Burdett Trust for Nursing

The Global Shortage of Registered Nurses: An Overview of Issues and Actions

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Developed by
James Buchan and Lynn Calman

for the
International Council of Nurses

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The authors alone are responsible for the contents of the report and conclusions.

Reference Group Members

Jonathan Asbridge
Nursing and Midwifery Council – United Kingdom

Gilles Dussault
World Bank Institute

Marilyn Elegado Lorenzo
National Institutes of Health – Philippines

Thembeka Gwagwa
The Democratic Nursing Organisation of South Africa

Silvina Malvárez
Pan American Health Organization

Ken Sagoe
Ghana Health Service

Ragnhild Seip
Norwegian Agency for Development Cooperation

Judith Shamian
Victorian Order of Nurses
(Formerly of Health Canada)

Sissel Hodne Steen
Norwegian Agency for Development Cooperation

Duangvadee Sungkhobol
World Health Organization, Regional Office for South-East Asia

Piyasiri Wickramasekara
International Labour Office

Representatives of the World Health Organization, Geneva, Switzerland

Abbreviations

AFRO	Africa Regional Office
EMRO	Eastern Mediterranean Regional Office
EURO	Europe Regional Office
FNIF	Florence Nightingale International Foundation
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HRM	Human Resource Management
ICN	International Council of Nurses
ILO	International Labour Office
MDGs	Millennium Development Goals
NHS	National Health Service
OECD	Organisation for Economic Co-operation and Development
PAHO	Pan American Health Organization
SEARO	South East Asia Regional Office
UK	United Kingdom
WHO	World Health Organization
WPRO	Western Pacific Regional Office

Executive Summary

This report on the global nursing workforce was led by the International Council of Nurses (ICN) and its sister organisation the Florence Nightingale International Foundation (FNIF), and supported by the Burdett Trust for Nursing. The report is the first output from a programme of work examining the crucial issue of nursing shortages, and identifying a framework for policy interventions.

The world has entered a critical period for human resources for health. The scarcity of qualified health personnel, including nurses, is being highlighted as one of the biggest obstacles to achieving the Millennium Development Goals (MDGs) for improving the health and well being of the global population.

Against this backdrop of growing concern about shortages of health personnel, the report focuses on one of the most critical components of the workforce – nurses. Nurses are the "front line" staff in most health systems, and their contribution is recognised as essential to meeting these development goals and delivering safe and effective care.

In presenting a global overview, the paper reports on key trends, main challenges and potential solutions. The emphasis is on breadth of coverage, but specific nursing workforce issues in different countries are highlighted to illustrate the main challenges facing those responsible for developing and implementing policies on the nursing workforce. The report presents a snapshot of a dynamic and challenging situation worldwide.

A Global Overview

- There is huge variation in the nurse:population ratios throughout the world.
- At country level, the reported nurse:population ratio varies in different countries from less than 10 nurses per 100,000 population to more than 1,000 nurses per 100,000, a variation of more than one hundredfold.
- The average ratio in Europe, the region with the highest ratios, is 10 times that of the lowest regions – Africa and South East Asia.
- The average ratio in North America is 10 times that in South America.
- The average nurse:population ratio in high-income countries is almost eight times greater than in low-income countries.
- The low availability of nurses in many developing countries is exacerbated by geographical maldistribution – there are even fewer nurses available in rural and remote areas.

Skill mix and staff mix vary among organisations, systems and countries, and there is no single "optimal" mix of nurses and other staff to which all can aspire. However, many countries, particularly in Africa, Asia and Central/South America, are struggling to provide a minimum level of nurse staffing. Some countries, most notably in Central/South America, report employing many more physicians than nurses. Even in countries with low nurse:population ratios, there is often a maldistribution of available nurses, which exacerbates the impact of shortages. Rural areas in developing countries tend to be the most underserved areas.

