managing exits

chapter five
from the workforce

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Each year, substantial numbers of health workers leave the health workforce, either temporarily or permanently. These exits can provoke shortages if workers who leave are not replaced, and such shortages compromise the delivery and quality of health services *(1, 2)*. Chapter 3 discussed the routes new workers take into the workforce; this chapter examines the other end of the spectrum – the various ways in which workers depart active service. It also suggests ways of managing exits in times of worker shortage as well as in times of surplus, in order to optimize the performance of the health workforce. Finally, it reviews and analyses the factors that influence exits and proposes strategies for managing them.

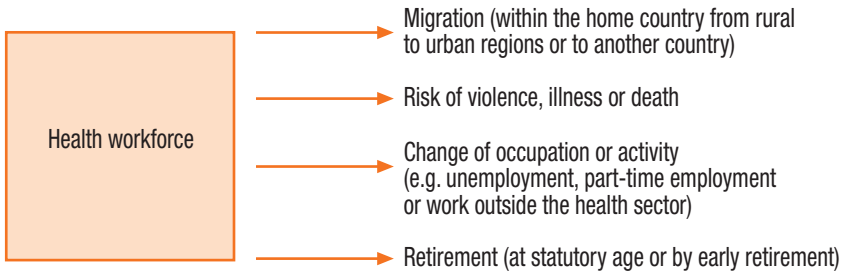
The main reasons people leave the health workforce are depicted in Figure 5.1: migration; risk of violence, illness or death; change of occupation or work status; and retirement. Some workers leave temporarily, because of illness or maternity or in order to attend advanced education courses, for example. Others are lost permanently, because of death or a change of occupation. In some cases, a health worker migrates from one country to another, thus permanently leaving one health workforce to join another. Partial exits occur when full-time health workers move to part-time employment: changes in the numbers of full-time and part-time workers can alter the health workforce equilibrium.

Over the last few decades, the working lifespan of health workers has altered because of changes in their working patterns, growing morbidity and mortality rates (in Africa, mainly attributable to HIV/AIDS and tuberculosis), increasing migration, and ageing (especially in high income countries). These factors pose serious challenges to the goal of maintaining a sufficient and effective health workforce.

High turnover rates in the health workforce may lead to higher provider costs. They are also a threat to the quality of care, because they may disrupt organizational function, reduce team efficiency, and cause a loss of institutional knowledge. Studies show that the costs associated with retention

Stephenie Hollyman/WHO

Figure 5.1 Exit routes from the health workforce



problems are often substantial *(3)*. Turnover can have potential benefits, however, as it may provide an opportunity to match personnel skills better to workplace needs, facilitate the introduction of new ideas into well-established organizations, and increase organizational flexibility *(4)*. In this context, it is important for policy-makers to manage exits from the health workforce to ensure the least possible disruption of services.

EBBS AND FLOWS OF MIGRATION

Concerns about the adverse impact of the flows of skilled professionals from poorer to richer countries have thrust the migration of health workers to the forefront of the policy agenda in recent years *(5)*. However, statistics on global flows of health workers remain far from complete *(5–12)*. For the select number of countries that do track migration, available information is generally limited to registered doctors and nurses. Data on movements of pharmacists, occupational therapists and the many other types of health workers identified in this report are virtually non-existent.

Not knowing how many health workers are on the move, where they have come from, or where they are going makes it difficult to grasp the scale of the problem.

Table 5.1 Doctors and nurses trained abroad working in OECD countries

OECD country	Doctors trained abroad		Nurses trained abroad	
	Number	Percentage of total	Number	Percentage of total
Australia	11 122	21	NA	NA
Canada	13 620	23	19 061	6
Finland	1 003	9	140	0
France	11 269	6	NA	NA
Germany	17 318	6	26 284	3
Ireland	NA	NA	8 758	14
New Zealand	2 832	34	10 616	21
Portugal	1 258	4	NA	NA
United Kingdom	69 813	33	65 000	10
United States	213 331	27	99 456	5

NA, not applicable.

Data from OECD countries indicate that doctors and nurses trained abroad comprise a significant percentage of the total workforce in most of them, but especially in English-speaking countries (see Table 5.1).

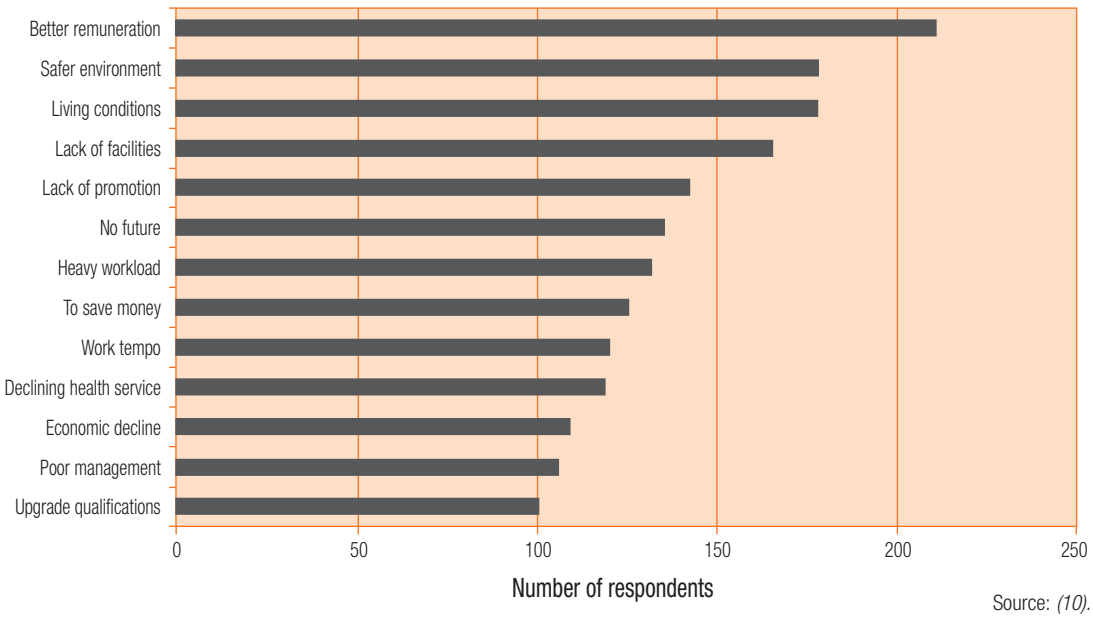
It appears that doctors trained in sub-Saharan Africa and working in OECD countries represent close to one quarter (23%) of the current doctor workforce in those source countries, ranging from as low as 3% in Cameroon to as high as 37% in South Africa. Nurses and midwives trained in sub-Saharan Africa and working in OECD countries represent one twentieth (5%) of the current workforce but with an extremely wide range from as low as 0.1% in Uganda to as high as 34% in Zimbabwe (see Tables 5.2 and 5.3 overleaf).

> *"A better life and livelihood are at the root of decisions to migrate"*

Why are health workers moving?

These OECD data on migrant flows hide the complex patterns and reasons for health workers moving. Migration takes place within countries from rural to urban areas; within regions from poorer to better-off countries and across continents. A better life and livelihood are at the root of decisions to migrate. Classically this is provoked by a (growing) discontent or dissatisfaction with existing working/living conditions – so-called push factors, as well as by awareness of the existence of (and desire to find) better jobs elsewhere – so-called pull factors. A recent study from sub-Saharan Africa points to both push and pull factors being significant *(10)*. Workers' concerns about lack of promotion prospects, poor management, heavy workload, lack of facilities, a declining health service, inadequate living conditions and high levels of violence and crime are among the push factors for migration (see Figure 5.2). Prospects for better remuneration, upgrading qualifications, gaining experience, a safer environment and family-related matters are among the pull factors

Figure 5.2 Health workers' reasons to migrate in four African countries (Cameroon, South Africa, Uganda and Zimbabwe)



Source: *(10)*.

