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

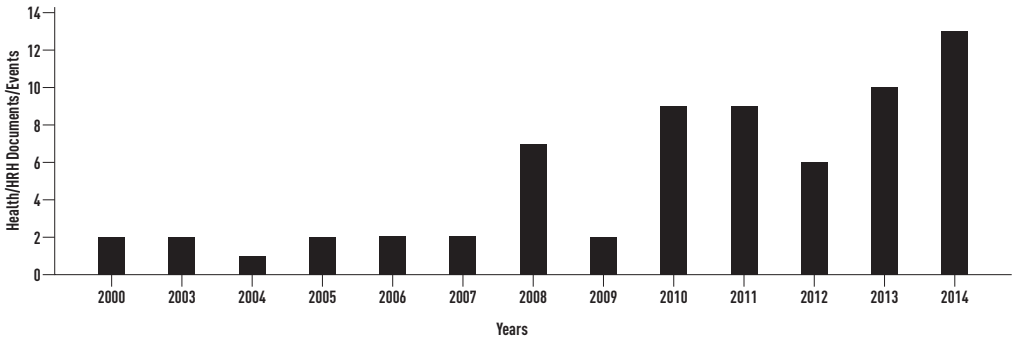
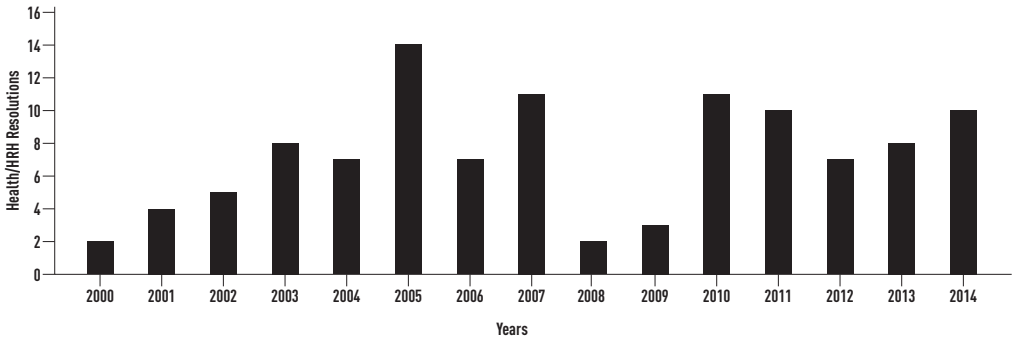


Figure 2. WHA health/HRH resolutions by year



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.

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 underrecognized 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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References

African Health Workforce Observatory (AHWO). 2010. *First Consultation on Africa*. Retrieved August 20, 2015. <http://www.hrh-observatory.afro.who.int/en/home/101-platform-first-consultation.html>.

African Platform on Human Resources for Health (APHRH). 2011. Regional Consultation on Scaling up Capacity of Health Workforce for Improved Health Services. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/media/news/2011/aphrh2011/en/>.

Asian-Pacific Action Alliance on Human Resources for Health (AAAH). 2005. Retrieved August 20, 2015. <http://www.aaahrh.org/about.php?id=2>.

Asian-Pacific Action Alliance on Human Resources for Health (AAAH). 2005. Established. <http://www.aaahrh.org/about.php?id=2>.

Capacity Plus. 2014. *Nineteen Countries Save $149 Million with Open Source Health Workforce Information Systems*. Retrieved August 20, 2015. <http://www.capacityplus.org/nineteen-countries-save-149-million-with-open-source-health-workforce-information-systems>.

Center for Global Development. 2014. *Delivering on the Data Revolution in Sub-Saharan Africa*. Washington, DC: Final Report of the Data for African Development Working Group. Center for Global Development and the African Population and Health Research Center. Retrieved August 20, 2015. <http://www.cgdev.org/sites/default/files/CGD14-01%20complete%20for%20web%200710.pdf>.

Center for Workforce Intelligence (CfWI). 2010. CfWI Annual Report 2010-2011. CfWI: London. Retrieved August 20, 2015. <http://www.cfwi.org.uk/publications/cfwi-annual-review-2010-2011>.

Chan, M., M. Kazatchkine, J. Lob-Levyt, T. Obaid, J. Schweizer, M. Sidibe, et al. 2010. "Meeting the Demand for Results and Accountability: A Call for Action on Health Data from Eight Global Health Agencies." *PLoS Med* 7: 1–4. Retrieved August 20, 2015. <http://www.plosmedicine.org/article/info%3Adoi%2F10.1371%2Fjournal.pmed.1000223>.