Nursing Shortages and Critical Challenges

- Whilst there is no universal definition of a nursing shortage, there is increasing evidence of nurse supply/demand imbalances in many countries.
- Supply of nurses in many low-income and high-income countries is failing to keep pace with increasing demand.
- One recent estimate is that sub-Saharan African countries have a shortfall of more than 600,000 nurses needed to meet the Millennium Development Goals.
- The Organisation for Economic Co-operation and Development (OECD) reports that many of its (high-income) member countries have increasing problems of nursing shortages.
- There is a link between adequate nurse staffing levels and positive care outcomes.
- Gender-based discrimination continues in many countries and cultures, with nursing being undervalued or downgraded as "women's work".
- Violence against health workers persists in many countries, with nurses often taking the brunt because they are in the forefront of the direct delivery of care.
- Three critical challenges related to nursing shortages are:
  - the impact of HIV/AIDS;
  - internal and international migration of nurses;
  - achieving effective health sector reform and reorganisation.

Critical Challenge # 1: Sub-Saharan Africa – The Impact of HIV/AIDS on the Nursing Workforce

Whilst HIV/AIDS is a challenge throughout the world, its regional impact has, so far, been most pronounced in sub-Saharan Africa. HIV/AIDS is impacting negatively on health systems both by increasing demand for health services and by reducing health workforce availability and performance. The impact of HIV/AIDS is also a factor in increasing internal and international migration of health workers from sub-Saharan Africa, which in turn creates heavier workloads for the nurses who remain.

Critical Challenge #2: Internal and International Migration

Migration and international recruitment of nurses have become more prominent features in the last few years. Often as important, but less prominent in policy arenas, is internal migration – from rural to urban areas, from public sector employment to private sector employment, and from nursing employment to non-nursing employment (or no employment). The impact of out-migration of nurses on some developing countries is severe. They are losing scarce, and relatively expensive to train, resources. Levels and quality of care are suffering. Many of the nurse recruits who cross national borders are relatively young and well skilled. Similar problems can be created by internal migration, where nurses take their skills and expertise into other types of employment.

Critical Challenge #3: Achieving Effective Health Sector Reform and Organisational Restructuring

Reform of health systems is often an essential component of improving efficiency, access, and outcomes from health service delivery. Many countries are going through a process of health sector reform, and many health organisations within countries are restructuring. However, whilst some approaches have led to improvements, not all attempts at restructuring have been successful, and some "successful" reforms have paid little attention to the impact on human resources within the health sector. Nurses and others working in dysfunctional or "failing" health systems have to develop various coping strategies to survive. Reforms and restructuring of health systems cannot ignore these factors if they hope to achieve the goals of health improvement and improved access to health care.

Policy Interventions Framework

Four components of a policy framework to address nursing shortages are highlighted in the report:

- Workforce Planning
- Recruitment and Retention
- Deployment and Performance
- Utilisation and Skill Mix

- The report stresses that the framework components and associated policy interventions are interdependent.
- The need for effective policy intervention requires leadership and stakeholder involvement is highlighted.
- It is emphasised that policy interventions must be appropriate to the country context and objectives.
- Nursing shortages are not just a "problem for nursing". They are a health system problem, which undermines health system effectiveness and requires health system solutions. Without effective and sustained interventions, global nursing shortages will persist, undermining attempts to improve care outcomes and the health of nations.

Introduction

This report is the first publication in a programme of work on the global nursing workforce led by the International Council of Nurses (ICN) and its sister organisation, the Florence Nightingale International Foundation (FNIF), and supported by the Burdett Trust for Nursing.[a] It examines the crucial issue of nursing shortages, and provides a framework for policy interventions.

The world has entered a critical period for human resources for health. The scarcity of qualified health personnel, including nurses, is being highlighted as one of the biggest obstacles to achieving the Millennium Development Goals (MDGs) of improving the health and well-being of the global population. The MDGs are a set of 8 goals, 18 targets and 48 performance indicators relating to poverty reduction by 2015. Of these goals, four are directly related to better health outcomes: to reduce infant and under-five mortality by two-thirds; to reduce maternal mortality by three-fourths; to halt and reverse HIV/AIDS, tuberculosis, and malaria epidemics; and to halve the proportion of people suffering from hunger.

