3.4.1. Care burden

Caring for younger siblings and managing the household were the responsibilities of the older siblings. They played multiple roles and were overworked. One article described the case of a 13-year-old boy [34] who went to school in the mornings, came home and cared for his 2 siblings, and then worked at a shop in the evenings. Sibling caregiving was especially challenging at first, but eventually, the older siblings got used to it and learnt to manage their various duties [5].

The caregiving burden involved caring for not only younger siblings but also ill parents and dependent adults such as debilitated grandparents or disabled members of the family. A girl whose mother was sick with AIDS cared for her dying mother and 2 younger siblings while working to support the entire household [11].

3.4.2. Economic responsibility

This was one of the most frequently reported impacts. Many older children had to work to supplement the income of the household [9–11,34,35,38,41]. They had to 'put food on the table [10]' and pay school fees of younger siblings. They also ran the household. They might discuss with younger siblings how to use the household income [11]. Some orphans did menial work or odd jobs, which are lowest on the earnings ladder [9]. Although the caregiving siblings worked hard, they often struggled with poverty and shortage of food [35].

3.4.3. Educational disadvantage

This was another frequently reported impact. One of the immediate impacts of AIDS on older siblings was that they had to dropout from school [10–12,31,35,38,41]. When children's caring responsibility increased, they were too tired or too busy to regularly attend school, leading to tardiness and poor academic performance [12]. They would arrive late to school because they had to first take care of and prepare younger siblings for school. Even though the caregiving siblings attended school, they were exhausted and could not concentrate [34]. Eventually, the caregiving siblings had to drop out of school and relinquish the possibility of a future career [33].

However, Kürzinger reported that after controlling for confounders, orphans' school attendance was relatively equivalent to that of non-orphans, suggesting that when family-based and community-based programs are well-functioning, they work as a safety net for orphans [12].

3.4.4. Psychological impact

Psychological impacts of sibling caregiving could be both positive and negative. On the positive side, older siblings developed a sense of responsibility and when they recognized that they were successfully managing the household and caring for younger siblings, they developed a sense of achievement [34,35]. Siblings' relationship was strengthened when siblings helped each other run the household and discussed such matters together [34,35] and when younger siblings appreciated the effort of the older siblings [37].

However, negative impacts were also reported. Older siblings were emotionally burdened and stressed [34,36]. Some caregivers felt unhappy and pitied themselves [34]. They were too busy and had almost no time for fun [35].

Wood [36] pointed out that 'older siblings often had particularly acute emotional burdens, having to deal with the grief of their younger siblings as well as with their own sense of loss'. Some concealed maternal death and told younger siblings that the mother was away on a journey [40].

When older siblings are forced to play the role of a 'parent' and can no longer play the role of a 'child', their identity might be challenged as they continue to develop [35,37]. Some orphans resented society because they felt that society did not provide them with adequate support [10].

3.4.5. Social isolation

Sibling caregivers risked social isolation. Because the caregivers dropped out of school and were too busy with various responsibilities, they lost school friends, and peer friendships in the community were also restricted [11,37].

3.4.6. Compromised health and nutrition

Sibling caregiving could have negative impacts on the health and nutrition of children orphaned by AIDS. Because of their heavy workload, caregivers were physically exhausted. A study in India reported that one such caregiving boy came back home late at night utterly exhausted [34]. Malnutrition among orphans was also reported [41].

Sibling caregiving impacts not only the caregivers but also the cared for. Some older siblings expressed fear that they might not have enough knowledge and might not be able to provide appropriate care for infants and ill siblings [11,34]. A girl recalled the time when all her 3 siblings fell ill and she had to care for them [32]. Older siblings might not recognize initial symptoms of diseases or they might provide inappropriate food or care for younger siblings [35].

4. Discussion

This study reveals the extent of sibling caregiving among children orphaned by AIDS and describes the framework, related factors, and impacts of such care.

In this study, we estimated the prevalence of sibling caregiving under inadequate adult supervision to range from slightly <1% to slightly over 10%, depending on where the data were gathered. Double orphans were especially at risk of being forced to care for siblings.

The concept of sibling caregiving is not limited to physical and economic care. Psychological and educational care is also its important components. A specific feature of sibling caregiving is its reciprocal nature. Although older siblings were the primary caregivers, younger siblings provided the older siblings with emotional care and shared economic and physical caregiving responsibilities. This concept serves as a framework for further studies.

In this systematic review, we found that sibling caregiving among AIDS orphans had many negative consequences for both the caregivers and the cared for. In previous studies dealing with sibling caregiving among children with parents, many positive aspects of such caregiving were highlighted [42,43]. Sibling caregiving gives rise to feelings

of happiness and contentment among older siblings when performed under appropriate adult supervision. However, among orphans, the responsibility of caring for younger siblings is more than their capacity in the context of the caregivers' ages. Sibling caregivers rarely receive sufficient help and support from their relatives and community. The overwhelming burden of caring borne by older siblings leads to economic, educational, psychological, and social disadvantages, negatively impacting their health. These disadvantages often force older siblings to leave school, resulting in restricted peer friendship as well as the imposition of the role of 'a parent' despite their young age [37].

