displaced persons (IDPs) and refugees. Due to the lack of data, cancer prevalence among refugees is difficult to quantify (Coutts et al. 2015; Spiegel et al. 2014). The UNHCR has set up Exceptional Care Committees for decisions on registered refugees who may require particular treatments; 25.6% of the 1989 applications in Jordan between 2010 and 2012 were for cancer (Spiegel et al. 2014).

The management of ESRD requiring haemodialysis requires a stable health system that can dependably supply specialist equipment and highly trained staff for patients to continue with treatment. Pre-conflict, it was estimated that there were 226 patients per million requiring dialysis in Aleppo (Sekkarie et al. 2015). In conflict-affected areas, there has been a decentralization of dialysis services, with smaller units run by staff who are not always medically trained, receiving only on-the-job training (Sekkarie et al. 2015). This, alongside movement restrictions, violence and the inability to maintain the

equipment, has contributed to the mortality of these patients (Sekkarie et al. 2015).

There are no current estimates of child mortality; however, the war has directly resulted in 10,000 child deaths, though many more have been injured or affected by the breakdown of health services (Save the Children 2014). Before the conflict, 96% of mothers received medical assistance when giving birth; it is now estimated that less than a quarter have access to reproductive services. The violence, roadblocks and destruction of services have meant that antenatal and postnatal maternal healthcare is significantly compromised, with an increased number opting for elective caesarian sections; these have increased from 19% in 2011 to 45% in 2013 (Save the Children 2014).

Supporting the mental health needs of Syrians is vital for other interventions to succeed. As a result of the conflict, it is estimated that more than 350,000 people suffer from severe mental health disorders and over 2 million are affected by mild-to-moderate mental health problems, including anxiety and depression (UNHCR 2014); however, there is insufficient mental health and psychosocial support clinicians to provide care.

Addressing the current and future health needs of these populations is hampered by the lack of sound epidemiological data such as population surveys to determine the current burden of illness. Without these collection strategies in place, the effectiveness of interventions is also very hard to evaluate (Cousins 2015; Coutts et al. 2015).

## Section 2: Human Resources for Health

### Flight of Health Workers and the Impact on Remaining Health Workers

Health workers have directly suffered the effect of the war, both personally and professionally, and have often been targets themselves (Ascheim 2015). Health facilities have not been respected as areas of neutrality or safety, leaving health workers at risk while

treating patients. All parties have been accused of attacks on hospitals or of using them as bases, with incidents of torture in military hospitals and “discriminatory denial” of healthcare as a “weapon of war” (Rubenstein et al. 2015; UNRIC 2013).

An estimated 610 doctors have been killed during the war, including 129 who were tortured or executed (PHR 2015). Providing medical care in areas controlled by the opposition was declared a criminal offense by the Syrian authorities (Rubenstein et al. 2015), a declaration that is in contravention of the Geneva Conventions. By 2013, 70% of the workforce had left the country (PHR 2014), and this number has dwindled further since then. For example, the east of Aleppo is among the hardest hit areas by barrel bombs; however, as of late 2014, there were only two vascular surgeons and one plastic surgeon. In this area (Rubenstein et al. 2015), pre-conflict, Aleppo's population was 2.5 million, with 6,000 doctors; now less than 20 doctors remain (Cousins 2014). In Eastern Ghouta, an area under siege, up to 90% of the medical staff have left; the resulting lack of surgeons significantly worsens patient outcomes and puts further pressure on the few overstretched remaining health workers (Szybala et al. 2015).

The nature of injuries seen as a result of the war from shrapnel, barrel bombs, burns, building collapses and incendiary weapons is far removed from what was seen before the war (Rubenstein et al. 2015). These catastrophic injuries would be challenging even in a functioning health system. However, on account of the destruction to hospital buildings and equipment, unpredictable water and electricity supplies and a lack of medicines and consumables caused by fragile or absent supply chains, health workers currently work in very challenging environments where they are unable to provide the standard of care to patients that they were able to provide before the war. These challenging settings, combined with the exodus of skilled doctors, have led to pressure on junior staff to act beyond their

capabilities and significant psychological strain. For instance, medical students, nurses or pharmacists are forced to work as trauma surgeons or anaesthetic technicians to take sole responsibility for anaesthetizing patients (Rubenstein et al. 2015).