Dahn, B., A.T. Woldemariam, H. Perry, A. Maeda, D. von Glahn, R. Panjabi, et al. .2015. *Strengthening Primary Health Care through Community Health Workers: Investment Case and Financing Recommendations*. New York, NY. Retrieved August 20, 2015. <http://www.mdghealthenvoy.org/wp-content/uploads/2015/07/CHW-Financing-FINAL-July-15-2015.pdf>.

DeLuca, M. A., J. Campbell and S. Castro Lopes. 2015. *Evidence to Support Global Action on Health Workforce Data, Systems and Impact Measurement.* Unpublished background paper, Geneva: Technical Working Group 3 (TWG3): Workforce Data and Measurement of Impact.

DeLuca, M.A. and A. Soucat, eds. 2013. *Transforming the Global Health Workforce*. New York, NY: New York University. Retrieved August 20, 2015. <http://net.ondemandbooks.com/odb/selfespress/9781939029089>.

Frontline Health Workers Coalition (FHWC). 2012. *Frontline Health Workers: The Best Way to Save Lives, Accelerate Progress on Global Health, and Help Advance U.S. Interests*, Issue Brief, January. Retrieved August 20, 2015. <http://frontline-healthworkers.org/resources/resources/>.

Frontline Health Workers Coalition (FHWC). 2014. *A Commitment to Community Health Workers: Improving Data for Decision Making*. Washington, DC. Frontline Health Workers Coalition.

Frenk, J., L. Chen, Z.A. Bhutta, J. Cohen, N. Crisp, T. Evans, et al. 2010. "Health Professionals for a New Century: Transforming Education to Strengthen Health Systems in an Interdependent World." *The Lancet* 376(9756): 1923–58.

G8. 2008. *Toyako Framework for Action on Global Health: Report of the G8 Health Experts Group*. Hokkaido Toyako Summit, July 7–9, 2008. Retrieved August 20, 2015. <http://www.g8.utoronto.ca/summit/2008hokkaido/index.html>.

G8. 2011. *Deauville Accountability Report: G8 Commitments on Health and Food Security: State of Delivery and Results*. Retrieved August 20, 2015. Retrieved August 20, 2015. <http://www.g8.utoronto.ca/summit/2011deauville/accountability.html>.

Global Health Workforce Alliance (GHWA). 2008a. *Scaling Up, Saving Lives*. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/scalingup/en/index.html>.

Global Health Workforce Alliance (GHWA). 2008b. *The Kampala Declaration and Agenda for Global Action*. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/Kampala%20Declaration%20and%20Agenda%20web%20file.%20FINAL.pdf>.

Global Health Workforce Alliance (GHWA). 2010a. Country Coordination and Facilitation (CCF): Principles and Process. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/CCF_Principles_Processes_web.pdf>.

Global Health Workforce Alliance (GHWA). 2010b. *First Consultation of the African Platform on Human Resources for Health*. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/media/events/2010/africanplatformcons/en/>.

Global Health Workforce Alliance (GHWA). 2010c. *Global Experience of Community Health Workers for Delivery of Health Related Millennium Development Goals: A Systematic Review, Country Case Studies, and Recommendations for Integration into National Health Systems*. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/chwreport/en/index.html>.

Global Health Workforce Alliance (GHWA). 2011a. *From Kampala to Bangkok: Reviewing Progress, Renewing Commitments*. Bangkok: Outcome Statement of the Second Global Forum on Human Resources for Health. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/forum/2011/Outcomestatement.pdf>.

Global Health Workforce Alliance (GHWA). 2011b. *Partnering for Progress: Country Coordination Boosts Human Resources for Health*. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/CCF-MeetingReport.pdf>.

Global Health Workforce Alliance (GHWA). 2011c. *Reviewing Progress, Renewing Commitments: Progress Report on the Kampala Declaration and Agenda for Global Action*. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/KDAGAprogressreport_2011.pdf>.

Global Health Workforce Alliance (GHWA). 2012a. *Country HRH Web Profiles*. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/countries/en/>.

Global Health Workforce Alliance (GHWA). 2012b. *Health Workforce Innovation: Accelerating Private Sector Responses to the Human Resources for Health Crisis*. Private Sector Task Force Report Global Health Workforce Alliance. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/privatesectorhrh_report/en/index.html>.

Global Health Workforce Alliance (GHWA). 2012c. *Skills Mix to Achieve Universal Health Coverage: A Global Systematic Review and Country Case Studies on Roles and Impact of Mid-Level Health Workers*. Global Health Workforce Alliance Media Centre. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/media/news/2012/beijingsymposiumhrhstory/en/index.html>.

