Helpdesk Report

K4D Knowledge, evidence and learning for development

Health workforce interventions in low-and-middle-income-countries (LMICs)

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The K4D helpdesk service provides brief summaries of current research, evidence, and lessons learned. Helpdesk reports are not rigorous or systematic reviews; they are intended to provide an introduction to the most important evidence related to a research question. They draw on a rapid desk-based review of published literature and consultation with subject specialists.

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1. Summary

The **clearest overall message** from across the literature is that designing human resources for health (HRH) initiatives should begin by understanding the needs of a health system or population rather than choosing a specific strategy. In other words, **there are no strategies that are universally effective, only strategies that are more or less appropriate to their context.**

One group of experienced researchers note the “difficulty in predicting how effective a strategy will be in a given context” (Rowe et al, 2018b). Another states that “in 2006, the World Health Report observed that a ‘solution is not straightforward, and there is no consensus on how to proceed.’ This observation remains true in 2020” (Kerry et al., 2020, p.1).

The appetite for evidence-based solutions to the health workforce crisis in low-and-middle-income-countries (LMICs) has driven a large research effort to compare different strategies across multiple contexts. The most comprehensive to date, the Health Care Provider Performance Review (HCPPR), offers some findings, but the authors themselves are tentative in their recommendations given the methodological complexity of the research task. Some **specific findings** from different sources include:

Training interventions:

- **Combinations of strategies** have a higher chance of being effective than single strategies.
- Educational outreach visits and **training that incorporates onsite clinical practice** are most effective.
- Mentorship programmes that adopt **a ‘side by side’ model** where the mentor works alongside the mentee, **cultural congruency** between the mentor and mentee, and **pre-mentorship training in communication** for mentors show most success.
- Before scaling up training initiatives, national plans should be informed by labour market assessments, and a **wage bill impact analysis** alongside updating needs assessments.

Health workforce systems, processes and management:

- With a need to account for public money, donors tend towards training programmes due to their short-term measurable effects, while host governments find them more acceptable than regulatory initiatives (Dussault, 2019). This can overshadow the potential impact of providing support for **capacity in policy development and regulation** at an institutional level.
- Alongside supporting **health worker data systems** to inform government decision-making, there should be **workshops in how to use these tools** and awareness-raising on their importance.
- **Gender issues** often play a key role in retention and productivity of health workers.

International partnerships:

- International partnerships may tend towards a focus on **specialty medicine and nursing which is likely to be more useful for urban areas,** while **a focus on family medicine**

and community health may be a better strategy** to address the most pressing problems in some countries.

- **A very deliberate strategy** should be created to ensure that the resources and expertise of foreign institutions are leveraged **to strengthen the capacity of local institutions**.

Ethical training for global migration:

- Germany is piloting a "Triple Win" programme of **training foreign health workers for German labour needs.** Lessons include establishing a programme through **long-term government-to-government cooperation** to train both migrants and non-migrants in their country of origin, and prioritising strong, **formalized relationships among multiple ministries** in both the origin and destination countries.

Other more general lessons repeated throughout the literature include:

- Using a 'general improvement approach' which begins in a small area before being scaled up, combined with **piloting, monitoring, and the flexibility** to adjust programming.
- Using a multilevel, **systems-oriented approach that also coordinates with other donors and follows the lead of host country** strategies.

Evidence base: There is a very large body of evidence on health workforce interventions in LMICs. This rapid review purposely draws on a range of different types of evidence. It uses the HCPPR (described in section two below) to represent the quantitative meta-syntheses of other systematic reviews. It also draws on some end-of-project reports from major donor initiatives, as well as case studies and expert analytical commentary. All of the sources used offer very detailed information which is difficult to compare and so may be described as providing mixed or inconclusive results. The evidence presented in this rapid review is a very small proportion of the research available. Gender issues often play a key role in retention and productivity of health workers, and there is some research on the issue (e.g. El Arnaout et al., 2019). This was not a focus of this review.

2. Comparing the efficacy of different strategies in LMICs

The **Health Care Provider Performance Review** (HCPPR) uses an extensive database of other systematic reviews which measure the effectiveness of strategies to improve health-care provider performance in LMICs. Other reviews typically focus on a narrow range of strategies (e.g. mentorship), but the HCPPR compares multiple different strategies. It is up to date at the time of writing this report, and very comprehensive – containing data from 337 studies which all measure at least one outcome and compare to a control group. It covers programmes which target both individual health-care provider behaviour (e.g. training and supervision) as well as broader, systems-level interventions to reform or strengthen areas such as health system financing, management, and infrastructure. For these reasons, this rapid review draws on the HCPPR throughout as the most complete effort to synthesise existing literature.