These negative impacts may not necessarily be the consequences of sibling caregiving itself; rather, they might result from the shortage of support for orphans. Some studies reported that school attendance, treatment-seeking behaviour, and nutritional status of orphans were almost equivalent to those of non-orphans when confounders were controlled for or where an extended family network was functioning [12,13]. Negative impacts of sibling caregiving can be reduced if community and administrative support supplements the role of the extended family network.

Although numerous studies on orphans and child-headed households of AIDS existed, we could not find any articles that focused on sibling caregiving. Articles that included descriptions of sibling caregiving were from a limited number of countries. Half were from 3 countries: Uganda, Zimbabwe, and South Africa. Many articles used qualitative methods, and there was no study that quantitatively measured the caregiving burden of orphan caregivers.

More systematic data collection on the burden of sibling caregiving is necessary. Including sibling caregiving in DHS and AIS will help identify problems associated with sibling caregiving, particularly since orphans are a nation-level public health concern. Further studies are needed in the following areas: (1) the impacts of sibling caregiving on the health of child caregivers as well as the cared for in different socio-cultural contexts of AIDS-affected countries, (2) indicators that can be used to measure the burden and impact of sibling caregiving on orphans, (3) effective model interventions that can reduce the burden of sibling caregiving, and (4) the impacts of sibling caregiving on children made vulnerable by parental AIDS.

Our study has several limitations. First, although we focused on AIDS orphans, it was difficult to know if the studied orphans' deceased parents were in fact serologically HIV(+). Some of the articles we selected studied included all orphans living in areas with high HIV prevalence. Our results may not be specific to orphans of AIDS, but they reflect the situation of orphans living under the shadow of HIV/AIDS. Second, as mentioned above, quantitative studies on this topic were limited, and most articles we extracted used qualitative methods to describe the lives of orphans. Such studies may focus more than required on the negative aspects of sibling caregiving. Third, although we did not intend to limit our search to studies conducted in Africa, most of the studies that fulfilled our sampling criteria were from Africa. Therefore, our results mainly reflect the situation in Africa.

5. Conclusions

Our review presented frameworks for the concept of sibling caregiving, its related factors, and its impacts on caregivers and those cared for. Sibling caregiving has negative consequences for orphans of AIDS. However, these negative impacts can be prevented with sufficient support. Policy makers should be aware that older children who care for younger siblings risk physical and psychological ill health. Hence, it is important to gather information about sibling caregiving and take measures to mitigate this burden on orphans.

Conflict of interest statement

None declared.

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References

[1] Monasch R, Boerma JT. Orphanhood and childcare patterns in sub-Saharan Africa: an analysis of national survey from 40 countries. AIDS 2004;18:S55–65.
[2] UNAIDS, UNICEF, USAID. Children on the brink 2004: a joint report of new orphan estimates and a framework for action. New York: UNAIDS/UNICEF/USAID; 2004.
[3] UNICEF. Africa's orphaned and vulnerable generations. Children affected by AIDS. New York: UNICEF; 2006.
[4] Foster G. The capacity of the extended family safety net for orphans in Africa. Psychology, Health and Medicine 2000;5:55–62.
[5] Nyambedha EO, Wandibba S, Aagaard-Hansen J. Changing patterns of orphan care due to the HIV epidemic in western Kenya. Social Science and Medicine 2003;57:301–11.
[6] Foster G, Makufa C, Drew R, Kralovec E. Factors leading to the establishment of child-headed households: the case of Zimbabwe. Health Transition Review 1997;7:155–68.
[7] Kidman R, Petrow SE, Heymann SJ. Africa's orphan crisis: two community-based models of care. AIDS Care 2007;19:326–9.
[8] Yang H, Wu Z, Duan S, Li Z, Li X, Shen M, et al. Living environment and schooling of children with HIV-infected parents in southwest China. AIDS Care 2006;18:647–55.
[9] Arnab R, Srumaga-Zake PAE. Orphans and vulnerable children in Botswana: the impact of HIV/AIDS. Vulnerable Children and Youth Studies 2006;1:221–9.
[10] Schenk K, Ndhlovu L, Tembo S, Nsune A, Nkhata C, Walusiku B, et al. Supporting orphans and vulnerable children affected by AIDS: using community-generated definitions to explore patterns of children's vulnerability in Zambia. AIDS Care 2008;20:894–903.
[11] Germann SE. An exploratory study of quality of life and coping strategies of orphans living in child-headed households in the high HIV/AIDS prevalent city of bulawayo, Zimbabwe [Doctoral Thesis]. University of South Africa; 2005.
[12] Kürzinger ML, Pagnier J, Kahn JG, Hampshire R, Wakabi T, Dye TD. Education status among orphans and non-orphans in communities affected by AIDS in Tanzania and Burkina Faso. AIDS Care 2008;20:726–32.
[13] Sarker M, Neckermann C, Müller O. Assessing the health status of young AIDS and other orphans in Kampala, Uganda. Tropical Medicine and International Health 2005;10:210–5.
[14] Mishra V, Arnold F, Otieno F, Cross A, Hong R. Education and nutritional status of orphans and children of HIV-infected parents in Kenya. AIDS Education and Prevention 2007;19:383–95.
[15] Cluver L, Gardner F, Operario D. Poverty and psychological health among AIDS-orphaned children in Cape Town, South Africa. AIDS Care 2009;21:732–41.
[16] Zhao G, Li X, Fang X, Zhao J, Yang H, Stanton B. Care arrangements, grief and psychological problems among children orphaned by AIDS in China. AIDS Care 2007;19:1075–82.