Health workers have been imprisoned and tortured and, as they are arguably at greater risk due to their profession, many have left not only for their own safety but also for that of their families. Many have lost their livelihoods, status and thriving practices inside Syria, leading to an uncertain future for them and their families as refugees.

The high levels of trauma witnessed, together with the inadequate resources to hand and the inability to provide for their families, have resulted in secondary trauma to health staff working inside Syria (Rubenstein et al. 2015). In addition, health workers report intimidation from armed groups so that injured fighters are prioritized for treatment (Rubenstein et al. 2015). The needs of Syrian health workers, who have worked under extreme conditions for over four years (Attar 2013) and subject to stress and traumatic experiences that lead to anxiety, depression and exhaustion, need to be addressed with active efforts to provide effective support and training interventions, as these health workers are fundamental to the health system.

### **Section 3: Policy Recommendations Going Forward for Population Health Needs, Rebuilding and Retaining Health Workers**

A number of measures are required to address the population health needs both inside Syria and for refugees outside the country, and a concerted effort must be made to retain and train health workers in both the current and post-conflict period. The ongoing and complex nature of the conflict further undermines the health of the population and delays the rebuilding of the health infrastructure. As long as it is unsafe for refugees and IDPs to return to their homes, it will be

difficult to persuade health workers to remain in Syria or to return. As such, efforts to end the conflict, protect civilians and enforce medical neutrality will have the greatest impact on the health of IDPs and refugees. All these factors are affected by the uncertain security situation inside Syria, particularly in besieged or "hard to reach" areas.

### Population Health Needs

A policy of integration of health services for refugees and IDPs with the health services of host communities should be considered rather than the running of parallel health services; this would reduce costs and optimize resources (Hopkins 2007). This requires identifying barriers to access, availability and sustainability of services accessed by Syrians, so that redundancy is reduced (Hopkins 2007). This can be supported through improved coordination and cooperation in the humanitarian sector either under the umbrella of UNOCHA (United Nations Office for the Coordination of Humanitarian Affairs) or through other networks.

A harmonized approach to the collection and sharing of data should be actively sought, as health information systems (HIS) are required for real-time assessments of disease prevalence and population health needs (Ben-Taleb et al. 2015; Coutts et al. 2015). A functioning HIS would help identify new health needs as they arise. For instance, there is an increased need for psychological support, rehabilitation of those with war-related injuries and the optimization of child and maternal health services. Increased utilization of "m-technology," mobile devices to collect epidemiological data in focused efforts by individuals trained in collecting epidemiological data, or indeed by healthcare providers themselves, may prove increasingly important for real-time data (Free 2013).

Syria was a middle income country with aligned health system and services and complex population health. As such,

coordinated efforts are needed to continue to manage complex medical issues and unstable patient conditions.

As the conflict continues, population-level screening for cancer and other preventable diseases, education on smoking cessation and other preventative health measures are important aspects of care that may be cost-effective in the long term (Cousins 2015; Spiegel et al. 2014). Identifying community members and volunteers will be important factors in addressing these conditions.

On an individual level, the uncertain security situation inside Syria makes it difficult for IDPs to seek treatment, and in host countries, a lack of finances, a lack of familiarity with the health system and a lack of acceptance by the host community contribute to delays and suboptimal medical care for refugees (Spiegel et al. 2014). This can be addressed by including Syrian community leaders and leaders of host communities in the assessment, design and implementation of interventions.