The HCPPR finds that combinations of strategies have a higher chance of being effective than single strategies.

Some **headline findings** from the HCPPR review (Rowe et al, 2018a) include:

- The **effects were near zero for only implementing a technology-based training strategy** (1%), or only providing printed information for health-care providers (1.4%).
- **Training or supervision alone typically had moderate effects** (10–16%).
- **Combining training and supervision had somewhat larger effects** than use of either strategy alone (18–19%).
- **Group problem solving alone showed large improvements in percentage outcomes** (28–37%), but when the strategy definition was broadened to include "group problem solving alone or other strategy components," moderate effects were more typical (12%).
- Several multifaceted strategies had large effects, but **multifaceted strategies were not always more effective than simpler ones.**

The authors of HCPPR articles caution against using these headline findings simplistically.

The authors note that:

- The **quality of evidence for these findings is low** (Rowe et al, 2018a).
- Within each category of strategy, the effects range substantially. For example, the effectiveness of "low-intensity training" ranges from 3 to 23%. They conclude that this wide variability shows the **difficulty in predicting how effective a strategy will be in a given context** (Rowe et al, 2018b).
- Even after implementing strategies that studies show are relatively effective, performance gaps are likely to exist, which underscores the **importance of monitoring performance** and suggests the need to layer multiple strategies over time (Rowe et al, 2018b).

Researchers involved in the HCPPR conclude that context-specific and flexible implementation of health care provider strategies is key.

In one peer reviewed article from the HCPPR project (Rowe et al, 2018b), the authors lay out some of the **key lessons from their extensive research**. They suggest a **"general improvement approach" which begins in a small area before being scaled up.** They recommend the following steps:

- Programmes should **first implement an initial strategy** based on research evidence and understanding the local context.
- They should then **monitor performance and provide feedback**, and identify remaining quality and coverage gaps (and not be discouraged by them).
- They should then **modify the strategy** or add a new one, and continue to iteratively monitor and adjust the strategy.

- Performance could be monitored by health workers themselves (for example, by graphing results extracted from patient registers), supervisors, or district managers, as well as through continuous surveys.

> In short, the HCCPR authors say that: "**the key to improving healthcare quality is a multilevel, systems-oriented approach that monitors, adapts, and innovates**, plus a generous dose of persistence and patience" (Rowe et al, 2018b, p.1).

3. Lessons learned from training interventions

HCPPR found that educational outreach visits and training that incorporates onsite clinical practice to be most effective, but with important caveats.

As a category of intervention including diverse strategies (e.g. group training, self-study and peer-to-peer training) and implementation approaches (e.g., different educational methods and training duration), analysis from the HCPPR project (as described in Section 2 above), shows that **the effect of training on health care performance ranges from –19.9% to 60.8%** (Rowe et al., 2021).

The project also disaggregated the training category further into five different strategies: Group in-service training; group preservice training; self-study in-service training; educational outreach visits; and peer-to-peer training. "Effectiveness" is defined in terms of health care provider practice outcomes (e.g. patient assessment, diagnosis, treatment, counselling, referral, documentation and consultation time).

Headline findings on these different strategies (Rowe et al., 2021) include:

- Educational outreach visits tended to be somewhat more effective than in-service training, which seemed more effective than peer-to-peer training and self-study.
- Mean effectiveness was greater for training that incorporated onsite clinical practice and training.
- Attributes with little or no effect were: training with computers, interactive methods or over multiple sessions; training duration; number of educational methods; distance training; trainers with pedagogical training and topic complexity.

Some of the **caveats to these headline findings** stated by the authors (Rowe et al., 2021) include:

- **Evidence quality for all findings was low**, and there is a high variability between studies.

- The authors note that "**a subsequent analysis of the same data looking at strategy effectiveness over time has opposite findings to those presented here**" which the authors think "probably have greater validity" than those presented here (p.9).
- The authors cite other systematic reviews on the same topic which both agree and disagree with their findings (p.9).

> Given all of these caveats, the authors recommend that **"programmes should monitor performance to understand the effect of a given approach in their specific context"** (Rowe et al., 2021, p.9).