[17] Akunga A, Midi L, Mogere J, Muia DM, Mitahi D, Mwangi MW, et al. The impact of HIV/AIDS on education in Kenya and the potential for using education in the widest sense for the prevention and control of HIV/AIDS. Government of Kenya and UNICEF Kenya country office; 2000.
[18] UNAIDS. Children orphaned by AIDS in sub-Saharan Africa. Geneva: UNAIDS; 2003.
[19] Baggaley RC, Needham D. Africa's emerging AIDS – orphans crisis. Canadian Medical Association Journal 1997;156:873–5.
[20] UNAIDS, UNICEF. The framework: for the protection, care and support of orphans and vulnerable children living in a world with HIV and AIDS. Geneva: UNAIDS/UNICEF; 2004.
[21] Petticrew M, Roberts H. Systematic reviews in the social sciences. Oxford: Blackwell Publishing; 2006.
[22] Critical Appraisal Skills Programme. 10 questions to help you make sense of qualitative research. Milton Keynes Primary Care Trust; 2002.
[23] Saito S, Monasch R, Keogh E, Dhlembeu N, Bergua J, Mafico M. Baseline for the evaluation of a National Action Plan for Orphans and Other Vulnerable Children using the UNAIDS core indicators: a case study in Zimbabwe SB. Vulnerable Children and Youth Studies 2007;2:198–214.
[24] Gilborn LZ, Nyonyintono R, Kabumbuli R, Jagwe-Wadda G. Making a difference for children affected by AIDS: baseline findings from operations research in Uganda. New York: The Population Council; 2001.
[25] Masmas TN, Jensen H, da Silva D, Hoj L, Sandstrom A, Aaby P. The social situation of motherless children in rural and urban areas of Guinea-Bissau. Social Science and Medicine 2004;59:1231–9.
[26] Atwine B, Cantor-Graae E, Bajunirwe F. Psychological distress among AIDS orphans in rural Uganda. Social Science and Medicine 2005;61:555–64.
[27] Floyd S, Crampin AC, Glynn JR, Madise N, Mwenebabu M, Mnkhondia S, et al. The social and economic impact of parental HIV on children in northern Malawi: retrospective population-based cohort study. AIDS Care 2007;19:781–90.
[28] Kumakech E, Cantor-Graae E, Maling S, Bajunirwe F. Peer-group support intervention improves the psychosocial well-being of AIDS orphans: cluster randomized trial. Social Science and Medicine 2009;68:1038–43.
[29] Hill C, Hosegood V, Newell M-L. Children's care and living arrangements in a high HIV prevalence area in rural South Africa. Vulnerable Children and Youth Studies Volume 2008;3:65–77.
[30] Social Impact Assessment and Policy Analysis Corporation. Inception report: situation analysis of orphan children in Namibia; 2000.
[31] Hartell CG,ACJ. HIV/AIDS in South Africa: a study of the socio-educational development of adolescents orphaned by AIDS in child-headed households. International Journal of Adolescence and Youth 2005;12:213–29.
[32] Roalkvam S. The children left to stand alone. African Journal of AIDS Research 2005;4:211–8.
[33] Yamba CB. Loveness and her brothers: trajectories of life for children orphaned by HIV/AIDS in Zambia. African Journal of AIDS Research 2005;4:205–10.
[34] India HIV/AIDS Alliance. A situational analysis of child-headed households and community foster care in Tamil Nadu and Andhra Pradesh States, India. Delhi: International HIV/AIDS Alliance; 2006.
[35] Ruiz-Casares M. Strengthening the capacity of child-headed households in Namibia to meet their own needs: a social networks approach [Doctoral Thesis]. New York: Cornell University; 2006. p. 514.
[36] Wood K, Chase E, Aggleton P. 'Telling the truth is the best thing': teenage orphans' experiences of parental AIDS-related illness and bereavement in Zimbabwe. Social Science and Medicine 2006;63:1923–33.
[37] Cluver L, Gardner F. Risk and protective factors for psychological well-being of children orphaned by AIDS in Cape Town: a qualitative study of children and caregivers' perspectives. AIDS Care 2007;19:318–25.
[38] Landry T, Luginaah I, Maticka-Tyndale E, Elkins D. Orphans in Nyanza, Kenya: coping with the struggles of everyday life in the context of the HIV/AIDS pandemic. Journal of HIV/AIDS Prevention in Children and Youth 2007;8:75–98.
[39] Birdthistle IJ, Floyd S, Machingura A, Mudziwapasi N, Gregson S, Glynn JR. From affected to infected? Orphanhood and HIV risk among female adolescents in urban Zimbabwe. AIDS 2008;22:759–66.
[40] Withell B. The prebereavement psychological needs of AIDS-affected adolescents in Uganda. International Journal of Palliative Nursing 2009;15:128–33.
[41] Abebe T, Aase A, Children. AIDS and the politics of orphan care in Ethiopia: the extended family revisited. Social Science and Medicine 2007;64:2058–69.
[42] Rabin-Jamin J, Maynard AE, Greenfield P. Implications of sibling caregiving for sibling relations and teaching interactions in two cultures. Ethos 2003;31:204–31.
[43] Batjargal J, Baljmaa B, Ganzorig D, Solongo A, Tsetsgee P. Care practices for young children in Mongolia. Ulaanbatar: Ministry of Health, UNICEF; 2000.