Global Health Workforce Alliance (GHWA). 2012d. *The Global Health Workforce Alliance Stratgey, 2013–2016: Advancing the Health Workforce Agenda within Universal Coverage*. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/ghwastrat20132016/en/index.html>.

Global Health Workforce Alliance (GHWA). 2013a. *A Universal Truth: No Health Without a Workforce*. Geneva: WHO. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/GHWA-a_universal_truth_report.pdf?ua=1>.

Global Health Workforce Alliance (GHWA). 2013b. *Third Global Forum on HRH, Recife, Country and Stakeholder Commitments 2013*. <http://www.who.int/workforcealliance/forum/2013/hrh_commitments/en/e>.

Global Health Workforce Alliance (GHWA). 2013c. *The Recife Political Declaration on Human Resources for Health: Renewed Commitments towards Universal Health Coverage*. Recife: GHWA. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/forum/2013/recife_declaration_17nov.pdf?ua=1>.

Global Health Workforce Alliance (GHWA). 2013d. *Joint Commitment to Harmonize Partners Action for Community Health Workers and Frontline Health Workers: Moving from Fragmentation to Synergy towards Universal Coverage*. Third Global Forum on HRH, Recife. Geneva: Global Health Workforce Alliance. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/knowledge/resources/chw_outcomedocument01052014.pdf?ua=1>.

Global Health Workforce Alliance (GHWA). 2015. *Synthesis Paper of the Thematic Workgroups, Health Workforce 2030, Toward a Global Strategy on Human Resources for Health*. Geneva: WHO.

The Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). 2008. Annual Report 2008. Geneva: The Global Fund.

The Global Fund to Fight AIDS, Tuberculosis and Malaria. (Global Fund). 2011. *The Global Fund Information Note: The Global Fund's Approach to HSS*. Geneva: The Global Fund. Retrieved August 20, 2015. <http://www.theglobalfund.org/en/performance/effectiveness/hss/>.

Global Leaders. 2013. *Dhaka Declaration of the Global Leadership Meeting on Population Dynamics in the Context of the Post-2015 Development Agenda*. Bangladesh. Retrieved August 20, 2015. <https://www.iom.int/files/live/sites/iom/files/What-We-Do/docs/Dhaka-Declaration.pdf>.

Health Metrics Network. 2011. *Country Health Information Systems*. Retrieved August 20, 2015. <www. http://www.who.int/healthmetrics/en/>.

H8. 2010. Bill and Melinda Gates Foundation, GAVI, Global Fund, UNAIDS, UNFPA, UNICEF, World Bank and WHO. Statement. Retrieved August 20, 2015. <http://www.who.int/dg/speeches/2010/women_deliver_20100607/en/>.

Health Workforce Advocacy Initiative (HWAI). 2013. *Ensuring That Health Workers Count: A Civil Society Pledge*. Retrieved August 20, 2015. <http://www.hwai.org/wp-content/uploads/2009/09/Health-Workers-Count-Civil-Society-pledge.pdf>.

Institute of Medicine (IoM). 2009. *The US Commitment to Global Health*. Recommendations for the Private and Public Sectors. Washington, DC: National Academies Press.

International Confederation of Midwives (ICM). 2013. International Confederation of Midwives and International Council of Nurses HRH Commitment. Recife: GHWA. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/forum/2013/hrh_commitments_other_int_nurses/en/>.

International Council of Nurses (ICN). 2013. International Confederation of Midwives and International Council of Nurses HRH Commitment. Recife: GHWA. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/forum/2013/hrh_commitments_other_int_nurses/en/>.

Independent Expert Review Group (iERG). 2013. *Every Woman, Every Child, Strengthening Equity and Dignity through Health, The Second Report of the Independent Expert Review Group (iERG) on Information and Accountability for Women's and Children's Health*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://apps.who.int/iris/bitstream/10665/85757/1/9789241505949_eng.pdf?ua=1>.

Independent Expert Review Group (iERG). 2014. *Every Woman, Every Child: A Post-2015 Vision, Report of the Independent Expert Review Group (iERG) on Information and Accountability for Women's and Children's Health*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://apps.who.int/iris/bitstream/10665/132673/1/9789241507523_eng.pdf?ua=1&ua=1>.

International Labour Organization (ILO). 2010. *World Social Security: Providing Coverage in Times of Crisis and Beyond, 2010–2011*. Geneva: International Labour Office. Retrieved August 20, 2015. <http://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_146566.pdf>.