A different synthesis review of 24 studies on mentorship finds that no particular approach is better than any other.

Feyissa et al. (2019) conduct a synthesis review of 24 studies that **assess the effectiveness of mentorship programs among healthcare workers in Africa**.

Overall, the authors find that: **"**while different types of interventions (embedded mentoring, visits by mobile mentors, facility twinning and within-facility mentorship by a focal person) were reported to be effective, **there is no evidence to recommend one model of mentoring over other types of mentoring**" (p. 989).

An analytical review notes some features of successful mentorship, including cultural congruency, side-by-side model and preparation of mentors.

Schwerdtle et al. (2017) review four studies of mentorship interventions in the health workforce of Rwanda, Afghanistan, Jordan, and Botswana. They note several **features of a successful mentoring programme**:

- **At least one dedicated mentor per facility** and adequate staff and time to enable the mentor to feel well supported and to form meaningful relationships with mentees.
- The adoption of a supportive **'side by side' model** where the mentor works alongside the mentee during the provision of care optimising opportunities for learning and the provision of constructive feedback.
- **Appropriate preparation of mentors**, including a focus on skills such as relationship building and communication skills.
- **Congruency between the culture and discipline of the mentor and mentee** may be preferable. Two of the studies under review found that the mentoring of Rwandan nurses by Rwandan nurses was one of the intervention's strengths.
- The optimal frequency and duration of visits depends on the context and available resources. However, **the most beneficial model of intensity was ongoing rather than discrete.**
- The authors note that it is unclear whether mentorship is more suited to certain health programmes, but consider **mentorship seemed to be well suited to protocol driven**

primary health care areas such as Integrated Management of Childhood Illness (IMCI) and Maternal Child Health and HIV programs which are settings where training and development opportunities are most scarce.

One study does not find a meaningful impact on health outcomes after training, and concludes that a systems approach is best.

Leslie et al. (2016) examine the links between training and supervision strategies and the quality of primary health care in LMICs.

They measure the quality of care by using the results of a USAID survey which regularly measures the capacity of health systems in LMICs. Their paper uses these surveys from Kenya, Malawi, Namibia, Rwanda, Senegal, Tanzania, and Uganda. They test associations between the clinical observations reported in the USAID survey and training/supervision programmes which have occurred at the same facility. The authors note the limitations of their study, including they are not able to account for other factors that affect quality from the local context, and that it could be that weaker health providers were selected for training.

Their overall conclusion is that the training was not sufficient to meaningfully improve the quality of care in these countries. The authors **recommend a "systems approach" to quality improvement, linking programme activities in different parts of the health system**. For example, providing supportive supervision that is linked to addressing supply shortages in facilities in conjunction with coaching providers.

Noting the weaknesses of previous interventions, one analytical review recommends funding flexibility, coordination and following the lead of host country strategies.

Cancedda et al. (2015) analyse four multi-year USAID initiatives for training doctors and nurses in multiple countries across Africa with budgets ranging from US$26-170 million. The authors are doctors, academics and civil society organisers mainly from the US who have been involved in setting up these initiatives. Their analysis is based on their own experience and the extensive literature they cite.

They identify weaknesses in previous health workforce training programmes in LMICs as: narrow focus on a small set of diseases, inefficient utilization of donor funding, inadequate scale up, insufficient emphasis on the acquisition of practical skills, poor alignment with local priorities, and lack of coordination.

In order to **overcome these perceived weaknesses** in previous training provision by donors, they suggest:

- **Alignment to local priorities, joint planning, and coordination**: this is achieved in the four USAID initiatives through governance bodies embedded within local governments or academic institutions. For example, they note the establishment of two transnational coordinating centers where Ministries of Health, Ministries of Education, academic institutions (US and local), and health professional associations align priorities and agree on implementation strategies.