First Global Symposium
ON HEALTH SYSTEMS RESEARCH
Science to accelerate universal health coverage

Health workforce: the critical pathway to universal health coverage

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This paper is one of several in a series commissioned by the World Health Organization for the First Global Symposium on Health Systems Research held 16-19 November, 2010, in Montreux, Switzerland, in collaboration with the Global Health Workforce Alliance. The goal of these papers is to initiate a dialogue on the critical issues in health systems research. The opinions expressed in these papers are those of the authors and do not necessarily reflect those of the symposium organizers. This paper has financial and technical support from the Global Health Workforce Alliance, as part of its mandate to support solutions to the health workforce crisis.

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KEY MESSAGES

Countries affected by health workforce shortage and/ or maldistribution are highly unlikely to achieve universal health coverage. In the absence of benchmarks on density and distribution of health workers required to achieve universal health coverage, more specific targets are necessary considering the country needs and realities, and the potential contribution of non-traditional cadres, such as community health workers and mid-level health providers.

Multi-pronged approaches for health workforce development, such as task shifting, training and retention efforts, have led to progress in improving coverage for infectious disease control. Comprehensive strengthening of health workforce, and scaling up workforce production for the continuum of maternal, newborn and child health care are options for working towards population-specific universal coverage. These lessons can be applied also for comprehensive universal health coverage, as countries progressively broaden the objectives of their health systems.

Investment should be made in both implementing policies and approaches of proven efficacy, such as those enshrined in the Kampala Declaration and Agenda for Global Action, and in strengthening the evidence base to better inform policy making.

Priority topics for research in the health workforce domain were identified in 2008, ranging from strategies to address rural retention and dual practice problems, to (cost-)effectiveness of different training and regulation approaches. Some progress has been registered in implementing the research agenda identified (for instance new evidence - and normative guidance - has emerged on rural retention approaches, and the determinants of effectiveness of task-shifting are now better understood), but many areas represent persisting evidence gaps to date.

Success stories in achieving universal health coverage from several countries have been reported in the literature, but few have been applied at scale in other countries. Contextual differences enabling these successes must be more carefully studied to extrapolate findings to other contexts. Combined approaches suitable for complex systems, such as systems thinking, realist review, and national platform evaluation, are useful to understand the reality of maldistribution, retention problems, and performance issues of the health workforce, learning not only what works (or not), but how, for whom, and under what context.

EXECUTIVE SUMMARY

Health workers remain in many countries the weakest link of health systems: according to the World Health Report 2006 (WHR 2006), 57 countries fell below the critical threshold of 2.3 physicians, nurses and midwives per 1,000 population, considered generally necessary to achieve an acceptable level of coverage of essential health services. In addition to shortage and maldistribution challenges, limited training capacity, weak management systems and poor working conditions, including inadequate financial and non-financial incentives, conspire to determine high attrition and poor morale and performance.

Exploring the intersections between the universal health coverage paradigm and the current health workforce challenges and opportunities requires an analysis of all the interconnected aspects of the planning, production and management of human resources for health, across the working lifespan of health workers.

Lack of standard definitions for certain health worker cadres, absence of comparable data sources and weak health workforce information systems prevent having a full picture of the status of health workforce at the global level, and in low- and middle-income countries in particular.

Based on available information, many countries affected by the heaviest burden of disease fall far below the recommended minimum density of health workers, despite recent investments by many countries and development partners to scale up education of health workers.

A concentration of health workers in urban areas is a recurrent feature in most low- and middle-income countries, having a detrimental effect on (equitable) coverage of essential health services and health outcomes.