In January 2004, the High Level Forum on the Health MDGs reported, "There is a human resources crisis in health, which must be urgently addressed".[1] This was echoed at the World Health Assembly in May 2004, which noted, "The crisis in the health workforce comes at a time of unprecedented challenge in global health. Many countries face an urgent need to deliver more and better services to their poorest and sickest people, often the most difficult to reach…Although the challenges of developing the health workforce vary greatly between and within countries, the absolute shortage of health personnel, particularly in sub-Saharan Africa, is recognised as the principal constraint to achieving the Development Goals and other new health goals".[2]

International agencies such as the World Health Organization, The World Bank, and the Organisation for Economic Co-operation and Development (OECD), along with groups such as the Rockefeller Joint Learning Initiative, are focusing on the huge and growing challenge of ensuring that there is sufficient workforce capacity to enable health systems to function effectively. Against this backdrop of growing concern about shortages of health personnel, this report focuses on one of the most critical components of the workforce:nurses.[b]

Nurses are the main professional component of the "front line" staff in most health systems, and their contribution is recognised as essential to meeting these development goals and delivering safe and effective care. For many countries, one of the most problematic current human resource challenges is a shortage of nurses. In most countries, 90% or more of the nursing workforce is female. The challenges facing the nursing workforce are interlinked with the challenges of ending gender bias and discrimination in society and in employment.

This report highlights key current priority issues related to nurse staffing and shortages, such as role and skill mix variations; geographical imbalances; the impact of HIV/AIDS; the migration of nurses; the impact of health sector reform; and nurses' status and participation in decision-making. It concludes by outlining a framework for policy interventions to address the challenges facing the nursing workforce.

A nursing shortage is not just an organisational challenge or a topic for economic analysis; it has a major negative impact on health care. Failure to deal with a nursing shortage – be it local, regional, national or global – is likely to lead to failure to maintain or improve health care.

Nursing shortages and understaffing have been linked to a range of negative outcomes. These include: increased mortality rates;[3] adverse events after surgery;[4] increased incidence of violence against staff;[5] increased accident rates and patient injuries;[6] and increased cross infection rates.[7] A recent review of

[a]The Burdett Trust For Nursing is an independent charitable Trust named after Sir Henry Burdett KCB, the founder of the Royal National Pension Fund for Nurses.

[b]One key issue, which is exposed in this report, is the lack of a universal definition of "nurse". Different international agencies, at different times, have developed different definitions, some related to educational level, some to years of training. Broad based definitions of "nursing" may include nursing assistants; other more precise definitions relate explicitly to registered nurses only. The primary focus of this report is on registered nurses, but this focus is hampered by the absence of a clear definition for some data sources, and the overall lack of a single universal definition of "nurse".

research on nurse staffing and quality of care summarised findings as follows: "The largest of the studies … found significant associations between lower levels of nurse staffing and higher rates of pneumonia, upper gastrointestinal bleeding, shock/cardiac arrest, urinary track infections, and failure to rescue. Other studies found associations between lower staffing levels and pneumonia, lung collapse, pressure ulcers, thrombosis after major surgery, pulmonary collapse after surgery, longer hospital stays, and 30-day mortality."[8]

This report will be complemented by a series of detailed issue-based papers examining specific global and regional aspects of the nursing workforce in more detail.

These other papers focus on:

1. Regulation, competency development and role definition.
2. Policy and planning initiatives: a) nationally, to address geographic and sectoral maldistribution and b) locally, to assess workload and improve utilisation, and deployment.
3. What makes a "good" employer: the links between effective human resource practice, staffing levels, staff involvement and care outcomes.
4. Recruitment, retention, motivation and performance: interventions and incentives to promote job satisfaction.
5. International Migration of Nurses.
6. Regional Overview Report: sub-Saharan Africa.
7. Regional Overview Report: Latin America.

These papers will provide the background material to inform a meeting of experts and a global summit on the nursing workforce, to be held in 2005.

In presenting a global overview, the paper reports on key trends, main challenges and potential solutions. The emphasis is on breadth of coverage, but specific nursing workforce issues in different countries are highlighted to illustrate the main challenges facing those responsible for developing and implementing policies on the nursing workforce. The report presents a snapshot of a dynamic and challenging situation worldwide.

Section 1: A Global Overview

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The average ratio in Europe, the region with the highest ratios, is 10 times that of the lowest regions – Africa and South East Asia.

The average ratio in North America is 10 times that in South America.

The average nurse:population ratio in high-income countries is almost 8 times greater than in low-income countries.

The low availability of nurses in many developing countries is exacerbated by geographical maldistribution – there are even fewer nurses available in rural and remote areas.