Table 5.2 Doctors trained in sub-Saharan Africa working in OECD countries

Source country		Doctors working in eight OECD recipient countries[a]	
	Total doctors in home country	Number	Percentage of home country workforce
Angola	881	168	19
Cameroon	3 124	109	3
Ethiopia	1 936	335	17
Ghana	3 240	926	29
Mozambique	514	22	4
Nigeria	34 923	4 261	12
South Africa	32 973	12 136	37
Uganda	1 918	316	16
United Republic of Tanzania	822	46	6
Zimbabwe	2 086	237	11
Total	**82 417**	**18 556**	**Average 23**

[a] Recipient countries: Australia, Canada, Finland, France, Germany, Portugal, United Kingdom, United States of America.

Source: *(11)*.

Table 5.3 Nurses and midwives trained in sub-Saharan Africa working in OECD countries

Source country	Total nurses and midwives working in home country	Nurses and midwives working in seven OECD recipient countries[a]	
		Number	Percentage of home country workforce
Angola	13 627	105	0
Botswana	7 747	572	7
Cameroon	26 032	84	0
Ethiopia	20 763	195	0
Ghana	17 322	2 267	13
Guinea-Bissau	3 203	30	0
Kenya	37 113	1 213	3
Lesotho	1 123	200	18
Malawi	11 022	453	4
Mauritius	4 438	781	18
Mozambique	6 183	34	0
Namibia	6 145	54	0
Nigeria	210 306	5 375	3
South Africa	184 459	13 496	7
Swaziland	4 590	299	7
Uganda	17 472	21	0
United Republic of Tanzania	13 292	37	0
Zambia	22 010	1 198	5
Zimbabwe	9 357	3 183	34
Total	**616 204**	**29 597**	**Average 5**

[a] Recipient countries: Canada, Denmark, Finland, Ireland, Portugal, United Kingdom, United States of America.

Note: Data compiled by WHO from various sources.

(see Figure 5.2). In Zimbabwe, for example, a startling 77% of final university students were being encouraged to migrate by their families *(13)*.

Beyond the individual and the family, accelerated globalization of the service sector in the last two decades has helped drive migration in the health field *(14–18)*. In addition, there is a growing unmet demand for health workers in high income countries due in part to rapidly ageing populations. Two important responses in the global market are occurring. First, a growing number of middle income countries are training health workers for international export (see Box 5.1) and second, professional agencies are more actively sourcing workers internationally, raising questions about the ethics of recruitment (see Box 5.2).

> *"Losing its workforce can bring a fragile health system close to collapse"*

Impacts of migration

The movement of health workers abroad has redeeming features. Each year, migration generates billions of dollars in remittances (the money sent back home by migrants) and has therefore been associated with a decline in poverty in low income countries *(22)*. If health workers return, they bring significant skills and expertise back to their home countries. Nonetheless, when large numbers of doctors and nurses leave, the countries that financed their education lose a return on their investment and end up unwillingly providing the wealthy countries to which their health personnel have migrated with a kind of "perverse subsidy" *(23)*. Financial loss is not the most damaging outcome, however. When a country has a fragile health system, the loss of its workforce can bring the whole system close to collapse and the consequences can be measured in lives lost. In these circumstances, the calculus of international migration shifts from brain drain or gain to "fatal flows" *(24)*.

Strategies to manage migration

The complex combination of individual worker, workplace and market forces that generate flows of health workers defy any simple or single action related to migration. The following sections deal with managing migration in order to protect health workers and minimize inequities. Action at three levels – in source countries, in receiving countries and internationally – can diminish the negative aspects of migration.

Box 5.1 Turning brain drain into brain gain — the Philippines

The Commission on Filipinos Overseas estimates that more than 7.3 million Filipinos – approximately 8% of the country's population – reside abroad. The government of the Philippines has encouraged temporary migration by its professionals in recent years and taken measures to turn remittances into an effective tool for national development (including health care) by encouraging migrants to send remittances via official channels. In 2004, the Central Bank of the Philippines reported total remittances of US$ 8.5 billion, representing 10% of the country's gross domestic product (GDP).

At the same time the government is taking measures to draw its migrants home after a period of service abroad. The Philippine Overseas Employment Administration was founded in 1995 to promote the return and reintegration of migrants. Many privileges are granted to returnees, including tax-free shopping for one year, loans for business capital at preferential rates and eligibility for subsidized scholarships.

The Philippines experiment has had encouraging results and is seen by some developing countries as a role model.

Source: *(19)*

Source country strategies

Source countries can consider a wide range of options for managing migration, including two main strategies: providing health workers with appropriate training for their place of employment, and making it easy for them to return home after working abroad.

Strategy 5.1 Adjust training to need and demands

Training that is focused on local conditions can help to limit workforce attrition. Lessons from longstanding efforts to improve workforce coverage in rural areas suggest that training local workers – in local languages and in skills relevant to local conditions – helps to stem exits of health workers *(25, 26)*. Such approaches to training often lead to credentials that do not have international recognition, which further limits migration. Success, however, is contingent on a wide range of on-the-job incentives and support and on the involvement of key institutions such as universities and professional associations *(25, 27)*

Even in the face of continued migration, expansion of training may help to reduce workforce shortfalls. Preserving the quality of training requires effective accreditation capacity, especially if expansion of training institutions is rapid. In low income countries with tight fiscal constraints, such an expansion would entail either significant private sector financial involvement or foreign aid. It is essential that job opportunities for graduates also grow, either through the public sector (fiscal constraints permitting) or through the private sector.

> *"The Philippines has been training nurses for export for many years"*

Training can also be specifically tailored to meet export requirements. The Philippines, as part of a larger policy to encourage worker migration (see Box 5.1), has been training health workers, especially nurses, for export for many years – they constitute 76% of foreign nurse graduates in the United States, for example *(28)*. Likewise, Cuba has exported thousands of health workers as part of its bilateral relations with other countries. Some countries, including China, India, Indonesia and Viet Nam, are either actively involved or contemplating export strategies *(29)*. These strategies have not been systematically evaluated, but experience indicates that they are resource intensive and require the establishment of institutional capacity for training and accreditation, and careful management of interactions with the internal or domestic health worker market.

Box 5.2 Recruitment agencies and migration

Medical recruitment agencies are thriving, and there is widespread concern that they are stimulating the migration of health workers from low income countries. A 2004 study found that such agencies spurred the majority of recruitment from Cameroon *(10)*, and a recent analysis of nearly 400 émigré nurses in London found that as many as two thirds of them were recruited by agencies to work in Britain *(9)*. The president of the largest nursing union in Mauritius recently noted that British employers send recruitment agents to contact nurses directly and then discreetly negotiate contracts with them. Another example is in Warsaw, where dozens of agencies have sprung up in an attempt to attract Polish doctors to work in the United Kingdom.

Many people question the ethical practices of recruitment agencies. Health workers contracted by private recruitment agencies are sometimes subjected to unforeseen charges such as placement fees that put them at an immediate financial disadvantage. Studies have also shown that migrant health workers often begin jobs before their registration is completed and are paid substandard wages during the waiting period *(20–21)*.

Strategy 5.2 Improve local conditions

As pointed out in Chapter 4, the actions related to improving employment conditions of workers help to remove the "push" factors that induce workers to migrate. Despite the absence of any systematic assessment of the effects of these interventions on migration rates, experience shows that pay, financial incentives and safety, good management and career development are all important. Efforts to improve living conditions related to transport, housing and education of family members are also used to help attract, and retain, health workers *(30)*.

In situations where the education of health workers is paid for by a prospective employer, in either the public or the private sector, contractual obligations or "bonds" are arranged whereby graduates agree to work for the employer for a specified period of time. The practice of bonding is widespread yet its effectiveness is poorly understood. Experience of bonding is mixed: it does ensure coverage, but it is strongly associated with low performance among workers and high turnover rates *(31)*.