- **Funding flexibility and host country ownership**: This translates as fewer spending restrictions where the host countries can, for example use funds for infrastructure and equipment within health professional schools. Alongside accountability systems, host countries have more direct control of funds, and are able to select the training partners whom they view as the best fit to address local priorities.
- **Competency-based training and pedagogic innovation**: prioritisation is given to the acquisition of competencies through sustained mentorship and supervision rather than the acquisition of knowledge through ad hoc, short-term lectures and seminars. In addition to training in competencies and skills that allow different cadres of health professionals to work together as a team.
- **Institutional capacity building**: To avoid the establishment of parallel systems by strengthening the teaching and mentoring skills of local faculty.
- **Sustainability strategy**: Engagement by donors should neither end abruptly nor last indefinitely. For example, faculty deployment by US academic institutions and funding in one of their programmes gradually decreases from over 100% to 0% over the course of eight years.
- **Establishment of long-lasting partnerships and communities of practice**: Their programmes establish communities of practice and advisory groups that allow faculty and academic institutions from many sub-Saharan African countries to collaborate among themselves and with their counterparts in the US through regular site visits, annual symposia, webinars, and joint academic writing.

4. Lessons learned from health workforce systems, processes and management interventions

The findings of the HCPPR on systems-level strategies are difficult to interpret.

The HCPPR evaluates the effectiveness of "broader, systems-level interventions to reform or strengthen areas such as health system financing, management, and infrastructure" (Rowe et al., 2018a, p.1164). However, because these programmes are multi-faceted and integrated within national health systems, the authors struggle to make conclusions about the effectiveness of specific strategies. Some of their findings (p.1173) are:

- **Multifaceted strategies** targeting infrastructure, supervision, other management techniques, and training (with and without financing), and the strategy of group problem solving plus training **might result in very large or only modest improvements**, but such strategies **tend to have large effects**.
- Financial incentives for health-care providers, and **health system financing strategies** and other incentives **might lead to large or small improvements**, but these incentives typically have **modest to moderate effects**.
- The **effects of regulation and governance strategies in isolation are unknown**. When combined with other components, they tended to have large effects; however, it is difficult to know how much these improvements were due to the effect of other strategy components.

A systematic review of 18 other studies was also unable to generalise effective strategies for raising health governance and leadership.

Effa et al. (2021) systematically review 18 studies which detail **the effectiveness of strategies to raise governance and leadership in the health sectors of LMICs**. The studies reviewed cover a range of different countries from Africa, Asia, South America, with strategies including: the establishment of human resource units; performance staff management; Participatory Appraisal and Continuous Transformation activities; intercountry exchanges; structured training/mentoring for different categories of leaders including massive open online courses (MOOCs); personnel policy and practice systems.

> The **overall conclusion** is: "The results suggest that **there is no one-size-fits-all strategy** to tackle the HRH crises experienced in these countries. Context matters a lot and the state of the interdependent components of the health system at the time of planning and roll-out of the interventions is key to success" (Effa et al., 2021, p.84).

Some other specific findings include:

- Central coordination process, **sequential policy implementation**, public–private partnerships and the setting up of bespoke HRH units at the different levels of the health system **can lead to improvements** in the quality of health workforce.
- **Decentralisation** may engender community partnerships in care delivery, but the possible downsides include irregular salaries, strikes, low morale absenteeism and migration from rural to urban areas leading to a worsening of health indices.
- The institutionalization of a **performance-based management system** for the health workforce can lead to improved motivation and health worker performance, but the implementation process needs to be streamlined to ensure trust in the system.
- Given the severity of the HRH crises and the need to engage various stakeholders, **strong political leadership** often embedded within a country level central coordination process is a key requirement.

Case studies show the importance of donors flexibly responding to the wider national policy environment in the management of training initiatives.

One case study (Fieno et al., 2016) notes that Ethiopia substantially increased its health worker density (all cadres), almost doubling in 15 years (WHO, 2021). Although HRH in Ethiopia is still relatively very low, Fieno et al. (2016) note some of the **success factors from the country's wider political environment**, including the government's framing of HRH as a crucial element in improved health services, moving it to the top of the development agenda; the government's introduction of results-based management to the public sector; and an Aid Management Platform designed and run by the country's Ministry of Finance and Economic Development ensuring

donor coordination. Citing other reports, the authors say that the relatively robust **HRH plans from the Ethiopian government became an effective advocacy tool for donors**.

A different case study (Asamani et al., 2020) on **Ghana highlights how the wider policy environment can undermine the gains of rapidly expanding health worker training.** The authors are based at the WHO and health worker training institutions in Ghana. They provide their own analysis of the 'paradoxical unemployment' of nurses and midwives in Ghana, despite a critical need for their services in the country.

The authors note that the Ghanian government's policy to increase the training of nurses in the country produced three times more nurses than originally planned with the involvement of private nursing institutes. However, the government does not have the resources to employ all of the nurses, particularly after implementing austerity measures agreed with the IMF.