This chapter presents a global picture of the distribution of nurses. It is based on an analysis and interpretation of data on nurse:population ratios, collated by the World Health Organization (WHO).[c]

ICN estimates that there may be more than 12 million nurses worldwide.[9] One difficulty in making an accurate global estimate is the definition of "nurse". As noted earlier, the primary focus of this report is registered nurses; it is not intended to examine in detail technical auxiliaries and nurses aides/auxiliaries.

There are different definitions provided by different sources. The ICN's definition of nursing is:

> "Nursing encompasses autonomous and collaborative care of individuals of all ages, families, groups and communities, sick or well and in all settings. Nursing includes the promotion of health, prevention of illness, and the care of ill, disabled and dying people. Advocacy, promotion of a safe environment, research, participation in shaping health policy and in patient and health systems management, and education are also key nursing roles."[10]

One definition of nurse used by the World Health Organization is:

> "a person who has completed a programme of basic nursing education and is qualified and authorised in his/her country to practise nursing in all settings for the promotion of health, prevention of illness, care of the sick and rehabilitation."[11]

However, the data collated by WHO from some countries include midwives under the broad category of nurses, whilst in other countries only registered nurses are included. For some, it is also likely that the data may include auxiliary and unlicensed personnel. There are therefore some major limitations in using the WHO data: WHO has to rely on the source countries to provide accurate, complete and up-to-date data. Some countries do not provide data; for others, the data are out-of-date. In this report, in all cases, the most recent data are used – but this can be several years out of date for some countries.

[c] The most recent data compiled by WHO can be found at http://www.who.int/globalatlas/autologin/hrh_login.asp This report is based on data accessed at that site on August 27th, 2004. Elsewhere on the WHO main website, an alternate source was also exhibited (http://www3.who.int/whosis). The two sites provide different data for many countries.

As noted above, there can be varying interpretations relating to the definition of "nurse". It is also a matter of variations in the scope of practice of nurses, which has an impact on effectiveness, efficiency, cost, and quality of services. This could mean that the numbers reported for some countries are inflated because they include midwives or assistants.

There can be varying interpretations relating to the calculation of the number of nurses – some countries may report working nurses, others may report all nurses that are eligible to practice; some may report "headcount", others may report full time equivalents.

This chapter concentrates on highlighting the salient features or main variations in the nurse:population ratio throughout the world. Taking account of the caveats expressed above, the analysis presented below should be taken as illustrative of a broad pattern of regional variations, rather than an accurate representation of each country.

The nurse:population ratio gives a very broad indication of the level of availability of professional nursing skills in each country. Two types of comparison of nurse:population ratios are undertaken in this chapter: regional comparisons, and comparison by level of development of each country (as classified by World Bank indicators). It can be misleading to look at nurse:population ratios in isolation, as staff mix varies significantly in different countries and regions, so doctor:nurse ratios are also examined.

Regional Comparisons

WHO data on health human resources are collated for most countries throughout the world. It is therefore possible to compare within and between different regions, to identify variations in the level of nurse:population ratio.