Surveys of migrant workers indicate that in general they have a strong interest in returning to work in their home country *(32)*. As the "brain gain" strategy of the Philippines exemplifies (Box 5.1), active institutional management of migration can facilitate migrants' welfare not only abroad but also on their return home. Special migration services for health workers may also help to retain productive links with local health institutions while workers are away *(33)*.

Receiving country strategies

Receiving countries should be concerned for the rights and welfare of migrant health workers and responsive to the adverse consequences in source countries associated with their absence.

Strategy 5.3 Ensure fair treatment of migrant workers

The scant but increasing evidence on the experience of migrant health workers raises concerns related to their unmet expectations on remittances, personal security, racial and cultural isolation and unequal work conditions, with limited knowledge of their rights and the ability to exercise them *(21, 34–37)*. Migrant workers should be recruited on terms and conditions equal to those of locally recruited staff and given opportunities for cultural orientation. It is vital to have policies in place that identify and deal with racism among staff and clients *(38)*.

Strategy 5.4 Adopt responsible recruitment policies

Receiving countries have a responsibility to ensure that recruitment of workers from countries with severe workforce shortages is sensitive to the adverse consequences. The significant investments made in training health care professionals and the immediate impact of their absence through migration must figure more prominently as considerations among prospective employers and recruitment agencies. Discussions and negotiations with ministries of health, workforce planning units and training institutions, similar to bilateral agreements, will help to avoid claims of "poaching" and other disreputable recruitment behaviour. The development of instruments for normative practices in international recruitment is discussed below.

Strategy 5.5 Provide support to human resources in source countries

Many recipient countries are also providers of overseas development assistance for health. Through this structure, support could be more directly targeted to expanding the health workforce, not only to stem the impact of outgoing migration but also to overcome the human resources constraints to achieving the health-related Millennium Development Goals (MDGs) (see Chapter 2).

Apart from help to strengthen the health workforce in source countries, important external sources of direct human resources support are provided in humanitarian disasters and disease eradication efforts and through the proliferation of international nongovernmental organizations. Cuba's "medical brigades", for example, provide 450 health professionals to shortfall areas in South Africa and over 500 to rural areas of Haiti. The American Association of Physicians of Indian Origin, with its 35 000 practitioners, is an important pool of volunteer service *(39)*. Direct twinning of health institutions between rich and poor countries, a popular form of development assistance *(40)*, also involves substantial flows of health workers in both directions. With greater awareness of the human resources shortfalls in poor countries and expectations to meet the targets of the health-related MDGs, ambitious policies are being considered to increase these flows *(41)*. More systematic efforts to understand the collective experience of these programmes could enhance the benefits for source and receiving countries in both the short and long term.

International instruments

From an international perspective, the demand to balance the rights of migrant health workers with equity concerns related to an adequate health workforce in source countries has led to the development of ethical international recruitment policies, codes of practice and various guidelines *(42)*. In the last five years about a dozen of these instruments have emerged from national authorities, professional associations

Box 5.3 Bilateral agreement between South Africa and the United Kingdom

An agreement between South Africa and the United Kingdom was signed in 2003 aiming to create partnerships on health education and workforce issues and facilitate time-limited placements and the exchange of information, advice and expertise. Within the framework of a Memorandum of Understanding, opportunities have been provided for health professionals from one country to spend time-limited education and practice periods in the other country, to the benefit of both.

Exchange of information and expertise covers the following areas:

- **professional regulation;**
- **public health and primary care;**
- **workforce planning;**
- **strategic planning;**
- **public–private partnership, including private finance initiatives;**
- **revitalization of hospitals, including governance;**
- **twinning of hospitals to share best practices and strengthen management;**
- **training in health care management.**

The facilitation of mutual access for health professionals to universities and other training institutes for specific training or study visits is part of the agreement. It is planned that the professionals will return home after the exchange period, and for this purpose their posts will be kept open. They will use the new skills to support health system development in their own country. At the Commonwealth Ministers' meeting in May 2005, the South African Minister of Health reported on the success of the bilateral agreement in managing migration of health workers.

Source: *(41)*.

and international bodies. Although not legally binding, they set important norms for behaviour among the key actors involved in the international recruitment of health workers. Whether these norms have sufficient influence to change behaviour remains to be seen.

Mode 4 of the General Agreement on Trade in Services (GATS) of the World Trade Organization (WTO) deals with the temporary movement of people who supply services in the territory of another WTO member. To date, this framework has not been used to assess the fairness of a trade agreement between two countries related to health service providers. As with other GATS processes, the ability of poorer countries effectively to represent and defend their interests cannot be taken for granted *(43)*.

Bilateral agreements on health service providers can provide an explicit and negotiated framework to manage migration. Cuba has had longstanding bilateral agreements regarding health workers with many countries but for many other countries this instrument is more recent (see Box 5.3). Given the complexities of migration patterns – countries may receive health workers from many countries as well as sending health workers elsewhere – there are important questions about the feasibility of managing multiple bilateral agreements for any given country. In addition, the extent to which a bilateral agreement between two governments can cover nongovernmental flows of health workers is not clear.

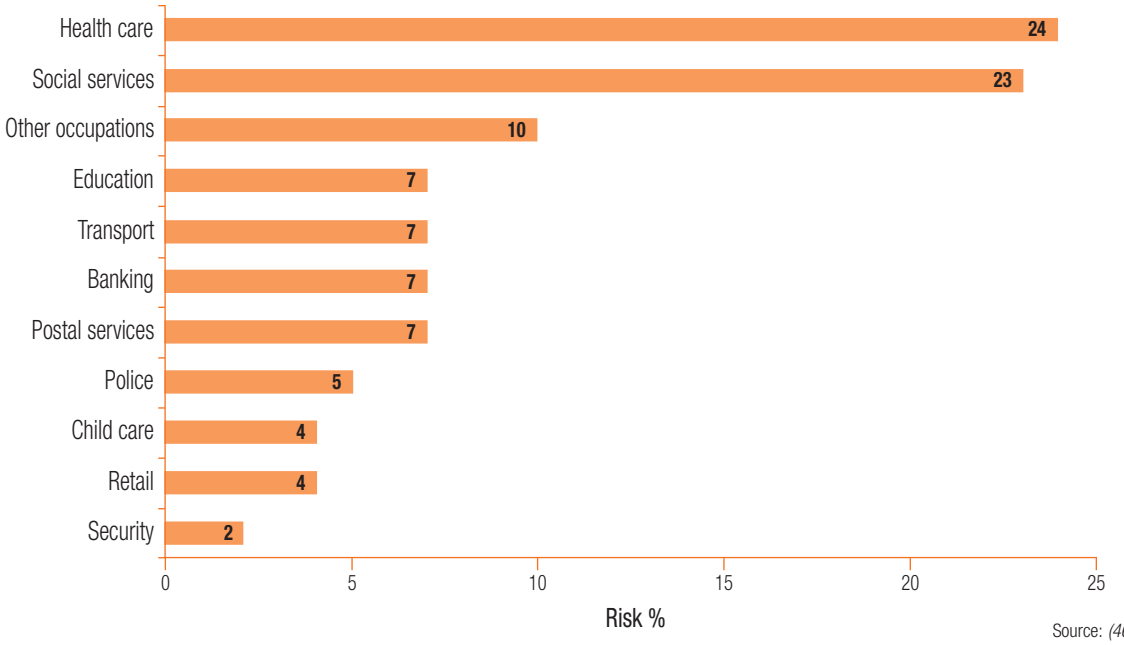
OCCUPATIONAL RISKS TO HEALTH WORKERS

In many countries, health workers face the risk of violence, accidents, illness and death, and these risks may prompt them to leave their workplaces.

Violence

Violence can strike workers in any occupation, but statistics show that health workers are at particularly high risk *(44, 45)*. In Sweden, for example, health care is the sector with the highest risk of violence, as shown in Figure 5.3 *(46)*.

Figure 5.3 Occupations at risk of violence, Sweden



Source: *(46)*.