Lessons learned from this case show that "in scaling up the production of the health workforce, it is not only essential to have an elaborate national plan informed by a comprehensive health labour market assessment, but it is also **imperative to effectively monitor its implementation with the view of making the necessary adjustments**" (Asmani et al., 2020, p.5 in pdf). In particular, a **wage bill impact analysis** or economic feasibility analysis alongside an updated needs assessment were required.

The USAID's *Capacity Projects* provide many lessons learned over its ten-year implementation, concisely laid out in final reports.

The Capacity Project (2004-2009) and the Capacity*Plus* Project (2009-2015) were major USAID-funded HRH projects working across 47 countries. In addition to training, two of its overall objectives were (1) Improving workforce planning and leadership to ensure that the right type and number of health workers are deployed to the right locations (2) Strengthening systems to support workforce performance and encourage workers to remain on the job (USAID, 2009, p.8).

Both phases of the project have final reports (USAID, 2009; USAID, 2015) which list **a number of lessons learned**. A small sample of some of the lessons learned from the first phase (USAID, 2009) is:

Workforce Planning and Leadership (p.21)

- Alongside developing software to hold data on health workers to inform decision-making, **workshops need to be held in how to use tools**.
- **Awareness raising** on the importance of human resource management systems was a key activity.
- **A process to ensure more transparent and fair location-based recruiting and placement** system for health workers was modelled in Kenya. However, these types of fundamental changes take time as they frequently involve entities outside the health sector, raise difficult issues and are often highly political.

Workforce Performance Support Systems (p.33)

- Based on local conditions, countries should consider an appropriate mix of incentives that will be sustainable in the long term. Encouraging **HR managers to use simple survey methods and tools to solicit health worker input** will help to determine the best incentive mix for a particular context.
- **Health workers are not necessarily looking for costly incentives**; they see value in taking smaller actions to improve their workplace or their living conditions (especially if placed in a rural, remote area).
- Selecting only one service delivery or management issue helps to focus performance support efforts.
- **Gender issues** often play a key role in retention and productivity of health workers.

Knowledge Management (p.37)

- **A good knowledge management system is developed iteratively in response to user feedback** and evolves as the people, processes and technology involved in the system evolve.
- It is important to make it easy for stakeholders to seek **just-in-time information**. While most people understand the value of making more informed decisions, many will not invest the time in learning a new system until the moment when they need information.

5. Lessons learned from international partnerships

Some useful lessons from a major international partnership in Rwanda include the need for flexibility, sufficient resources for project management and attention to ancillary staff.

One of the most ambitious projects for international partnerships in recent years was the HRH Program in Rwanda, which "set out to train nearly all the health professionals and ancillary staffing required to run the country's health system over 7 years" (Kerry et al., 2020, p.2). It had a budget of US$158 million, involved over 20 US universities, in support to 22 training programs in medicine.

Cancedda et al. (2018) give a concise and detailed description of the project, alongside its substantial achievements. The authors, who were involved in the project as implementers, note some lessons learned (p.1034):

Recruitment and Deployment of Visiting Faculty

- Recruitment and **deployment of visiting faculty might require flexibility**. Under the right circumstances, shorter durations of deployment for senior faculty and recruitment of junior faculty are feasible.
- **Twinning between local and visiting faculty should be centred around shared academic interests** and its success evaluated based on the achievement of specific objectives.

Funding

- While recognizing the importance of keeping funds devoted to coordination and communication low, **there must be sufficient funds to cover the real cost of managing complex and multi-layered initiatives** such as the HRH Program.
- Restrictions on how funds may be spent, year-by-year renewal, or earlier than planned withdrawal of donor commitment can negatively impact implementation. **Greater funding flexibility and multi-year commitments** are required for successful implementation.

Sustainability

- A very deliberate strategy should be created to ensure that the resources and expertise of foreign academic institutions are leveraged to strengthen the capacity of local academic institutions. **Sustainability of impact needs to be actively pursued from the outset of initiatives** such as the HRH Program.
- Retention of local graduates as faculty and investments in their career development are critical to sustain the training programs supported by initiatives such as the HRH Program.
- **Strengthening the capacity of local academic institutions across non-academic domains** (such as management and administration, finance, fundraising and development, etc.) **is a critical component of a sustainability strategy**.
- **Diversification of funding sources** from single large donors to multiple smaller donors and decentralization of fund-raising to smaller groups of participants and stakeholders are critical to achieve sustainability.