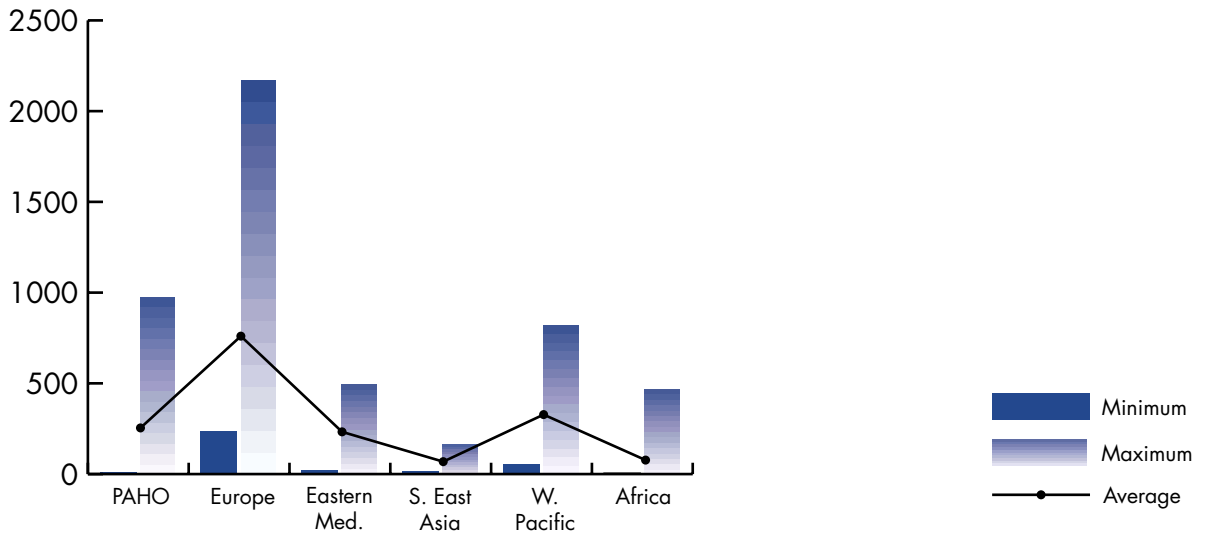
In this report, data are presented in two levels of regionalisation. Firstly, the data are analysed at the level of main WHO Regions: The Americas (PAHO), Europe (EURO), Eastern Mediterranean (EMRO), Africa (AFRO), South East Asia (SEARO) and Western Pacific (WPRO). The WHO Regions represent administrative blocs, and some cover a broad range of countries with different characteristics. Thus analysis is conducted within some of the regions to illustrate intra-region variation.

Comparison between Regions

Figure 1 illustrates the minimum, maximum and average nurse:population ratios for each of the WHO regions. Given the data limitations, the average is the most useful indicator, as the minimum or maximum may reflect the distorting effect of one "outlier" country, which skews the overall picture. Throughout this paper, the word "outlier" is used to describe a country or region whose nurse:population ratio is significantly higher or lower than the norm.

There is considerable variation between regions with Africa and South East Asia having the lowest average ratios. Many countries in the PAHO region, in South and Central America, also have a low ratio. The average ratio in Europe, the region with the highest ratios, is 10 times the average ratio in the lowest region. At country level, the reported ratio varies from less than 10 nurses per 100,000 in the Central African Republic, Liberia and Uganda, to more than 1,000 nurses per 100,000, in countries such as Norway and Finland.

Figure 1: Nurse:population ratio (100,000 HAB) – Min, Max and average by WHO region