> *In many countries, health workers face the risk of violence, accidents, illness and death*

Violence against women health workers, in particular, has become a significant problem *(47)*. The most frequent violent acts include physical violence, assaults and bullying *(48)*. Some findings suggest a direct link between aggression and increases in sick leave, burnout and staff turnover *(49, 50)*.

Strategy 5.6 Develop and implement tactics against violence

Through their joint programme on workplace violence in the health sector, the International Labour Organization, the International Council of Nurses, WHO and Public Services International have issued guidelines on prevention, care and support for victims, and management of workplace violence *(51)*. Measures to prevent workplace violence can require substantial investment, as illustrated by the Zero Tolerance campaign in the United Kingdom (see Box 5.4).

Other risks

Occupational hazards and stress are also important deterrents to retention among health workers. In Canada, for example, nurses have one of the highest sick leave rates of all workers, which is mainly attributed to work-induced stress, burnout and musculoskeletal injury *(56)*. Without basic health and safety guidelines and the ability to implement them, health workers are vulnerable to accidents and exposure to infectious diseases,

One of the major risks of infection – not only to health service providers but also to health management and support workers such as cleaners and waste collectors

Box 5.4 Strategies in action: examples of exit management

The following examples show how countries are applying some of the strategies examined in the main text to retain workers in the health sector and to minimize the effects of exits.

Strategy 5.6 Develop and implement tactics against violence: United Kingdom

The Zero Tolerance campaign against violence began in 1998 and was mainly advertised through a series of high-profile launches. Following its introduction, a survey of 45 NHS trusts revealed that the most common measures implemented were: closed circuit television surveillance (77%), controlled access to certain areas (73%), security guards (73%), better lighting (68%), improved signposting, (68%), improvements in space and layout (62%) and in decoration of public areas (47%), provision of smoking areas (42%) and private rooms (33%), improved cleanliness (31%), and regulation of noise (28%) and temperature (15%). Some of the changes have not been made specifically in relation to reduction of workplace violence, but as overall improvements in the institutions *(52)*.

Strategy 5.7 Initiate and reinforce a safe work environment: Swaziland and Zambia

The national nursing association in Swaziland has established an HIV and TB Wellness Centre of Excellence for HIV positive health workers and their families, while in Zambia, nurses and other health care workers are the focus of a special programme to provide access to antiretroviral treatment to prevent mother-to-child transmission of HIV *(53)*.

Strategy 5.9 Target health workers outside the health sector: Ireland

The Irish Nurses Organisation commissioned a survey of non-practising nurses in Ireland to assess potential "returnees" and to evaluate the likely effectiveness of various strategies to encourage them to return to the health workforce. The results suggest that flexible working hours and increased pay could help bring these nurses back to work *(54)*.

Strategy 5.11 Develop the capacity and policy tools to manage retirement: Guyana

The government decided to recruit retired nurses to fill shortages in Guyana's HIV/AIDS Reduction and Prevention Projects (GHARP), so that nurses employed elsewhere in the health service would not be hired away from their current jobs. GHARP received 495 applications for 61 positions. When they were recruited, the "new" workers were given training to supplement and update their knowledge *(55)*.

– is injury during unsafe disposal of needles and other biomedical waste. Each year, 3 million health workers worldwide are exposed through the percutaneous route to bloodborne pathogens: 2 million are exposed to hepatitis B, 900 000 to hepatitis C and 170 000 to HIV. These injuries result in 15 000, 70 000 and 1000 infections, respectively. More than 90% of these infections occur in developing countries *(57)*.

Strategy 5.7 Initiate and reinforce a safe work environment

Infections caused by accidental blood exposure are generally preventable if health workers use appropriate protective wear such as gloves and eye protection, spills of body fluids are cleaned up promptly, and biomedical waste is disposed of correctly. WHO also recommends routine immunization against hepatitis B and prompt management of exposure to blood and body fluids *(57)*.

> "*Each year, 3 million health workers worldwide are exposed to bloodborne HIV and hepatitis viruses*"

Illness and death from HIV/AIDS

In areas where rates of HIV/AIDS are high, attrition rates of health workers due to illness and death are alarming. In Zambia, deaths among female nurses in two hospitals increased from 2 per 1000 in 1980 to 26.7 per 1000 in 1991. Estimates show that Botswana lost 17% of its health workforce to AIDS between 1999 and 2005. If health workers infected with HIV are not treated, the proportion of those dying as a result of AIDS may reach 40% by 2010 *(58, 59)*. In Lesotho and Malawi, death is the largest cause of attrition *(60, 61)*. Absenteeism in the HIV/AIDS workforce can represent up to 50% of staff time in a health worker's final year of life *(62)*.

HIV/AIDS has rendered the health workplace a dangerous place in sub-Saharan Africa. Only a few African countries, notably Swaziland and Zambia, have programmes to counsel, support and treat health workers exposed to HIV (see Box 5.4). Rapid expansion of such programmes is imperative *(63)*.

In 2005 WHO, the International Labour Organization and a panel of experts *(64)* established guidelines on HIV/AIDS and health services that provide specific recommendations on prevention, training, screening, treatment and confidentiality (see Box 5.5).

CHANGE OF OCCUPATION OR WORK STATUS

Health workers who leave the health labour market or limit the time they spend working can leave gaps in the workforce.

Choosing a reduced work week

There is an emerging trend in OECD countries for people to seek a more comfortable balance between work, leisure and family time; and health workers are no exception.

Evidence suggests that many doctors – especially young doctors, who tend to place greater emphasis on personal time – are working fewer hours *(65, 66)*. In addition workers, especially women, are increasingly seeking part-time work *(67–71)*.

Strategy 5.8 Accommodate workers' needs and expectations

Offering part-time jobs and facilitating the return of workers who have taken maternity leave can prevent departures from the workforce and encourage the return

of workers who have left. Incentives such as affordable child care, financial support for children, and provision of leave adapted to family needs can encourage entry into the workforce, especially nursing *(72, 73)*.

Health workers not employed in their field

There is little reliable information on how many workers below retirement age have left the health sector, but it is certain that their reasons vary. Some workers may find available jobs unacceptable or in the wrong location; others may lack job opportunities. The example of nursing is illustrative. In the United States, of the approximately 500 000 registered nurses who are not in the nursing labour market, 36 000 are seeking employment in nursing and 136 000 are working in non-nursing occupations, despite the fact that the estimated number of vacancies exceeds 100 000 *(74)*. In contrast, some 5000 nurses in Kenya are not currently working in their field due in part to ceilings or caps placed on public sector recruitment of health workers *(75)*. South Africa has about 35 000 registered nurses who are inactive or unemployed, despite 32 000 vacancies *(76)*.

Strategy 5.9 Target health workers outside the health sector

Evidence is scarce on the effectiveness of policies to recruit workers from outside the health sector, but there are some indications that they could make a difference. Research could reveal the sort of conditions that would encourage health workers to return to the jobs for which they were trained (see Box 5.4 for an example from Ireland).

Absentees and ghost workers

Although anecdotal evidence of absenteeism among health workers abounds (especially in South-East Asia), researchers have begun only recently to measure the problem systematically. A recent study involving unannounced visits to primary health facilities in six countries – Bangladesh, Ecuador, India, Indonesia, Peru and Uganda – found medical personnel absenteeism rates from 23% to 40%, with generally higher numbers in lower income countries and in lower income regions within countries *(77)*.