International Telecommunication Union (ITU). 2013. *ICT for improving Information and Accountability for Women's and Children's Health*. Geneva: International Telecommunication Union. Retrieved August 20, 2015. <http://www.itu.int/en/ITU-D/ICT-Applications/Documents/CoIA%20Background%20ICT4RMNCH.pdf>.

Jamison, D.T., L.H. Summers, G. Alleyne, K.J. Arrow, S. Berkley, A. Binagwaho, et al. 2013. "Global Health 2035: A World Converging in a Generation." *The Lancet* 382 (9908): 1898–955.

Joint Learning Initiative (JLI). 2004. *Human Resources for Health: Overcoming the Crisis*. Cambridge: Global Equity Initiative Harvard University. Retrieved August 20, 2015. <http://www.who.int/hrh/documents/JLi_hrh_report.pdf>.

Kingdon, J.W. 1984. *Agendas, Alternatives and Public Policies*. Boston MA: Little Brown.

Merlin. 2013. *Hands Up for Health Workers Campaign.* Retrieved August 20, 2015. <http://www.handsupforhealthworkers.org/home.php?q=2>.

Middleberg, M.I. 2010. *Saving Lives, Ensuring a Legacy: A Health Workforce Strategy for the Global Health Initiative*. Global Health Workforce Policy Papers No. 1. Chapel Hill, NC: IntraHealth International. Retrieved August 20, 2015. <http://www.intrahealth.org/files/media/saving-lives-ensuring-a-legacy-a-health-workforce-strategy-for-the-global-health-initiative/IntraHealth_Policy_Paper_1.pdf>.

Omaswa, F. and J.I. Boufford. 2010. *Strong Ministries for Strong Health*. New York, NY: ACHEST and The New York Academy of Medicine.

Ono, T., G. Lafortune and M. Schoenstein. 2013. *Health Workforce Planning in OECD Countries: A Review of 26 Projection Models from 18 Countries*. Health Working Papers, No. 62. Paris: OECD. Retrieved August 20, 2015. <http://dx.doi.org/10.1787/5k44t787zcwb-en>.

Ottersen, O.P., J. Dasgupta, C. Blouin, P. Buss, V. Chongsuvivatwong, J. Frenk, et al. 2014."The Oslo Commission on Global Governance for Health: The Political Origins of Health Inequity: Prospects for Change." *The Lancet* 383(9917): 612–67.

Partnership in Statistical Development in the 21st Century (PARIS21). 2000. *Summary Record of June 22, 2000 Meeting*. Retrieved August 20, 2015. <http://www.paris21.org/sites/default/files/339>.

Perry, H. and R. Zulliger. 2012. *How Effective are Community Health Workers? An Overview of Current Evidence with Recommendations for Strengthening Community Health Worker Programs to Accelerate Progress in Achieving the Health-Related Millennium Development Goals*. Baltimore, MD: Johns Hopkins Bloomberg School of Public Health.

Physicians for Human Rights. 2004. *An Action Plan to Prevent Brain Drain: Building Equitable Health Systems in Africa*. Boston, MA: Physicians for Human Rights. Retrieved August 20, 2015. <https://s3.amazonaws.com/PHR_Reports/Africa-prevent-brain-drain-report-2004.pdf>.

Sub-Saharan Medical School Study (SAMSS). 2010. Retrieved August 20, 2015. <http://www.samss.org/literature/details.aspx?DocumentID=126>.

Safeguarding Health in Conflict. 2015. Retrieved August 20, 2015. <http://www.safeguardinghealth.org/sites/shcc/files/safeguarding-health-in-conflict-overview.pdf>.

Save the Children. 2011. *Health Workers Count Campaign*. Retrieved August 20, 2015. <http://www.healthworkerscount.org/about/>.

Scheffler, R.M., C.B. Mahoney, B.D. Fulton, M.R. Dal Poz and A.S. Preker. 2009. "Estimates of Health Care Professional Shortages in Sub-Saharan Africa by 2015." *Health Affairs* 28(5): w849–62.

Shiffman, J. 2007. Generating Political Priority for Maternal Mortality Reduction in 5 Developing Countries. Retrieved August 20, 2015. <http://www.ncbi.nim.nih.gov/pmc/articles/PMC1854881/?report=reade>.

Soucat, A. and R. Scheffler. 2013. *The Labor Market for Health Workers in Africa: A New Look at the Market*. Geneva: World Bank. Retrieved August 20, 2015. <http://dx.doi.org/10.1596/978-0-8213-9555-4>.