Among the countries facing health workforce shortage and maldistribution, there have been different approaches to overcome challenges and move towards universal health coverage. We categorize them broadly in disease-specific approaches, comprehensive horizontal approaches, and semi-horizontal approaches. The strategies adopted don't have in reality such tightly defined boundaries, and typically they are implemented together within the same country, but it is useful to adopt this classification to explore and describe the policy discourse and the health system responses to health workforce challenges as they have evolved in the last decade.

Disease-specific approaches to health workforce strengthening have been documented more extensively in the case of HIV and AIDS programmes. Multi-pronged approaches for health workforce development, such as task shifting, training and retention efforts, have led to progress in progressing towards universal coverage for HIV/ AIDS. Approaches such as comprehensive strengthening of health workforce, and scaling up workforce production for the continuum of maternal, newborn and child health care are options for working towards population-specific universal coverage. These lessons can be applied also for comprehensive universal health coverage, as countries progressively broaden the ambitions and objectives of their health systems. Broadening the disease-specific universal coverage paradigm to universal access to maternal, newborn and child health services as an intermediate milestone is a valid approach towards attaining a more comprehensive (horizontal) universal health coverage.

Much of the evidence discussed in the report comes from low-income countries. However many middle-income countries have managed to overcome health workforce impediments, reaching universal coverage with more limited resources than high-income countries through a variety of strategies and approaches to both scale up and retain their health workforce. It is possible to examine these experiences to draw inferences of relevance to low-income countries.

The need for more and better evidence in relation to human resources for health has been underscored by a number of initiatives and studies over the last decade.

Some information needs relate to the routine management information systems of the health sector, including for instance the availability, distribution, employment status and performance of health workers. Others may relate to information required to track developments of particular initiatives, such as the minimum dataset required to monitor the implementation of the Code of Practice on internal recruitment of health workers. There are also significant evidence gaps in relation to wider policy approaches and strategies to develop, maintain and optimize the performance of the health workforce.
Due to the complexity of HRH interventions, and the limitations in extrapolating findings of HRH studies and evaluations to other contexts, multi-method approaches are needed to strengthen the research efforts, both in high and low-income countries. Mixed approaches can allow a sound effectiveness evaluation to be complemented by an understanding of the reality and context for successful implementation.

The health workforce truly represents the critical pathway to achieve universal health coverage, but shortage, maldistribution and peformance challenges hinder the attainment of even more modest objectives, such as selective (disease-specific or population-specific) coverage with essential health services.

There is a global consensus on priority strategies to address the health workforce crisis, which is enshrined in the Kampala Declaration and Agenda for Global Action. Governments and other stakeholders should fully implement these strategies to bolster human resources for health.

In terms of increasing health worker availability, the target of 2.3 physicians, nurses and midwives per 1,000 population is not attainable in all contexts, because funding the proposed number of highly skilled health workers would require some low-income countries to devote an unrealistic proportion of their gross domestic product (GDP) to health. The expansion of non-traditional cadres, such as community health workers and mid-level health providers, should be considered as a priority policy option in these contexts.

Several evidence-based policy options to improve retention of health workers in rural areas have been identified, including measures related to education and training, regulation, financial and non-financial incentives, management support. Countries should select and implement the ones most relevant to the local context. Interventions to improve quality and performance have been less rigorously studied in low- and middle-income contexts.

As efforts are intensified on maternal and child health in the drive to progress towards universal health coverage in the context of a global financial crisis, health systems research should strengthen the normative and evidence base that can contribute to sound policy setting and planning, thereby ensuring that scarce resources are increasingly directed towards interventions of proven effectiveness and that represent the best value for money.

LIST OF ACRONYMS

AIDS	Acquired Immunodeficiency Syndrome
ART	Anti-Retroviral Therapy
CHPS	Community-based Health Planning and Services
CHW	Community Health Worker
CPIRD	Collaborative Project to Increase Production of Rural Doctors
DFID	Department for International Development
EHRP	Emergency Human Resource Programme
EPI	Expanded Program on Immunization
GDP	Gross Domestic Product
GHWA	Global Health Workforce Alliance
GRADE	Grading of Recommendations, Assessment, Development and Evaluation
HIV	Human Immunodeficiency Virus
HRH	Human Resources for Health
IMCI	Integrated Management of Childhood Illnesses
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupation
ISIC	Industrial Classification of All Economic Activities
JICA	Japan International Cooperation Agency
JLI 2004	Joint Learning Initiative report 2004
MCE of IMCI	Multi-Country Evaluation of Impact, Cost and Effectiveness of Integrated Management of Childhood Illness
MDG	Millennium Development Goal
MMR	Maternal Mortality Ratio
MNCH	Maternal, Newborn and Child Health
NCD	Non-Communicable Disease
NGO	Non-Governmental Organization
NHIS	National Health Insurance Scheme
OPD	Outpatient department
PEPFAR	U.S. President's Emergency Plan for AIDS Relief