One study in Bangladesh revealed, unsurprisingly, that remoteness and difficulty of access were major correlates of absenteeism. Personnel in facilities in villages or towns that had roads and electricity were far less likely to be absent. Absentee rates

Box 5.5 Measures for a safe work environment: HIV/AIDS

Key principles of the joint ILO/WHO guidelines on health services and HIV/AIDS:

- **Prevention and containment of transmission risks: measures should be taken for hazard identification, risk assessment and risk control and provisions made for post-exposure management.**
- **Ongoing national dialogue, including all types of negotiation, consultation and information-sharing among governments, employers and workers, should be a key mechanism for the introduction of HIV/AIDS policies and programmes that build a safer and healthier working environment.**
- **Information, education and training should be offered to sensitize the health care workplace to issues related to HIV/AIDS and the rights and needs of patients as well as workers. Mandatory HIV screening, for the purpose of exclusion from employment, should not be required, and employment of workers living with HIV/AIDS should continue while they are medically fit.**
- **Gender focus: as the health services sector is a major employer of women, special emphasis should be placed on the particular challenges faced by them in the health care working environment. Programmes, education, and training initiatives should ensure that both men and women understand their rights within the workplace and outside it.**

Source: *(64)*.

among doctors tended to correlate positively with conditions such as poor latrine facilities, lack of access to piped and potable water, and the absence of visual privacy at the health centre *(78)*.

Ghost workers are individuals who are listed on the payroll but who do not exist, or who work only part time *(78)*. Eliminating ghost workers is a complex task and can be costly. Moreover, in some cases authorities may condone dual employment as a coping strategy that allows health workers to earn a satisfactory income and as a means to attract health workers to otherwise unattractive locations. This complacency about ghost work may explain why legislation forbidding dual employment has failed in many countries. Another drain on health workforce financing in some countries is the continued presence on the books of workers who have left the health sector or died. For example, in Ghana, of the 131 000 civil servants on the payroll at the end of August 1987, 1500 had actually left the service *(79)*.

Strategy 5.10 Keep track of the workforce

Regular audits, physical head counts, questionnaires, and reconciliation of different data sources could help to identify ghost workers and reduce the number of unauthorized absences. Such information should be made available to the public, and affected institutions should be empowered to take corrective actions.

RETIREMENT

The average statutory pensionable age varies by as much as 8.2 years across WHO regions. Europe and the Americas have the highest retirement ages, while South-East Asia has the lowest (see Table 5.4) The statutory pensionable age is younger for women than for men across all regions.

The statutory pensionable age often differs from the actual age of retirement *(82)*. Evidence suggests that some independent health workers continue working after they have reached pensionable age *(83, 89)*. At the same time, workers in many countries are choosing to retire before they reach the statutory pensionable age *(85)*. The trend towards earlier retirement seems to be taking hold among health workers as well *(84)* and is likely to be reinforced by the increasing presence of women, who retire earlier than their male counterparts *(86–88)*.

> “*In the United Kingdom, about 10 000 nurses retire every year*”

Retirement rates and the risk of shortages

Information about the retirement rate of health workers is very scarce. An expected working life of 30 years for doctors and 23 for nurses *(89)*, as well as a uniform age distribution, would result in a retirement rate of 3% for doctors and 4% for nurses. However, these figures do not account for other attrition factors such as death, different working patterns such as part-time employment, and the actual age distribution. As a result, the retirement rate in reality is lower. In the United Kingdom, estimates show that about 10 000 nurses (2% of the nursing workforce) retire each year *(87)*. In countries with the greatest needs-based shortages, little information is available about exits from the health workforce. In sub-Saharan Africa, the number of health service providers who retire annually is estimated to be between 8780 and 13 070 *(90)*, representing 0.6–1% of the health workforce. Although these retirement figures for Africa might seem low, they become significant when other attrition factors are taken into account and when they are compared with the figures related to the inflow of health workers.

Table 5.4 Statutory pensionable age

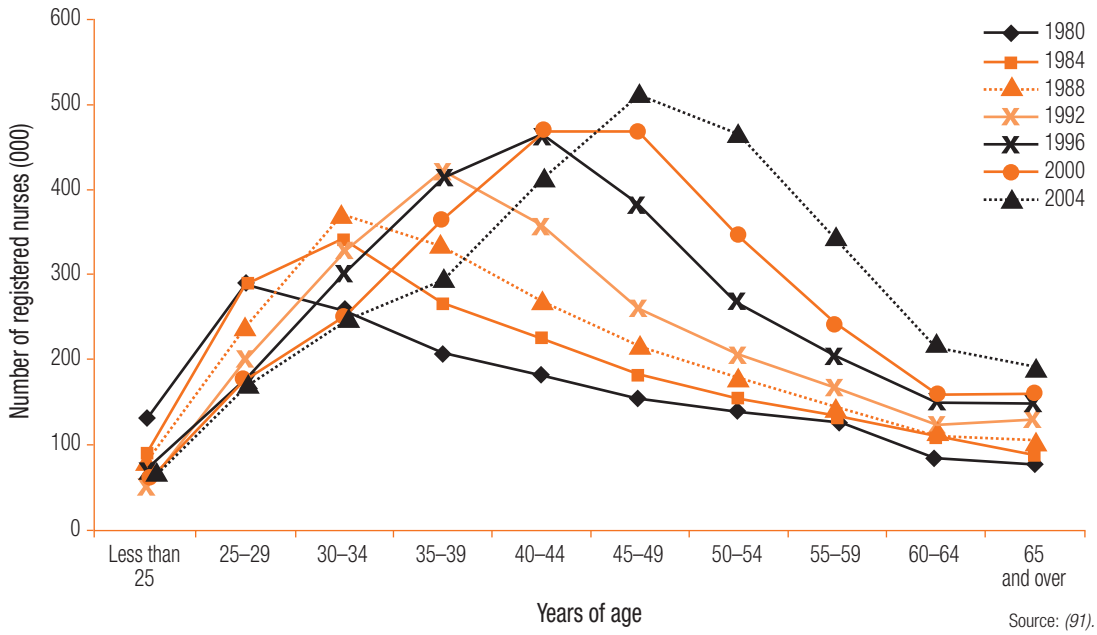
WHO region	Number of Member States		Pensionable age (years)	
	In region	Reporting	Average for men (range)	Average for women (range)
Africa	46	37	58 (50– 65)	57 (50–65)
Americas	35	34	62 (55–65)	61 (55–65)
South-East Asia	11	6	55 (55–57)	55 (50–57)
Europe	52	49	64 (60–67)	61 (55–67)
Eastern Mediterranean	21	15	60 (50–65)	57 (50–64)
Western Pacific	27	20	58 (50–65)	58 (50–65)

Sources: *(80, 81)*.

Health workforce ageing

In many countries, a trend towards earlier retirement dovetails with a rise in the average age of health workers, and these dual shifts could lead to mass exits from the health workforce *(88, 91, 92)*. Middle-aged nurses, who are part of the "baby boom" generation born after the Second World War, dominate the workforce in many countries and will reach retirement age within the next 10 to 15 years. In the United States, for example, progressive ageing of the registered nurse population since

Figure 5.4 Ageing nurses in the United States of America



Source: *(91)*.

1980 indicates that there will be accelerated attrition of experienced nurses from the workforce at a time of growing demand *(93, 94)*, as shown in Figure 5.4.

The ageing trend is not systematic across countries, however. Some developing countries, like Lesotho, have a younger physician workforce, for example, than industrialized countries such as Switzerland (see Figure 5.5).

Unlike illness and migration, retirement is relatively predictable. Proactive retirement policies could prevent any shortages connected to early retirement and an ageing workforce.

Strategy 5.11 Develop the capacity and policy tools to manage retirement

Information systems can capture details of age patterns, yearly outflows caused by retirement and patterns of retirement, which lay the groundwork for effective management policies that reduce or increase retirement outflows. Once those policies are in place, employers may provide incentives to workers to retire earlier or later, and governments may offer subsidies or taxes to change the costs of employing older people or consider making changes to the statutory pensionable age. Retirees represent a pool of health workers who could be recruited back into the health workforce to provide a much needed increase in numbers and experience in resource-constrained environments around the world. Box 5.4 describes one such scheme in Guyana.