Sousa, A., R. Scheffler, J. Nyonic and T. Boerma. 2013. "A Comprehensive Health Labour Market Framework for Universal Health Coverage" *Bulletin of the World Health Organization* 91: 892–94. Retrieved August 20, 2015. <http://www.who.int/bulletin/volumes/91/11/13-118927.pdf>.

Spero, J.C., P.A. McQuide and R. Matte. 2011. "Tracking and Monitoring the Health Workforce: A New Human Resources Information System (HRIS) in Uganda." *Human Resources for Health* 9: 6.

Speybroeck, N., Y. Kinfu, M.R. Dal Poz and D.B. Evans. 2006. *Reassessing the Relationship between Human Resources for Health, Intervention Coverage and Health Outcomes*. Background Paper for the World Health Report 2006. Geneva: World Health Organization.

Technical Working Group 3 (TWG3). 2015. *Data and Measurement of HRH Availability, Accessibility, Acceptability and Quality*. In J. Campbell and H. Fogstad, co-chairs. Retrieved August 20, 2015. <http://www.who.int/workforcealliance/media/news/2014/TWG3_Paper_07Dec14.pdf?ua=1>.

Triad Communiqué. 2014. *Government Chief Nursing Officers and Midwifery Officers, Representatives of National Nursing Associations, Midwifery Associations, Regulatory Bodies, International Council of Nurses, International Confederation of Midwives and WHO Representatives*. Geneva: Triad. Retrieved August 20, 2015. <http://www.icn.ch/images/stories/documents/news/meetings/triad/2014/Triad_Communique_2014.pdf>.

United Nations (UN). 2000. *Millenium Summit Resolution*. New York, NY: UN General Assembly.

United Nations (UN). 2010a *Commission on Information and Accountability (CoIA)*. Retrieved August 20, 2015. <http://www.who.int/woman_child_accountability/about/coia/en/>.

United Nations (UN). 2010b. *Global Strategy for Women's and Children's Health, United Nations Secretary-General – The Partnership for Maternal, Newborn and Child Health*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://who.int/pmnch/activities/jointactionplan/en>.

United Nations (UN). 2011a. *The Millennium Development Goals Report 2011*. New York, NY: UN General Assembly. Retrieved August 20, 2015. <http://www.un.org/millenniumgoals/pdf/(2011_E)%20MDG%20Report%202011_Book%20LR.pdf>.

United Nations (UN). 2011b. Commission on Information and Accountability for Women's and Children's Health (CoIA). *Translating the Recommendations into Action – Workplan*. Geneva: United Nations Foundation. Retrieved August 20, 2015. <http://www.everywomaneverychild.org/images/co>.

United Nations (UN). 2012. UN 67th General Assembly. *Adopting Consensus Text, General Assembly Encourages Member States to Plan, Pursue Transition of National Health Care Systems toward Universal Coverage*. New York, NY. Retrieved August 20, 2015. <http://www.un.org/News/Press/docs/2012/ga11326.doc.htm>.

United Nations Population Fund (UNFPA). 2014. *The State of the World's Midwifery (SoWMy) 2014: A Universal Pathway. A Woman's Right to Health*. New York, NY. United Nations. Retrieved August 20, 2015. <https://www.unfpa.org/webdav/site/global/shared/documents/publications/2014/EN_SoWMy2014_complete.pdf>.

United Nations Inter-agency Group for Child Mortality Estimation (UN-IGME). 2012. *Levels and Trends in Child Mortality, 2012 Report*. New York: United Nations Children's Fund. Retrieved August 20, 2015. <http://www.childmortality.org/files_v10/download/Levels%20and%20Trends%20in%20Child%20Mortality%20Report%202012.pdf>.

United Nations Secretary General (UNSG). 2010. *Global Strategy for Women's and Children's Health*. New York, NY: United Nations. Retrieved August 20, 2015. <http://www.everywomaneverychild.org/images/content/files/global_strategy/full/20100914_gswch_en.pdf>.

United States Global Health Initiative (US GHI). 2009. *Global Health Initiative*. Retrieved August 20, 2015. <http://www.ghi.gov>.

United States Global Health Initiative (US GHI). 2012. *Global Health Initiative*. Retrieved August 20, 2015. <http://www.ghi.gov>.

Office of the US Global AIDS Coordinator (USOGAC). 2003. *PEPFRA Launched*. Washington, DC: Office of the US Global AIDS Coordinator.