Since the start of the conflict, a number of UN resolutions have been passed to address issues related to the medical neutrality, but they have not yielded a significant effect. They have addressed issues related to the lifting of sieges, humanitarian access, an end to attacks on civilians, respect for medical neutrality and an end to the deliberate withholding or delay of humanitarian relief (Szybala and Fallon 2014). Resolution 2165 was passed in July 2014 by the United Nations Security Council and called for the implementation of cross-border aid; this has resulted in some improvement in the UN's ability to deliver to parts of northern and southern Syria, though this remains a small proportion of the aid reaching Syria (Szybala and Fallon 2014). The resolutions embody what is required, but there is poor acceptance and little enforcement for them to be effective. A concerted effort to ensure that any further resolutions achieve acceptance and implementation is required.

### Human Resources for Health

HRH are fundamental to the success of a health system. Supporting those who remain and identifying the barriers preventing those who have left to return are key to the development of a successful health service. Identifying the most needed specialties and providing training and salaries are important. Such specialties are likely to include maternal and paediatric services, trauma, plastics and rehabilitation (Ben-Taleb et al. 2015). However, health workers, as with many other displaced Syrians, may not seek to return if there is ongoing violence. Given that the conflict is unlikely to reach a swift, peaceful transition, a flexible, encompassing, humanitarian relief and healthcare program would be more effective (Ben-Taleb et al. 2015).

Given that there is likely to be an ongoing shortage of healthcare workers in the current and post-conflict period, innovative ways to support and build the capacity of the current health workers, volunteers and community members, will be increasingly important. This may be a part of telemedicine programs that have been successfully established (Soguel 2014) or through the training of community health workers (CHWs). Hand in Hand for Syria (HIH 2014) has already established an initiative to train CHWs to fill the void left by health workers who have fled (HIH). Alongside this, ongoing engagement of the expatriate Syrian medical community in the education, training and psychological support of health workers in the current and in the post-conflict period is vital. Organizations including the Syrian American Medical Society have initiated programs including regular intensive care and surgical skills teaching in Turkey, allowing doctors and health workers from Syria access to potentially life-saving skills. Skill shifting and training staff for particular skills are fundamental in this conflict.

### Health Infrastructure

The construction of a foundation for primary and secondary health services is based on good nutrition, clean water and sanitation, immunization, vector control and good maternal and child health (USIP 2009). Other important aspects that impact on health are the provision of shelter, psychological support for the population as well as provision of essential medicines to treat infectious diseases and NCDs (Ben-Taleb et al. 2015; Coutts et al. 2015).

The recovery and post-conflict period will present numerous challenges but also opportunities to establish health systems that can reduce excess mortality and mortality. The aims should be to establish community-based, integrated basic health services, perhaps including mobile clinics to reach areas in need. These services are being partly achieved by Syrian non-governmental organizations in the current crisis; however, the lack of safety, staffing and equipment currently hampers these efforts, which require more development and expansion.

Maintaining a supply chain for medical equipment, vaccines and medication is essential, and resources such as the WHO's guides to the stability of medicines in non-refrigerated conditions may help donors to provide medications that are not as vulnerable to electricity and, therefore, refrigeration outages (Pitts-Tucker 2012).

Re-establishing the health infrastructure in the current and post-conflict period could be a way of establishing peaceful co-existence and promoting the rights of marginalized groups, allowing for civil society participation and government accountability (USIP 2009). As such, the health system could enhance the legitimacy of the emerging government, particularly if based on principles of equity of access, non-discrimination and transparency. This can be seen as an opportunity to build a strong health system that serves the current and future needs of the population.

## Conclusion

Rebuilding Syria's shattered health system requires a holistic approach that addresses a number of issues. Among the most important are focusing on the retention of health workers, providing support and training, and establishing incentives for those who have left to return. Encouraging innovative approaches including the harnessing of technology will aid the remaining health workers, and task shifting will allow for the training of enough health workers to support the health needs of the population. Policies that uphold medical neutrality and the safety of medical workers and prohibit attacks on medical facilities are key to protecting the remaining health workers. Given the protracted nature of the conflict and the funding shortage, engagement with the expatriate Syrian and international medical communities is key in supporting the health needs of the Syrians both inside and outside of Syria.