Some constructively critical comments on the same Rwanda project give indications of what can be overlooked in international partnerships.

Two further articles provide reflections on this programme from academics who were not involved as implementers (Dussault, 2019; Delisle, 2019).

Dussault (2019) questions whether other countries should adopt the HRH Rwanda model on three points:

(1) He highlights the main causes of mortality in Rwanda, and suggests that family medicine and community health are the better adapted strategies to address these problems rather than the programme's focus on **specialty medicine and nursing which is likely to be more useful for urban areas.**

(2) He suggests that to build local capacity, programmes should **go beyond providing basic training** to include, for example: (a) supporting a more balanced distribution of workers by levels of care and geographical zones, and a decent and motivating work environment (b) support for capacity in policy development and regulation at an institutional level, e.g. strengthening data bases and research capacity to inform the decision-making process or regulatory mechanisms for accreditation agencies and professional councils.

(3) He thinks **LMICs may do well to diversify sources of support** and combine North-South and South-South partnerships to develop its health workforce, and avoid problems associated with unsuitable culture and values.

Overall, Dussault (2019) suggests that **rather than follow any one project model, “the alignment with population and other capacity development needs should be the main criteria of decision [on strategies**]” (p.245).

Delisle (2019) notes the success factors of the HRH Rwanda programme as: a supportive government policy, massive funding and an academic consortium comprised of 19 United States academic institutions.

However, she also says that **the trained professionals were clinicians almost exclusively, at the expense of public health specialists and other health professionals who can better address emerging issues** such as non-communicable diseases (NCDs) particularly for their prevention.

6. Ethical workforce training for international migration

Health worker migration from lower income countries to more wealthy countries is a highly contested issue. The migration of health care workers may provide some value to their countries of origin through remittances, but there is major concern about the “brain drain” that exacerbates shortages of health workers in developing countries, and wastes public spending on training. There is a very large literature on the issue from multiple perspectives. For example, one systematic review looks at the motivations for migration (Willis-Shattuck et al, 2008), another summarises multiple studies on the push and pull factors affecting health worker choices about migration (Edge & Hoffman, 2013, Table 1). Cometto et al. (2013) provide advice to LMICs seeking to strengthen retention of their health care workforce.

This section of the rapid review focuses on lessons learned from training programmes that have a so-called “triple-win” goal of benefitting the individual emigrating health care worker, the country of origin, and the country of destination. It begins with a review of the evidence on the effects of emigration.

The evidence is mixed on whether opportunities to emigrate incentivise skill acquisition (brain gain) or lead to scarcity (brain drain).

Abarcar & Theoharides (2021, p.1) find a “long literature” from the 1970s onwards that debates whether the international recruitment of high-skilled workers leads to a scarcity of these professionals in the country of origin (brain drain), or encourages higher levels of education (brain gain). The authors state that there is “little causal evidence” and that most of this research relies on developing explanatory models. Similarly, Docquier and Rapoport (2012) identify three waves of research on the debate from the 1960s onwards which all point in different directions. In other words, **there is no overall consensus on the general effects of emigration on the “human capital stock” of origin countries**. Both articles highlight the lack of data as one

reason for the different findings. Stilwell et al. (2003) give a useful critical appraisal of existing data sources on health worker migration.

In a qualitative synthesis of 56 other studies aimed at identifying patterns of health worker migration from emerging economies, Nair and Webster (2012, p.158) find that "the direction of movement of health professionals across countries is from south to north, and within countries is from rural to urban, and public sector to private or nongovernmental organizations (NGOs)." They further state that "**although the number of medical and nursing schools is growing in emerging economies producing a substantial number of health professionals, the ratio of health professional to population in rural areas is grossly inadequate**" (p.158).

In 2000, the U.S. dramatically expanded the availability of visas for foreign nurses, but in 2007 suddenly reduced visa availability back to pre-2000 levels. Abarcar & Theoharides (2021) combine data on migrant departures and higher education decisions in the Philippines to calculate the effect of this increased opportunity for migration to the U.S. where it has been estimated that 40% of foreign-born nurses come from the Philippines. The authors find that **for each nurse migrant, 9 additional nurses were licensed**, and that most nursing graduates who never migrated to the U.S. did not find other migration opportunities. They suggest that their findings **"highlights the importance of well-designed partnerships between migrant-sending and receiving countries that can in principle facilitate both migration and human capital accumulation"** (p.4). However, they also caution that "**results may not translate to all contexts**, for example sub-Saharan Africa, where the postsecondary education system may not expand as readily in response to increased demand" (p.4).