Office of the US Global AIDS Coordinator (USOGAC). 2005. *The President's Emergency Plan for AIDS Relief: First Annual Report to Congress*. Washington, DC: Office of the US Global AIDS Coordinator. Retrieved August 20, 2015. <http://www.state.gov/s/gac/rl/43811.htm>.

Office of the US Global AIDS Coordinator (USOGAC). 2008. *Reauthorization of PEPFAR*. Washington, DC: Office of the US Global AIDS Coordinator.

Office of the US Global AIDS Coordinator (USOGAC). 2012. *PEPFRA Blueprint: Creating an AIDS Free Generation*. Washington: DC: Office of the US Global AIDS Coordinator.

Vujicic, M., S.E. Weber, I.A. Nikolic, R. Atun and R. Kumar. 2012. "An Analysis of GAVI, the Global Fund, and World Bank Support for Human Resources for Health in Developing Countries." *Health Policy and Planning* 27(8): 649–57.

World Bank. 1993. *World Development Report 1993*. Retrieved August 20, 2015. <http://files.dcp2.org/pdf/WorldDevelopmentReport1993.pdf>.

World Bank. 2014. *Concept Note: Global Financing Facility in Support of Every Woman, Every Child*. New York: World Bank.

World Bank and WHO. 2014. *Global Civil Registration and Vital Statistics Scaling Up Investment Plan 2015–2024*. Geneva: World Bank.

World Bank, WHO and USAID. 2015. *Measurement and Accountability for Results in Health*. Washington, DC: World Bank.

World Health Assembly (WHA). 2014. *Follow-up of the Recife Political Declaration on Human Resources for Health: Renewed Commitments towards Universal Health Coverage*. Retrieved August 20, 2015. <http://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_R24-en.pdf?ua=1>.

World Health Assembly (WHA). 2000–2014. *Resolutions*. World Health Organization. Governing Body Documents. Retrieved August 20, 2015. <http://apps.who.int/gb/or/>.

World Health Organization (WHO). 2000. *The World Health Report: Health Systems: Improving Performance*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/whr/2000/en/whr00_en.pdf>.

World Health Organization (WHO). 2003. *The Abuja Declaration and the Plan of Action: An Extract from the African Summit on Roll Back Malaria, Abuja, April 25, 2000*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.rollbackmalaria.org/docs/abuja_declaration.pdf>.

World Health Organization (WHO). 2006a. *Fifty-ninth World Health Assembly: Rapid Scaling Up of a Health Workforce Production*. World Health Assembly Resolution WHA59:23. Geneva: World Health Organization.

World Health Organization (WHO). 2006b. *The World Health Report 2006: Working Together for Health*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/whr/2006/whr06_en.pdf>.

World Health Organization (WHO). 2007. *The World Health Report 2007: Everybody's Business: Strengthening Health Systems to Improve Health Outcomes, WHO's Framework for Action*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/healthsystems/strategy/everybodys_business.pdf>

World Health Organization (WHO). 2008a. *Task Shifting: Global Recommendations and Guidelines*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/healthsystems/TTR-TaskShifting.pdf>.

World Health Organization (WHO). 2008b. *The World Health Report 2008: Primary Health Care: Now More than Ever*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/whr/2008/en/index.html>.

World Health Organization (WHO). 2008c. *Framework and Standards for Country Health Information Systems, Health Metrics Network*. Geneva: World Health Organization. Retrieved August 20, 2015. Retrieved August 20, 2015. <http://www.who.int/healthmetrics/documents/hmn_framework200803.pdf>.

World Health Organization (WHO). 2008d. *Monitoring Health Systems Strengthening*. Geneva: World Health Organization.

World Health Organization (WHO). 2010a. *Global Status Report on Non-Communicable Diseases 2010*. Geneva: World Health Organization.

World Health Organization (WHO). 2010b. *Increasing Access to Health Workers in Remote and Rural Areas through Retention: Global Policy Recommendations*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://whqlibdoc.who.int/publications/2010/9789241564014_eng.pdf>.

World Health Organization (WHO). 2010c. *The Global Code of Practice on the International Recruitment of Health Personnel*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/hrh/migration/code/practice/en/>.

World Health Organization (WHO). 2010d. *Trends in Maternal Mortality: 1990–2008*. Geneva: World Health Organization.

World Health Organization (WHO). 2011a. *Global Atlas of the Health Workforce*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://apps.who.int/globalatlas/default.asp>.

World Health Organization (WHO). 2011b. *The Abuja Declaration: Ten Years On*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/healthsystems/publications/abuja_report_aug_2011.pdf>.