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# No Global Health Without Human Resources For Health (HRH): The Nursing Lens

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### Context

“Promoting and protecting health is essential to human welfare and sustained economic and social development” (WHO 2010). This was recognized more than 30 years ago by the Alma-Ata Declaration signatories, who noted that *Health for All* would contribute to both a better quality of life, and global peace and security (WHO 1978). In continuing work to achieve this goal of *Health for All*, the contemporary global health agenda has focused on creating sustainable health systems that address universal health coverage (UHC) and the post-2015 sustainable development goals (SDGs), including non-communicable diseases, and health system financing. However, as noted in the Global Health Workforce Alliance (GHWA) report, *A Universal Truth: No Health without a Workforce* (2014), any aspiration to attain or sustain UHC will only be realized with a strong vibrant health workforce.

### Issue:

There are long-standing, global human resources for health (HRH) shortages (Campbell et al. 2014; HRH Resource Center 2004). Based upon numerous international and national reports, governments around the world have focused on creating responsive and robust health workforces (WHO 2006; OECD 2008; GHWA 2012). Although there have been significant investments in health workforce planning, the progress to date has been thwarted by a mono-professional focus on the numbers of healthcare providers. While major countries such as China and India have seen improvements in the growth of their workforce, they, like many countries, continue to have significant HRH challenges, such as having sufficient numbers of qualified health workers who are equitably distributed geographically to meet local health needs (McPake 2013). What is required is HRH research and planning based

### ICN and WHO Collaborate on Emerging HRH Strategy

This year on June 17, at the International Council of Nurses (ICN) Congress in Seoul Korea, ICN and the World Health Organization (WHO) will hold a joint consultation specifically focused on health human resources. WHO is in the process of developing a Health Human Resources for Health Strategy (HRH) to be tabled at the 2016 World Health Assembly (WHA), during the annual meeting of member states where policy issues are debated and decided upon. The development of the HRH Strategy is critical as it is fundamental to the achievement of all health goals in the post 2015 agenda. The role of nursing in such a strategy is of utmost importance to ICN and the 16,000,000 nurses practicing worldwide.

In preparation for the meeting, the President of ICN, and some Canadian experts in the field of HRH with the support of the Canadian Nurses Association have developed this evidenced based HRH opinion piece to frame some of the central issues. In addition to the ICN consultation, WHO will be holding various regional and other consultations with national and other stakeholders.

upon the health needs of people and the combined competencies, skills and knowledge required to meet those needs all within specific health system and social contexts. Simply increasing the numbers has not addressed the systemic challenges; UHC and the SDGs require a discourse going beyond HRH shortages (GHWA and WHO 2014).

Addressing both current and future HRH challenges requires multi-level planning with concurrent changes in policy, at the organizational level and in how care is delivered (GHWA 2012). Such multi-leveling planning requires partnership and collaboration across government sectors, with researchers and research users, with non-governmental agencies, with health and social system leaders, with communities and with healthcare providers. (GHWA and WHO 2014).

### Action

The nursing community believes that the time for a different narrative is now. This narrative would start by examining the health needs of people and health systems and then determining the HRH needs required to support these systems. To achieve this, hard questions would need to be discussed:

- Why, in spite of the available evidence, do we keep envisioning a health system based upon the 19th century fragmented disease-based model?
- What needs to be different? What needs to change to create this new model of care delivery?
- What are the education systems required to educate health professionals to work in a new health system?
- What are the legislative and regulatory frameworks and policies that need to be in place?
- What are the HRH plans to support these systems? Within these plans, how do we attend to gender and women's issues?
- What data need to be collected and analyzed to monitor progress on an iterative and ongoing basis?

In the context of national, regional and global agendas and plans, including WHO's development of its Global Strategy on HRH, Health Workforce 2030, the following actions, issues and policy levers need to be considered.