PLHIV	People Living with HIV
PMNCH	Partnership for Maternal, Newborn and Child Health
PMTCT	Prevention of Mother-to-Child Transmission
UNICEF	United Nations Children's Fund
VHV	Village Health Volunteers
WHO	World Health Organization
WHR 2006	World Health Report 2006

INTRODUCTION

> *All people everywhere will have access to a skilled, motivated and supported health worker, within a robust health system.*[1]

This is the vision of the Global Health Workforce Alliance (GHWA), which was launched in 2006 as part of the response to the global HRH crisis, highlighted in the *World Health Report 2006 - Working together for health* (WHR 2006).[2]

The WHR 2006 further stated that, "The ultimate goal of health workforce strategies is a delivery system that can guarantee universal access to health care and social protection to all citizens in every country".

The universal health coverage paradigm is built around the concepts of availability, accessibility, acceptability and affordability.[3]

The correlation between availability of health workers, coverage of health services and health outcomes is well established.[4] In this sense, progress in health workforce strengthening is a pre-requisite in moving towards universal coverage. Health workers however remain in many countries the weakest link of health systems: according to the WHR 2006, 57 countries fell below the critical threshold of 2.3 physicians, nurses and midwives per 1,000 population, considered generally necessary to achieve an acceptable level of coverage of essential health services (WHO 2006, op cit).

The global shortage, estimated by World Health Organization (WHO) at 4.3 million health workers (WHO 2006, op cit), is compounded by uneven geographical distribution within countries, with a concentration of highly skilled personnel in urban areas, and exacerbated by international migration from low- and middle-income countries to countries that offer better working conditions and remuneration. As health workers are the direct providers of health services, their presence and distribution impacts directly on the availability and accessibility dimensions of universal health coverage.

Limited training capacity, weak management systems and poor working conditions, including inadequate financial and non-financial incentives, conspire to determine high attrition and poor morale and performance of health workers, which can negatively impact on quality and acceptability of services provided, as well as their affordability when poorly remunerated staff engage in survival strategies, such as charging under-the-table out-of-pocket payments.

With a view to such realities, the WHR 2006 report laid out a 'working lifespan' approach, and since then the policy discourse on health workforce at global and country level has broadened to considered the policies and strategies relating to the stages when people enter the workforce, the period of their lives when they are part of it, and the point at which they make their exit. For example, education and training are key issues in the entry stage. Then, in the active performance stage, supervision, effective incentives, systems support and lifelong learning can be the keys to improve performance. Finally, at the exit stage, migration and attrition must be overcome. All of these stages are crucial not only for overcoming the present crisis, but to cope with emerging health workforce challenges in low-income countries.

It is clear, therefore, that exploring the intersections between the universal health coverage paradigm and the current health workforce challenges and opportunities requires an analysis of all these interconnected aspects of the planning, production and management of human resources for health.

Of great importance as well is the increasing recognition that the socio-economic fabric of a society also influences heavily the inequitable production, deployment and distribution of health workers, having a bearing on the education, recruitment and deployment and retention patterns. Multi-strategic approaches to ensure equitable and universal coverage of health workers should also address such social determinants.[5]
In recognition of the fundamental importance of the health workforce in attaining universal health coverage objectives, the technical attention to and political momentum for health workers has grown considerably in the past few years. After the 2004 Joint Learning Initiative report (JLI 2004) and the WHR 2006 had raised attention to the issue, GHWA convened the First Global Forum on Human Resources for Health in Kampala in March 2008 and adopted the *Kampala Declaration and Agenda for Global Action,* which has become the global reference on priority strategies to address the health workforce crisis. Then, in July 2008, the Toyako G8 summit supported the Declaration and drew attention to the health workforce, and more recently the grave impact of the health workforce challenges on the possibility of attaining the health Millennium Development Goals (MDGs) was a strong undercurrent of the UN High Level Summit on the MDGs[6].
Against this backdrop, in this paper we explore through a selective literature review (see annex 1) critical issues relating to the health workforce that can contribute to the movement towards universal health coverage. Building on a framework first proposed by Rhode et al,[7] which categorizes health systems according to whether they provide

selective (less than 50%) coverage, comprehensive (over 80%) coverage and in transition between selective and comprehensive coverage (between 50% and 80%); we also explore how different countries have adopted different strategies and intermediate targets to gradually move towards universal health coverage, differentiating between *disease-specific universal coverage*, *semi-horizontal universal coverage* (limited to the care of maternal, newborn and child health), and *horizontal universal coverage*.

To contextualize the findings of our analysis we start by providing an overview of the definition and current state of the health workforce in low-income countries. Then, we present evidence in support of interventions to scale up the health workforce towards achieving disease-specific universal coverage, towards semi-universal coverage by highlighting health workforce interventions specific to maternal, neonatal and child health, and finally, we deal with horizontal universal coverage. We also try to identify lessons learned from middle-income countries to complement evidence from low-income countries.