World Health Organization (WHO). 2011c. *Transformative Scale-Up of Health Professional Education: An Effort to Increase the Numbers of Health Professionals*. Geneva: World Health Organization.

World Health Organization (WHO). 2011d. *Keeping Promises, Measuring Results: Commission on Information and Accountability Women's and Children's Health*. Geneva: World Health Organization.

World Health Organization (WHO). 2011e. *HRH Observatories: Evidence-Informed Human Resources for Health Policies: The Contribution of HRH Observatories*. Retrieved August 20, 2015. <http://www.who.int/hrh/resources/observatories_meeting_report.pdf>.

World Health Organization (WHO). 2012a. *Building a Future for Women and Children: The 2012 Report*. Countdown to 2015 Initiative. Geneva: World Health Organization.

World Health Organization (WHO). 2012b. *Optimizing Health Worker Roles to Improve Access to Key Maternal and Newborn Health Interventions through Task Shifting*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://apps.who.int/iris/bitstream/10665/77764/1/9789241504843_eng.pdf>.

World Health Organization (WHO). 2012c. *World Health Statistics 2012*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/gho/publications/world_health_statistics/EN_WHS2012_Full.pdf>.

World Health Organization (WHO). 2012d. *Country Information Systems: Overview and Lessons Learned*. Health Metric Network. Geneva: WHO. Retrieved August 20, 2015. <http://www.who.int/healthmetrics/resources/Working_Paper_3_HMN_Lessons_Learned.pdf?ua=1>.

World Health Organization (WHO). 2013a. *Global Health Observatory Data Repository*. Retrieved August 20, 2015. <http://apps.who.int/gho/data/?vid=1901>.

World Health Organization (WHO). 2013b. *Millennium Development Goals 4 and 5 – The Partnership for Maternal, Newborn and Child Health*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://www.who.int/pmnch/about/about_mdgs/en/index.html>.

World Health Organization (WHO). 2014a. *World Health Statistics 2014*. Geneva: World Health Organization. Retrieved August 20, 2015. <http://apps.who.int/iris/bitstream/10665/112738/1/9789240692671_eng.pdf?ua=1>.

World Health Organization (WHO). 2014b. *e-Health and Innovation in Women's and Children's Health: A Baseline Review*. Geneva: World Health Organization.

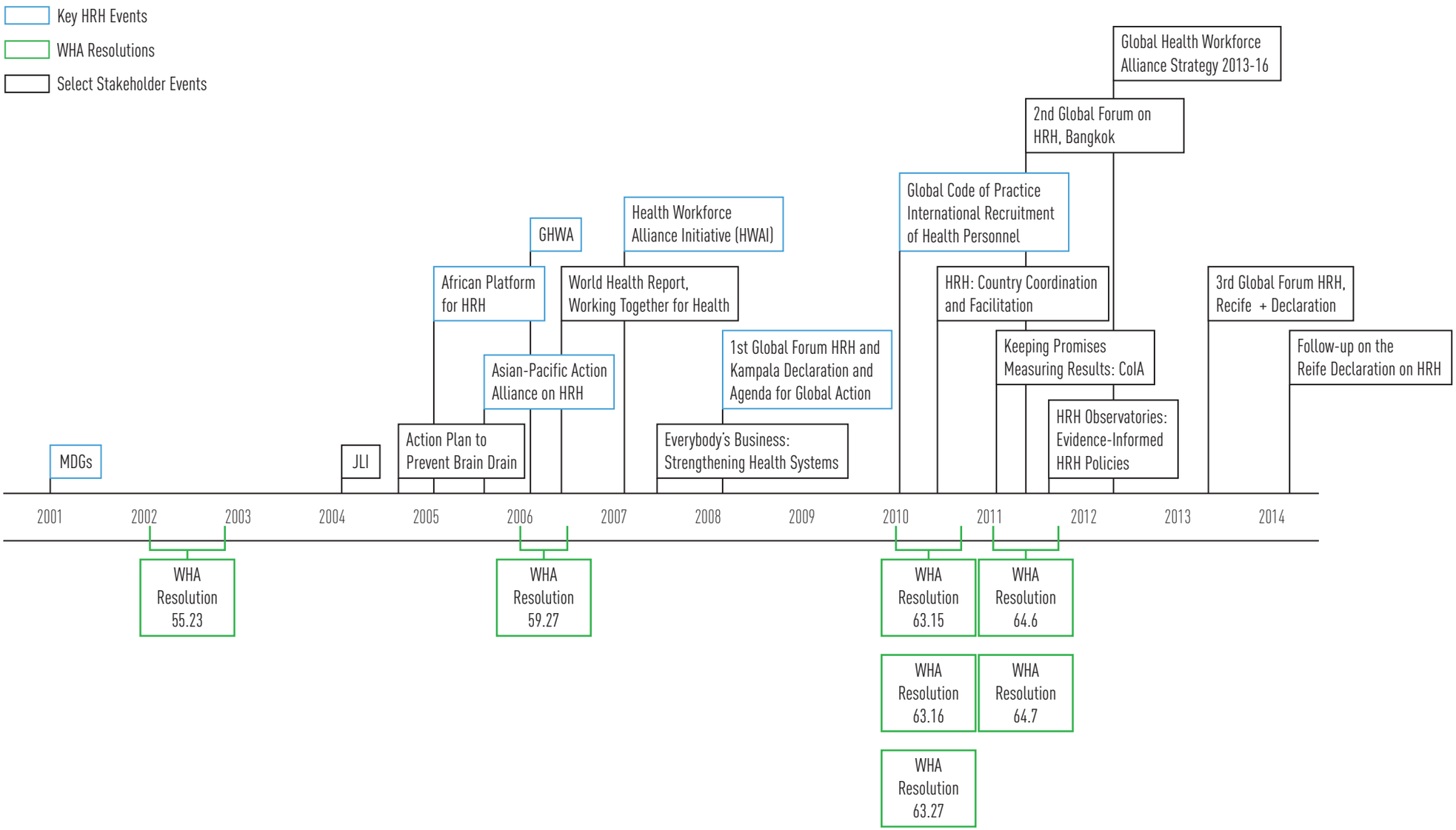
World Health Organization (WHO). 2014c. *Joint Inter-Ministerial Policy Dialogue on eHealth Standardization and Second WHO Forum on eHealth Standardization and Interoperability*. Geneva: WHO. Retrieved August 20, 2015. <http://www.who.int/ehealth/events/final_forum_report.pdf?ua=1>.