- Dialogue and collaborative work needs to occur between all levels and sectors of the system since there are strong inter-dependencies between each level and concurrent strategies to support HRH are required.
- Further, the dialogue needs to be supported by an understanding of and value for an integrated, primary healthcare system based on the health needs of people; where all health

workers work together to optimize their professional scope.

- The understanding and value of primary healthcare requires support for evidence informed inter-professional education and collaborative practice. This demands collaborative efforts among health and education ministries and systems.
- All these changes require a recognition that we need to be in the business of health and not in the business of illness. This requires a balance between illness-focused, primarily hospital-based care and health promotion and wellness strategies in the community.
- Policy and regulatory responses are required to enhance utilization and efficiencies in healthcare, and enable optimization of services. For example, by up-skilling current workers and allowing greater flexibility in determining the appropriate skills mix, over-reliance on task delegation should be avoided. Such approaches must ensure that health workers are enabled to be productive in safe and supportive workplace environments.
- To address gender inequities and inequalities, women need to be at decision-making forums and policy-setting tables where they participate in and lead the health agenda.
- As outlined in global and national reports, healthcare is growing economies and creating opportunities for employment. Therefore, we need to build in professional development opportunities to support career trajectories. Access to good jobs results in improved access to health and supports healthy families and communities.
- HRH planning needs to be part of global and national development frameworks so that all factors impacting HRH are considered

and integrated, multi-factorial and concomitant strategies are created and implemented.

- This new narrative must be built on a broad definition and understanding of evidence that includes experiential knowledge and knowledge from non-peer-reviewed literature to randomized studies.

Nurses around the world are essential healthcare team members who can provide quality and safe services with the support of regulatory frameworks. They have an essential role to play in macro, meso or micro system level planning approaches. For individual patients, nursing is involved in the processes of care used to identify needs, provide therapeutic interventions, education, advice, advocacy and physical, emotional and spiritual support. At the organizational and system levels nurses are informed by these same processes of care as health leaders, policy makers, educators and researchers who collaborate across health and social agencies to inform innovation and provide critical contributions to the efficient and effective health system transformation addressing and supporting the health and well-being of people.

There are nine areas where nurses would make an essential contribution to this discussion on health systems and health workforce strengthening.

1. Leading and supporting inter-professional and collaborative health provider education and practice
2. Advocating for a paradigm and operational shift in healthcare that balances illness-focused care with population health
3. Identifying and championing global and national strategies to address health workforce mal-distribution and migration
4. Strengthening and diversifying primary healthcare by ensuring

healthcare providers have the knowledge and skills needed to attend to people's complex health and social needs

5. Ensuring a strong nursing voice in all health and social system policy, development and planning dialogues
6. Considering the influence of regulation and legislation on health system and HRH planning issues
7. Designing and improving information infrastructures and data collection to support health system redesign and planning
8. Creating and synthesizing the best evidence related to HRH and health systems research and evaluation
9. Considering the influence of complex, ubiquitous social and gender issues such as the determinants of health, and inequality and inequity

The International Council of Nurses, working with the nurses and health and social care colleagues around the world, is committed to leading innovative strategies to attend to the global, complex HRH and health system challenges. The goal is to support needs-based health system and HRH planning focused on supporting healthier and resilient communities.

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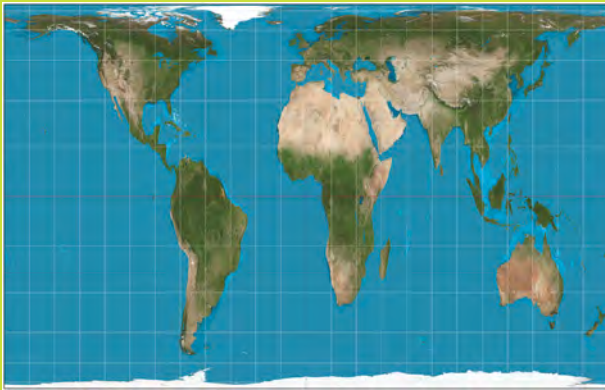
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