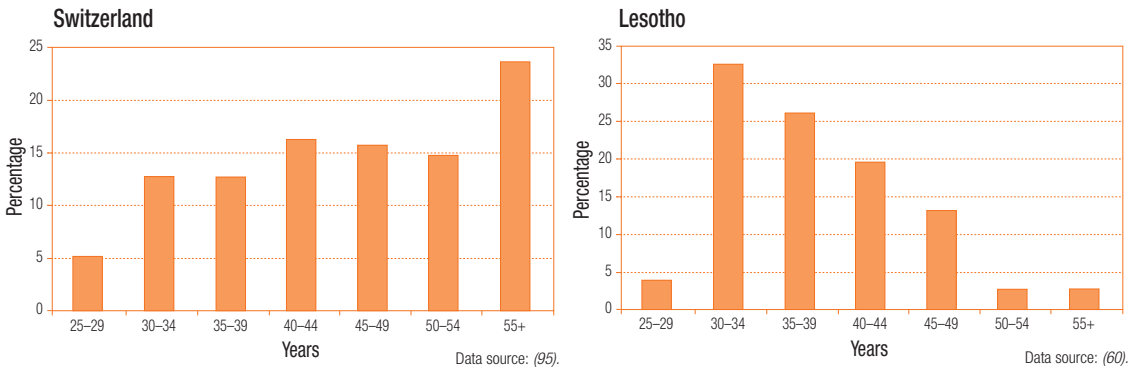
The need for knowledge transfer

Retirement removes from the health care delivery system not just workers themselves, but also their hands-on experience and institutional knowledge. Failure to transfer the experience and knowledge of exiting workers to those who remain, through succession planning, can deprive the workforce of key competencies and skills. Poor succession planning has been identified as a key challenge associated with nursing in rural and remote areas *(96)*.

Strategy 5.12 Develop succession planning

Succession planning – which entails such strategies as having prospective retirees mentor younger staff and participate in knowledge sharing mechanisms such as communities of practice – can transmit knowledge from experienced health workers to their successors and minimize the impact of retirement on the workforce.

Figure 5.5 Age distribution of doctors



Data source: *(95)*.

Data source: *(60)*.

CONCLUSION

Although this chapter is not an exhaustive treatment of the factors leading to temporary or permanent exit from the workforce, it has nonetheless dealt with four major dimensions: migration; risk of violence, illness and death; occupational change; and retirement. Each requires careful analysis in its own right with its respective responses, yet when examined as a group, the bigger picture of workforce exits or attrition emerges. This picture reveals the rate of worker outflow, and along with information on inflows, permits an assessment of the relative balance in terms of entry and exits. In a steady state, or workforce equilibrium, the flows into the workforce – primarily from training and recruitment – should equal the outflows. However, if at the baseline there is a major shortfall of workers, as in the case of the 57 countries with critical shortages identified in Chapter 1, then inflows should greatly exceed outflows.

The case of sub-Saharan Africa is instructive in this regard. This chapter has revealed major exits of health professionals from the workforce due to migration, ill-health and absenteeism and to a much lesser degree from retirement. Redressing the critical shortages in Africa requires not only expanding inflows through training more workers but significantly diminishing the rate of outflow through better retention, improved worker health, and reducing the wastage that is inherent in absenteeism and ghost workers.

The set of factors linked to taking workers out of the workforce draws attention to the importance of looking forward and being aware of trends. The age distribution of the workforce in many richer countries discloses a "greying" trend that will result in accelerated attrition through retirement in the medium term. Likewise, the sex distribution reveals patterns of "feminization", especially in the medical profession, with patterns of work and retirement among women that differ significantly from those of men. Such trends cannot afford to be ignored. Rather, they call for forward planning to avoid significant imbalances. In the case of women, greater efforts must be made to retain health work as a career of choice by providing greater protection at the workplace from abuse and insecurity, more flexibility in work patterns that accommodate family considerations, and promotion ladders that allow them to advance to senior management and leadership positions in the health sector.

Finally, as exemplified by the case of international migration, the health workforce is strongly linked to global labour markets. Shortages in richer countries send strong market signals to poorer countries with an inevitable response through increased flows of migrant workers. In articulating their plans for the workforce, countries must recognize this and other linkages beyond their borders. The next two chapters focus on the challenges of formulating national strategies in the current global context.

REFERENCES

1. Zurn P, Dal Poz MR, Stilwell B, Adams O. Imbalance in the health workforce. *Human Resources for Health*, 2004, 2:13 (http://www.human-resources-health.com/content/2/1/13, accessed 2 February 2006).
2. Egger D, Lipson D, Adams O. *Achieving the right balance: the role of policy-making processes in managing human resources for health problems.* Geneva, World Health Organization, 2000 (Issues in health services delivery. Discussion paper 2; WHO/EIP/OSD/00.2; http://www.who.int/hrh/documents/en/right_balance.pdf, accessed 23 January 2006).
3. Zurn P, Dolea C, Stilwell B. *Nurse retention and recruitment: developing a motivated workforce.* Geneva, International Council of Nurses, 2005 (Issue Paper 4; http://www.icn.ch/global/Issue4Retention.pdf, accessed 2 February 2006).
4. Buchan J, Thompson M, O'May F. *Health workforce incentive and remuneration strategies: a research review.* Geneva, World Health Organization, 2000 (Issues in health services delivery, Discussion paper 4. Incentive and remuneration strategies; WHO/EIP/OSD/00.14; http://www.who.int/health-services-delivery/disc_papers/Incentives_remuneration.pdf, accessed 23 January 2006).
5. Stilwell B, Diallo K, Zurn P, Dal Poz MR, Adams O, Buchan J. Developing evidence-based ethical policies on the migration of health workers: conceptual and practical challenges. *Human Resources for Health*, 2003, 1:8.
6. Aiken LH, Buchan J, Sochalski J, Nichols B, Powell M. Trends in international nurse migration. *Health Affairs,* 2004, 23:69–77.
7. Buchan J, Calman L. *The global shortage of registered nurses: an overview of issues and actions.* Geneva, International Council of Nurses, 2004 (http://www.icn.ch/global/shortage.pdf, accessed 2 February 2006).
8. Buchan J, Parkin T, Sochalski J. *International nurse mobility: trends and policy implications.* Geneva, World Health Organization, 2003.
9. Buchan J, Jobanputra R, Gough P, Hutt R. *Internationally recruited nurses in London: profile and implications for policy.* London, King's Fund, 2005 (http://www.kingsfund.org.uk/resources/publications/internationally.html, accessed 2 February 2006).
10. Awases M, Gbary A, Nyoni J, Chatora R. *Migration of health professionals in six countries.* Brazzaville, World Health Organization Regional Office for Africa, 2004.
11. *Trends in international migration*. Paris, Organisation for Economic Co-operation and Development, 2005.
12. Hagopian A, Thompson M, Fordyce M, Johnson K, Hart LG. The migration of physicians from sub-Saharan Africa to the United States of America: measures of the African brain drain. *Human Resources for Health*, 2004, 2:17.
13. Tevera D. *Early departures: the emigration potential of Zimbabwean students.* Cape Town, Southern African Migration Project, 2005 (Migration Policy Series no. 39; http://www.queensu.ca/samp/sampresources/samppublications/policyseries/policy39.htm, accessed 2 February 2006).
14. Iredale R. The migration of professionals: theories and typologies. *International Migration*, 2001, 39:7–26.
15. Findlay A, Stewart E. S*killed labour migration from developing countries.* Geneva, International Labour Organization, 2002 (ILO International Migration Papers, No. 55).
16. Lowell BL, Findlay A. *Skilled Labour Migration from developing countries*. Geneva, International Labour Organization, 2002 (ILO International Migration Papers, No. 56).
17. Mejía A, Pizurki H, Royston E. *Physician migration and nurse migration: analysis and policy implications*. Geneva, World Health Organization, 1979.
18. Stilwell B, Diallo K, Zurn P, Vujicic M, Adams O, Dal Poz MR. Migration of health workers from developing countries: strategic approaches to its management. *Bulletin of the World Health Organization,* 2004, 82:595–600.
19. *Unlocking the human potential for public sector performance.* New York, United Nations Department of Economic and Social Affairs, 2005 (World Public Sector Report, ST/ESA/PAD/SER.E/63).
20. Anderson B, Rogaly B. *Forced labour and migration to the UK*. Oxford, Centre for Migration Policy and Society, 2005.