Finally, we reflect on the strength and wider applicability of the available evidence, identifying some strategic directions for policy makers where the evidence base is sufficiently robust, and delineating a way forward for researchers where the limitations and weaknesses of the information basis prevent drawing clear policy recommendations.

STATE OF THE HEALTH WORKFORCE IN LOW-INCOME COUNTRIES

Definition of health workers remains a controversial issue in many low-income countries, as their roles and competencies differ from country to country.[8] An understanding of the current status of the health workforce requires addressing three categories of questions, relating, respectively, to density (*How many?*), distribution (*Where? Who?*), and performance (*What do they do? How do they do it?*)[9]

Definition

WHO defines health workers as "all people engaged in actions whose primary intent is to enhance health" (WHO 2006, op cit). In addition, a new more operational framework has been recently proposed (Dal Poz et al 2009, op cit), which divides health workers into three categories:

A. Those with health education and training working in the health sector;
B. Those with training in a non-health field (or with no formal training) working in the health sector;
C. Those with health training who are either working in a non-health-care-related industry, or who are currently unemployed or not active in the labour market.

The sum of the three elements (A, B, and C) yields the total potential health workforce available. In this way, the framework can be a useful tool for identifying potential data sources and gaps for health workforce analysis. Population censuses and labour force surveys can provide information on all three elements, while health facility assessments or payroll and other administrative records provide data only for the active health workforce.

In addition to raw numbers, a labour market analysis is critical for getting an accurate diagnosis of production, deployment, distribution and other aspects related to the health workforce at national and sub-national level.

Health workforce classification is another important dimension of health worker definition. As for internationally standardized classifications, three types can provide a coherent framework for categorizing fields and levels of training, and occupations and industries of employment according to shared characteristics: the International Standard Classification of Education (ISCED), the International Standard Classification of

Occupations (ISCO), and the International Standard Industrial Classification of All Economic Activities (ISIC).[ibidem]

The ISCO-2008 classifies health workers into three sub-categories: health professionals (with 14 professional titles), health associate professionals (with 16 professional titles) and personal care workers (with 3 professional titles). Moreover, 5 titles of additional health-related unit groups are identified, such as health service managers. Therefore, in total, the ISCO-2008 designates 38 occupational titles.[ibidem]

When the health worker crisis was advocated as an issue in the mid-2000s, it was mostly the number of medical doctors, nursing, and midwifery professionals which tended to be highlighted. This perspective was based on the ISCO-1988. Now, under ISCO-2008, medical doctors are divided into two titles: general medical practitioners and specialist medical practitioners. Nursing and midwifery professionals are also divided into two classes: Nursing professionals and midwifery professionals. This more nuanced categorization hopefully will lead to better future estimates of existing capacity, needs and gaps to achieve universal health coverage. Yet the revised categories have yet to be effectively reflected in health workforce policy making, as most countries continue to plan their health workforce targets in terms of physicians, nurses and midwives. Community-based health workers and mid-level health providers frequently don't have a definition, which contributes to their limited integration in health sector planning and management, despite their important contribution to scaling up coverage of essential health services in low- and middle-income countries.[10,11]

Density

In its WHR 2006, the WHO recommended a density target for all countries: a minimum of 2.3 physicians, nurses, and midwives per 1,000 people. This goal was set based on the ISCO-1988 to "attain adequate coverage of some essential health interventions and core MDG-related health services". This point suggests that the 2.3 per 1000 target is not set with a view to horizontal universal coverage.

The momentum created by the WHR 2006 spurred attention at the global level and action at the country level, in particular in relation to the production of new health workers through education and training. Brazil, Ethiopia and India were among the countries who scaled up education and training at national scale.[12]

Bilateral donors took action as well: an exemplary case of a large-scale response is the United States Government *President's Emergency Plan for AIDS Relief* (PEPFAR), which carried out activities in 14 low-income and 19 middle-income countries between 2004 and 2009. As a result of PEPFAR initiatives, the overall number of health personnel trained or retrained was 5,255,400. Of that total, 1,547,600 were trained during 2009 alone.[13] These training activities however have been largely related to in-service training, and have therefore focused primarily on expanding the skill set of existing health workers (in particular in relation to preventive, promotive and curative services for HIV and AIDS). As a result of the recognition that even disease-specific universal coverage for HIV services is not feasible under existing health workforce constraints, PEPFAR has also committed to the training of 140,000 new health workers.[14]

And similarly there are several other initiatives which have attempted to increase health worker availability: an initiative by the UK Department for International Development (DFID) has set a target to raise the existing number of health workers from 26,683 in 2006 to 45,904 by 2015 in Mozambique.[15] Likewise, the Japan International Cooperation Agency (JICA) has committed to train and retrain 100,000 health workers in Sub-Saharan Africa after the Toyako G8 Summit.[16] Through the Catalytic Initiative to Save a Million Lives (10), UNICEF has worked together with the Ministry of Health and trained nearly 6,000 community health workers (CHWs) in Malawi and 4,000 CHWs in Ghana.[17] And when national governments take action themselves, much more ambitious targets and results can be attained: Brazil for instance trained hundreds of thousands of community health workers through its Family Health Programme,[18] And Pakistan has similarly trained large number of lady health workers.[19]

Despite these efforts, according to WHO Health Statistics 2010 the patterns of health worker density don't reflect a univocal trend, showing some increases, some decreases, some countries with no change, and some countries with mixed results, with simultaneous increases and decreases in different cadres of their health workforces. These may be partly due to the lag time of both surveys and administrative records to capture differences in availability of health workers, as well as the weaknesses and heterogeneity of data sources.