Government-to-government agreements are considered the most effective form of ethically recruiting health workers from LMICs.

The World Health Organisation (WHO) recommends bilateral agreements that "include assistance to the country of origin"…"to sustain and promote health human resource development and training in collaboration with the ministry of health and other relevant institutions in countries of origin" (quoted in Clemens & Dempster, 2021).

In a review of strategies to protect health systems of LMICs while at the same time facilitating migration, Martineau et al. (2002) suggest some lessons learned, including:

- When making bilateral agreements, it is important to recognise that **both source and destination countries have a range of stakeholders with different interests**. For example, officials from the ministries of finance and trade in origin countries are more likely to support health worker migration than the ministry of health due to the potential economic value of remittances. Similarly in destination countries, there may be conflicting interests around immigration and healthcare from different parts of government.
- **Time-limited agreements** which require health worker migrants to return to their home countries after a period of time **may be unenforceable by some governments** depending on their capacity.
- Migration that is state-managed helps protect health workers from **unscrupulous recruitment agencies**.

In this regard, it is notable that the German Development Agency's (GIZ) "Triple Win" program **recruits health workers without involving private recruitment agencies** (GIZ, 2021).

Germany is piloting an approach to training health workers *prior to migration* through long-term commitment and strong relationships with partner countries.

Germany's Ministry of Economic Cooperation and Development (BMZ) funded some research by the Center for Global Development (Clemens et al., 2019) to draw lessons from the country's Global Skills Partnership Programme. This is a programme of bilateral agreements where Germany **funds training for both potential migrants and non-migrants in their home country** *prior to migration*. The report's recommendations are based on over 30 interviews with programme staff in Germany, and in training institutions in Kosovo. It includes, but does not focus solely on, health workers.

Working alongside the BMZ, the German Development Agency (GIZ) funds projects to allow migrant access to the German labour market through three approaches:

- **Skilled Migration**: where existing skills are recognized, and additional training is provided in Germany.
- **Destination Training**: where migrants access training and apprenticeship programmes in Germany.
- **Origin Training**: where migrants access training **in their country of origin** prior to migration, and their skills are then recognized in Germany. The authors state that this has the benefit of raising the quality of local training facilities, ultimately benefiting potential migrants and locals alike. It also bundles training of potential migrants with training of non-migrants, thus increasing the human capital of the country of origin. In the long-term, it offers economic benefits to German employers, since training in countries of origin is often much less expensive than in Germany.

The report states that **origin training offers the greatest development impact** in the country of origin. Although still in the early implementation phase, one pilot project for health workers in Kosovo provides some lessons. These include:

- **Strong, formalized, long-term cooperation is needed amongst a wide range of stakeholders.** In the country of destination, strong cooperation is needed between various ministries. In the country of origin, multiple ministries must also cooperate. The range of ministries can cover labour, immigration, education, development, health and foreign affairs. There needs to be at least one "champion" ministry willing and able to take the approach forward.
- **Projects are developed in close coordination with partner governments** to ensure participant recruitment does not deplete productive skilled workers in the country of origin. These can take years to develop.
- "Away" track training for potential migrants is combined with "home" track training for non-migrant trainees, which needs to be tailored to local needs.

- The health worker pilot project in Kosovo began after a similar project for construction workers in Kosovo. This helped to **build trust among the stakeholders** before the potentially more sensitive health worker project.
- The report identifies three **barriers to implementation of this approach** (p.13): (1) establishing a training institution in the country of origin (2) creating a public-private partnership, and (3) cultivating stakeholder buy-in. These are discussed in more detail in the report (p.13-15).
- **It is best to partner with existing institutions in the country of origin rather than trying to start from scratch.** This can save money and help ensure local context relevance and provide important insight on the existing skills capabilities of the population in the country of origin.
- The authors advise that "many of the conclusions in this paper could be transferred to countries of origin in sub-Saharan Africa, others may not. Therefore, **any implementation should be done in pilot form**, operating at a lower-profile and more able to be fine-tuned in response to trial and error. As pilot projects continue to refine what these migration and skill partnerships look like, they can be scaled up and/or applied in new country contexts" (p.20).

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