21. Van Eyck K. *Who cares? Women health workers in the global labour market*. Ferney-Voltaire, Public Services International, 2005.
22. *Global economic prospects: economic implications of remittances and migration*. Washington, DC, The World Bank, 2005.
23. Mensah K, Mackintosh M, Henry L. The "skills drain" of health professionals from the developing world: a framework for policy formulation. London, Medact, 2005 (http://www.medact.org/article_health.php?articleID=337, accessed 2 February 2006).
24. Chen LC, Boufford JI. Fatal flows – doctors on the move. *New England Journal of Medicine*, 2005, 353:1850–1852.
25. Wibulpolprasert S. Economic uncertainties: future challenges to world health. Lessons learned from Thailand. In: *Health by the people: a celebration of the life of Ken Newell.* Liverpool, Liverpool School of Tropical Medicine, 2001.
26. *The migration of skilled health personnel in the Pacific Region*. Manila, World Health Organization Regional Office for the Western Pacific, 2004.
27. *Health Priorities in the World Bank's Pacific Member Countries*. Washington, DC, The World Bank, 1994.
28. Choy CC. *Empire of care: nursing and migration in Filipino American history*. Durham, NC, Duke University Press, 2003.
29. Commander S. *Brains: what can they do for export?* Sussex Development Lecture 2004 (http://www.london.edu/assets/documents/PDF/brains_lecture.pdf, accessed 2 February 2006).
30. Denham L, Shaddock A. Recruitment and retention of rural allied health professionals in developmental disability services in New South Wales. *Australian Journal of Rural Health*, 2004, 12:28–29.
31. Reid S. Community service for health professionals: coercion, change and challenge. In: *South African Health Review, 2002*. Durban, Health Systems Trust, 2002 (http://www.hst.org.za, accessed 2 February 2006).
32. Turrittin J, Hagey R, Guruge S, Collins E, Mitchell M. The experiences of professional nurses who have migrated to Canada: cosmopolitan citizenship or democratic racism? *International Journal of Nursing Studies*, 2002, 39:655–667.
33. Connell J, Brown R. *Remittances in the Pacific: an overview.* Manila, Asian Development Bank, 2005 (http://www.adb.org, accessed 2 February 2006).
34. Van Eyck K. *Women and international migration in the health sector.* Ferney-Voltaire, Public Services International, 2004.
35. Hagey R, Choudhry U, Guruge S, Turrittin J, Collins E, Lee R. Immigrant nurses' experience of racism. *Journal of Nursing Scholarship*, 2001, 33:389–394.
36. Turrittin J, Hagey R, Guruge S, Collins E, Mitchell M. The experiences of professional nurses who have migrated to Canada: cosmopolitan citizenship or democratic racism? *International Journal of Nursing Studies*, 2002, 39:655–667.
37. Rokoduru A. *The contemporary migration of skilled labour from Fiji to Pacific Island countries*. Canberra, Asia Pacific Migration Research Network, 2002 (Working Paper No. 12:43–48).
38. Allen H, Aggergaard LJ. *"We need respect" – experiences of internationally recruited nurses in the UK*. London, Royal College of Nursing, 2003 (http://www.rcn.org.uk/downloads/international/irn-report-we-need-respect.pdf, accessed 2 February 2006).
39. Barré R, Hernandez V, Meyer J-P, Vinck D. *Diasporas scientifiques*. Paris, Institut de recherche pour le développement (IRD), 2003.
40. *Building bridges: a report to the Massachusetts–South Africa Health Care Task Force* Boston, MA, South Africa Partners, 2000 (http://www.sapartners.org/documents/Doc4.pdf, accessed 2 February 2006).
41. Mafubelu D. *Using bilateral arrangements to manage migration of health care professionals: the case of South Africa and the United Kingdom*. Paper presented at: IOM/WHO/CDC Seminar on Health and Migration, Geneva, June 2004 (http://www.iom.int/documents/officialtxt/en/pp%5Fbilateral%5Fsafrica.pdf, accessed 2 February 2006).
42. *Management of international health worker migration. Instruments on ethical recruitment and other policy options.* Geneva, World Health Organization, 2004 (unpublished report).
43. *World migration report – Costs and benefits of international migration*. Geneva, International Organization for Migration, 2005.

44. Cooper C, Swanson N, eds. *Workplace violence in the health sector. State of the art.* Geneva, ILO/ICN/WHO/PSI Joint Programme on Workplace Violence in the Health Sector, 2002 (Working paper; http://www.who.int/violence_injury_prevention/injury/en/WVstateart.pdf, accessed 2 February 2006).
45. Di Martino V. *Workplace violence in the health sector. Country case studies: Brazil, Bulgaria, Lebanon, Portugal, South Africa, Thailand and an additional Australian study, Synthesis report.* Geneva, ILO/ICN/WHO/PSI Joint Programme on Workplace Violence in the Health Sector, 2002 (Working paper; http://www.who.int/violence_injury_prevention/injury/en/WVsynthesisreport.pdf, accessed 2 February 2006).
46. Chappell D, Di Martino V. Violence at work. *Asian-Pacific Newsletter on Occupational Health and Safety,* 1999, 6(1) (http://www.ilo.org/public/english/protection/safework/violence/violwk/violwk.pdf, accessed 2 February 2006).
47. Dalphond D, Gessner M, Giblin E, Hijazzi K, Love C. Violence against emergency nurses. *Journal of Emergency Nursing*, 2000, 26:105.
48. Jackson D, Clare J, Mannix J. Who would want to be a nurse? Violence in the workplace – a factor in recruitment and retention. *Journal of Nursing Management*, 2002, 10:13–20.
49. Farrell GA. Aggression in clinical settings: nurses' views – a follow-up study. *Journal of Advanced Nursing*, 1999, 29:532–541.
50. O'Connell B, Young J, Brooks J, Hutchings J, Lofthouse J. Nurses' perceptions of the nature and frequency of aggression in general ward settings and high dependency areas. *Journal of Clinical Nursing*, 2000, 9:602–610.
51. International Labour Organization (ILO), International Council of Nurses (ICN), World Health Organization (WHO) and Public Services International (PSI). *Framework guidelines for addressing workplace violence in the health sector.* Geneva, ILO/ICN/WHO/PSI Joint Programme on Workplace Violence in the Health Sector, 2002 (http://www.who.int/violence_injury_prevention/violence/interpersonal/en/WVguidelinesEN.pdf, accessed 2 February 2006).
52. Wiskow C. *Guidelines on workplace violence in the health sector – Comparison of major known national guidelines and strategies: United Kingdom, Australia, Sweden, USA*. Geneva, ILO/ICN/WHO/PSI Joint Programme on Workplace Violence in the Health Sector (forthcoming working paper).
53. *Healthy and valued health workers are essential to save health systems in sub-Saharan Africa.* Geneva, International Council of Nurses, 2005 (Press release ICN/PR05, No. 21; http://www.icn.ch/PR21_05.htm, accessed 25 February 2006).
54. Egan M, Moynihan M. *An examination of non practising qualified nurses and midwives in the Republic of Ireland and an assessment of their intentions and willingness to return to practice.* Dublin, Irish Nurses Organisation/Michael Smurfit Business School, 2003.
55. Morgan R. *Addressing health worker shortages: recruiting retired nurses to reduce mother-to-child transmission in Guyana. Snapshots from the field.* Arlington, VA, Family Health International, 2005.
56. Shamian J, O'Brien-Pallas L, Thomson D, Alksnis C, Kerr MS. Nurse absenteeism, stress and workplace injury: what are the contributing factors and what can/should be done about it? *International Journal of Sociology and Social Policy*, 2003, 23:81–103.
57. *Aide-mémoire for a strategy to protect health workers from infection with bloodborne viruses.* Geneva, World Health Organization, 2003 (http://www.who.int/injection_safety/toolbox/docs/en/AM_HCW_Safety.pdf, accessed 1 February 2006).
58. Cohen D. *Human capital and the HIV epidemic in sub-Saharan Africa.* Geneva, International Labour Organization, 2002 (Working Paper 2).
59. Buve A, Foaster SD, Mbwili C, Mungo E, Tollenare N, Zeko M. Mortality among female nurses in the face of the AIDS epidemic: a pilot study in Zambia. *AIDS,* 1994, 8:396.
60. Schwabe C, McGrath E, Lerotholi K. *Lesotho human resources consultancy: health sector human resources needs assessment.* Silver Spring, MD, Medical Care Development International, 2004.
61. *Challenges facing the Malawian health workforce in the era of HIV/AIDS. Final draft.* Washington, DC, Commonwealth Regional Health Community Secretariat (CRHCS), United States Agency for International Development, Bureau for Africa (USAID/AFR), and Support for Analysis and Research in Africa (SARA) Project, 2004.