Even with the more modest objective of semi-horizontal coverage, Bossert and Ono argue that the target of 2.3 physicians, nurses and midwives per 1,000 population is not realistic at the country level,[20] because funding the proposed number of health workers

would require some low-income countries to devote a huge proportion of their gross domestic product (GDP) to health: for example, Ethiopia would have to devote 53% of its GDP to health in order to reach the WHO target, if the current ratio between physicians and nurses or midwives remains constant. Moreover, according to their projections, 46 countries would not reach the target even if they devoted 8% of their GDP to health. They propose that more realistic, country-specific targets will have a better chance of winning the support of national governments and donor stakeholders.

If the WHO health workforce target, 2.3 per 1000 population, is not realistic, what is a realistic density for which to aim? Assuming a ceiling of 8% of GDP, Bossert and Ono calculated attainable targets per 1000 people as 0.35 health workers (physicians, nurses, and midwifes) for Ethiopia, 0.71 for Tanzania, and 2.34 for Kenya. Though seemingly realistic, these targets imply that Ethiopia and Tanzania might not be able to achieve the MDGs in their current economic situations, a conclusion also supported by a needs-based study set in Tanzania.[21] These analyses bring a necessary dose of realism but they can also ring of pessimism.

These three types of health workers (physicians, nurses, midwives) were selected because the available data are more reliable compared with that on other health workers. Kruk and colleagues examined the relationships between doctor and nurse concentrations and utilization rates of five essential health services, including caesarean sections, measles vaccinations, and tuberculosis diagnosis, in developing countries. By this approach, they found that the densities of doctors, nurses and aggregate health workers were not associated with essential health services such as caesarean section and tuberculosis diagnosis. To explain this result, they argued that health workers who are neither doctors nor nurses, such as clinical officers and community health workers, may be providing a substantial proportion of health services in such settings.[22]

Moreover, a growing body of literature supports the role of mid-level workers, who are not doctors but have been trained to "diagnose and treat common health problems, to manage emergencies, to refer appropriately and to transfer the seriously ill or injured for further care".[23,24,25] A similar body of evidence is emerging for community health workers (Lewin 2010, op cit; Global Health Workforce Alliance 2010, op cit).

However, regarding the density of mid-level health workers and community health workers, little has been documented. Although more evidence is needed, the WHO is proposing a core indicator for health worker density: the number of health workers per 10,000 population.[26] The target number still needs to be determined on the basis of what is required to attain a minimum level of service coverage, but the direction now is

to go beyond physicians, nurses and midwives; included in this new model is a wide range of other categories of service providers, such as mid-level health providers, community health workers, dentists, pharmacists as well as management and support workers. This orientation seems like an appropriate direction, and further research is expected to identify more realistic country-specific targets.

Distribution

According to the WHO report on 'increasing access to health workers in remote and rural areas through improved retention,' approximately 50% of the global population lives in rural areas, but these areas are served by 38% of the total nurses and 24% of the total physicians.[27] This situation is especially dire in 57 countries facing health workforce crises: for example in Bangladesh 30% of nurses are located in four metropolitan districts, where only 15% of the population resides.[28] In many countries maldistribution is arguably a more pressing problem than absolute scarcity,[29] and patterns of service coverage reflect a similar trend, with disadvantaged and rural areas having a lower service coverage than urban areas.[30]

As retention is one of the key strategies to solve maldistribution problems, the topic has gained attention in the *Kampala Declaration (2008)*[31] *and the G8 Communiqué* (2008).[32] The *Commission on Social Determinants of Health (2008)* (WHO 2008, op cit)) *and the High-level Taskforce on Innovative International Financing for Health (2009)*[33] also urged action to improve retention in rural areas.

The WHO report seeks to identify evidence-based recommendations for improving retention, and categorized them into four broad groups: education, regulation, financial incentives, and personal and professional support (WHO 2010, op cit).

Policy options relating to education include the possibility to locate health professional schools outside of major cities.[34] A related approach is to revise pre-service education curricula to reflect rural health issues.[35]

In the area of regulation, options include to scale up education of the types of health workers who are most likely to meet rural health needs (Mullan 2007, op cit), and optimizing the impact of compulsory service programmes, which, if well planned with incentives, can contribute to a nation's plan for health workforce capacity development,