World Health Organization, African Regional Office (WHOAfro). 2005. *Regional Consultative Meeting: Taking the Human Resources for Health Agenda Forward at the Country Level in Africa, Final Report*. Brazzaville, Congo: WHO African Regional Office. Retrieved August 20, 2015. <http://www.hrh-observatory.afro.who.int/images/Document_Centre/final_report_edited_hrh_regional_consultation.pdf>.

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



WORLD HEALTH & POPULATION

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	• WHO Report: Health Systems (WHO)
WHA 55.23	2002	
	2003	
	2004	• Joint Learning Initiative (JLI) HRH: Overcoming the Crisis (JLI) • Action Plan to Prevent Brain Drain (Physicians for Human Rights)
	2005	
WHA 59.27	2006	• World Health Report, Working Together for Health (WHO)
	2007	• Everybody's Business: Strengthening Health Systems (WHO)
	2008	
	2009	• IOM The US Commitment to Global Health (IOM)
WHA 63.15 WHA 63.16 WHA 63.27	2010	• HRH Country Coordination & Facilitation (WHO)
WHA 64.6 WHA 64.7	2011	• Keeping Promises, Measuring Results: Commission on Information and Accountability Women's and Children's Health (WHO) • Second Global Forum HRH, Bangkok, From Kampala to Bangkok: Reviewing Progress Renewing Commitments (GHWA) • Country Health Information Systems (Health Metrics Network) • HRH Observatories: Evidence Informed HRH Policies (WHO)
	2012	• Independent External Review Group Established (iERG) (WHO)
	2013	• Population Dynamics: Dhaka Declaration (Global Leaders) • Comprehensive Health Labor Market Framework (Sousa and Scheffler) • Labour Market for Health Workers in Africa (Soucat and Scheffler) • Transforming the Global Health Workforce (DeLuca and Soucat) • 3rd Global Forum on HRH, Recife, Political Declaration on HRH (GHWA) • Recife, Country and Stakeholder Commitments (GHWA) • A Universal Truth: No Health without a Workforce (GHWA)
	2014	• Delivering on the Data Revolution in Sub-Saharan Africa (Center for Global Development) • A Commitment to Community Health Workers (FHWC) • 19 Countries save $149m on health worker info systems (Capacity Plus) • Follow-up of the Recife Political Declaration on HRH (WHA) • Health Workers Count: Civil Society Pledge (HWAI) • State of Midwifery Report 2014 (UNFPA)