62. Kober K, Van Damme W. Scaling up access to antiretroviral treatment in southern Africa: who will do the job? *Lancet,* 2004, 364:103–107.
63. Tawfik L, Kinoti S. *The impact of HIV/AIDS on the health workforce in developing countries.* Arlington, VA, Management Sciences for Health and Bethesda, MD, University Research Co., LLC, 2005.
64. *Joint ILO/WHO guidelines on health services and HIV/AIDS*. Geneva, International Labour Organization and World Health Organization, 2005.
65. Schroeder SA. How many hours is enough? An old profession meets a new generation. *Annals of Internal Medicine*, 2004, 140:838–839 (http://www.annals.org/cgi/content/full/140/10/838, accessed 2 February 2006).
66. Buske L. Younger physicians providing less direct patient care. *Canadian Medical Association Journal*, 2004, 170:1217.
67. Knaul F, Frenk J, Aguilar A. The gender composition of the medical profession in Mexico: implications for employment patterns and physician labor supply. *Journal of American Medical Women's Association*, 1999, 55:32–35.
68. Higginbotham E. Celebrating women in ophthalmology. *Archives of Ophthalmology*, 1998, 116:1227–1228.
69. Reamy J, Pong R. *Physician workforce composition by gender: the implications for managing physician supply*. Paper presented at: 4th FICOSSER General Conference, Cuernavaca, Mexico, 1998.
70. Hojat M, Gonnella J, Xu G. Gender comparisons of young physicians' perceptions of their medical education, professional life, and practice: a follow-up study of Jefferson Medical College graduates. *Academic Medicine*, 1995, 70:305–312.
71. Woodward C, Hurley J. Comparison of activity level and service intensity of male and female in five fields of medicine in Ontario. *Canadian Medical Association Journal*, 1995, 153:1097–1106.
72. *Babies and bosses: reconciling work and family life, Canada, Finland, Sweden and the United Kingdom. Vol. 4*. Paris, Organisation for Economic Co-operation and Development, 2005.
73. Phillips VL. Nurses' labor supply: participation, hours of work, and discontinuities in the supply function. *Journal of Health Economics*, 1995, 14:567–582.
74. Lafer G, Moss H, Kirtner R, Rees V. *Solving the nursing shortage*. Eugene, OR, University of Oregon, 2003.
75. *Health workforce challenges: lessons from country experiences.* Background paper for the High-Level Forum on the Health MDGs, Abuja, 2004 (http://www.hlfhealthmdgs.org/Documents/HealthWorkforceChallenges-Final.pdf, accessed 2 February 2006)
76. The international mobility of health professionals: an evaluation and analysis based on the case of South Africa. In: *Trends in international migration, Part III*. Paris, Organisation for Economic Co-operation and Development, 2004.
77. Chaudhury N, Hammer J, Kremer M, Muralidharan K, Rogers FH. Provider absence in schools and health clinics. *Journal of Economic Perspectives* (forthcoming; http://post.economics.harvard.edu/faculty/kremer/webpapers/MissinginAction.pdf, accessed 2 February 2006).
78. Chaudhury N, Hammer J. *Ghost doctors: absenteeism in Bangladeshi health facilities*. Washington, DC, The World Bank, 2003 (Policy Research Working Paper No. 3065).
79. Dovlo D. 2005: Wastage in the health workforce: some perspectives from African countries. *Human Resources for Health*, 2005, 3:6 (http://www.human-resources-health.com/content/3/1/6, accessed 2 February 2006).

80. McCallum N, Tyler V. *International experience with civil service censuses and civil service databases*. London, International Records Management Trust, 2001 (http://www.irmt.org/download/DOCUME~1/DEVELO~1/RESEAR~1/Census.pdf, accessed 2 February 2006).
81. *Social security programs throughout the world*. Washington, DC, Social Security Administration and International Social Security Association, 2003–2005 (http://www.ssa.gov/policy/docs/progdesc/ssptw, accessed 23 January 2006).
82. Keese M, Hirsch D. *Live longer, work longer*. Paris, Organisation for Economic Co-operation and Development (forthcoming).
83. Starkiene L, Smigelskas K, Padaiga Z, Reamy J. The future prospects of Lithuanian family physicians: a 10-year forecasting study. *BMC Family Practice*, 2005, 6:41.
84. Greene J. Physicians enticed into early retirement. *American Medical News*, 2000, 43:1–2.
85. Auer P, Fortuny M. *Ageing of the labour force in OECD countries: economic and social consequences*. Geneva, International Labour Organization, 2000 (http://www.ilo.org/public/english/employment/strat/download/ep2.pdf, accessed 23 January 2006).
86. Canadian Labour and Business Centre, for Task Force Two: A Physician Human Resource Strategy for Canada. *Physician workforce in Canada: literature review and gap analysis. Final report*. Ottawa, Government of Canada, 2003 (http://www.physicianhr.ca/reports/literatureReviewGapAnalysis-e.pdf, accessed 23 January 2006).
87. Watson R, Manthorpe J, Andrews J. *Nurses over 50: options, decisions and outcomes*. Bristol, Policy Press in association with the Joseph Rowntree Foundation, 2003.
88. Schofield DJ, Beard JR. Baby boomer doctors and nurses: demographic change and transitions to retirement. *Medical Journal of Australia*, 2005, 183:80–83.
89. Netten A, Knight J. Annuitizing the human capital investment costs of health service professionals. *Health Economics*, 1999, 8:245–255.
90. Kinfu Y, Mercer H, Dal Poz MR, Evans DB. *Estimating inflows and outflows of health service providers in sub-Saharan Africa*. Geneva, World Health Organization, 2006 (background paper for The world health report 2006. available at: http://www.who.int/hrh/documents/enl).
91. Buerhaus P, Staiger D, Auerbach D. Implications of an ageing registered nurse workforce. *JAMA*, 2000, 283:2948–2954.
92. Buchan J. The "greying"of the United Kingdom nursing workforce: implications for employment policy and practice. *Journal of Advanced Nursing*, 1999, 30:818–826.
93. *The registered nurse population: national sample survey of registered nurses, March 2004. Preliminary findings*. Washington, DC, United States Department of Health and Human Services, 2005 (ftp.hrsa.gov/bhpr/nursing/rnpopulation/theregisterednursepopulation.pdf, accessed 23 January 2006).
94. Janiszewski Goodin H. The nursing shortage in the United States of America: an integrative review of the literature. *Journal of Advanced Nursing*, 2003, 43:335–343.
95. Swiss Medical Association, 2004 (http://www.fmh.ch/shared/data/pdf/import_fmh/ict/statistik/2004/sts2004-14.pdf, accessed 2 February 2006).
96. National Rural Health Alliance. *Nursing in rural and remote areas*. Deakin, Association for Australian Rural Nurses Inc., 2002 (Position paper; http://www.aarn.asn.au/pdf/papers/position_paper.pdf, accessed 2 February 2006).