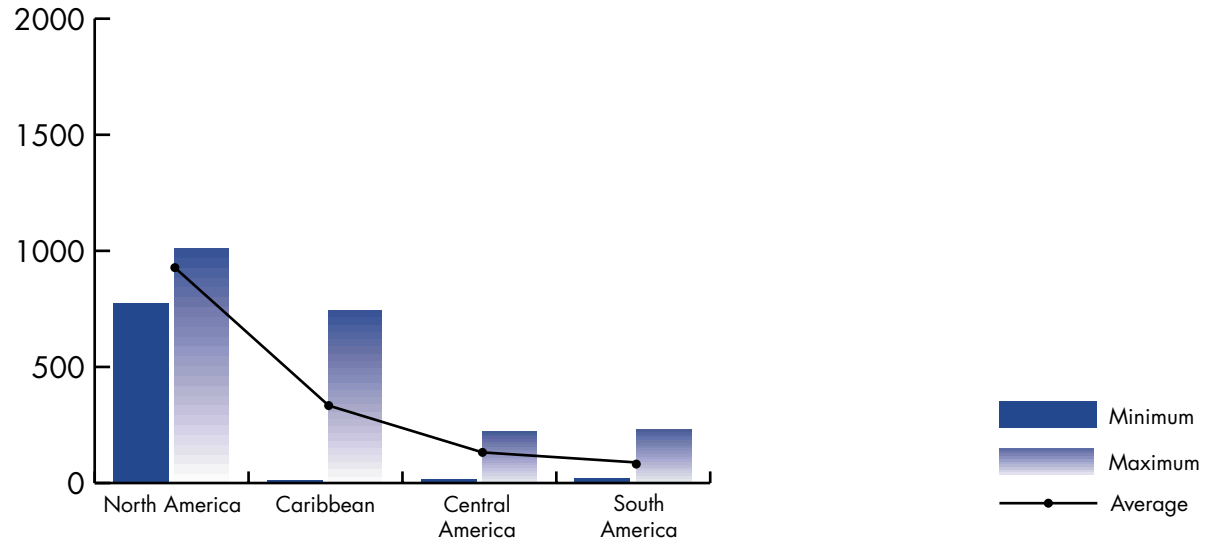
Source: WHO, 2004

Comparison within Regions

Some of the WHO Regions have considerable variation by sub-region, or have "outlier" countries where the nurse:population ratio is significantly higher than in the remainder of the region, which tends to raise the overall average ratio in these regions. It is therefore important to examine the variations within regions rather than just focusing on inter-region comparisons. For purposes of illustration, three WHO regions are examined in more detail: PAHO, EURO and AFRO.

For the PAHO region, the illustrative subdivisions used are: Central America, Caribbean, North America and South America. Figure 2 shows variation within the Americas.

Figure 2: PAHO sub regions: nurse:population ratio (100,000 HAB) – Min, Max and average



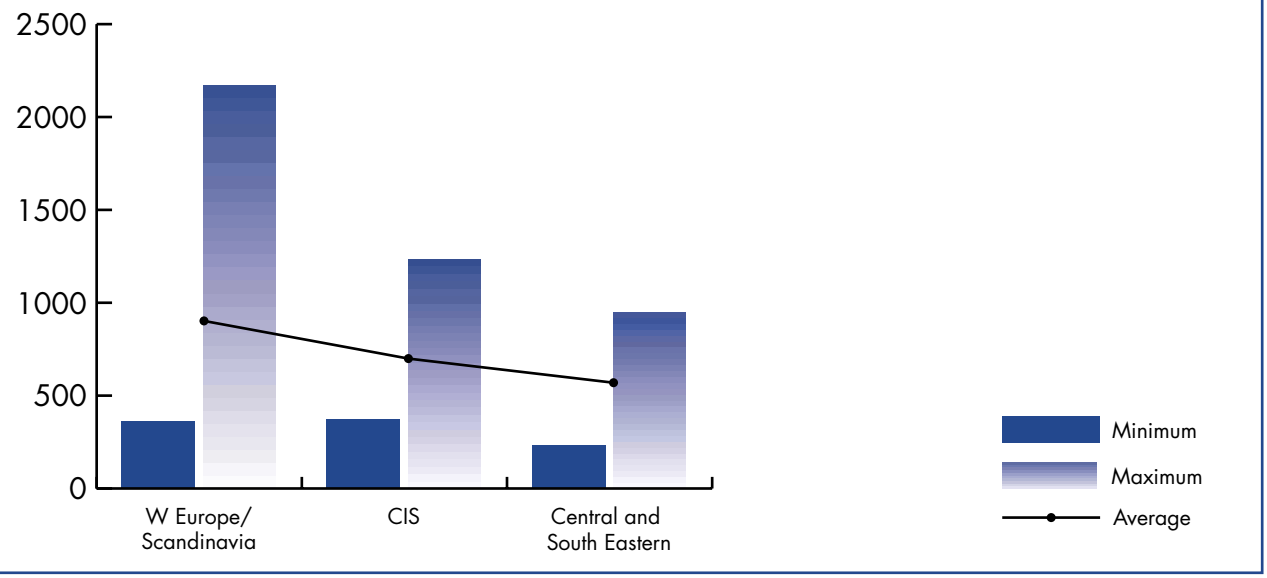
Source: WHO, 2004

The average ratio of nurses:population in North America is about 10 times greater than in South America, and more than 6 times that in Central America. The nurse:population ratio in the island countries of the Caribbean varies significantly, but overall is higher on average than in Central or South America (Haiti is a low outlier in the Caribbean). Some Central and South American countries have amongst the lowest reported nurse:population ratios anywhere in the world.

To illustrate intra-regional variation in Europe, the region has been divided into three sub-regions: Central and South Eastern; Commonwealth of Independent States (CIS); and Western Europe/Scandinavia.[d]

The average nurse:population ratio in Western Europe/Scandinavia is about twice that reported in the South-East of Europe (Figure 3). There are marked variations within the Western Europe/Scandinavia sub-region: Scandinavian countries report nurse:population ratios much higher than Spain, Portugal and Greece.

Figure 3: Europe Nurse:population ratio (100,000 HAB) – Min, Max and average by sub-region

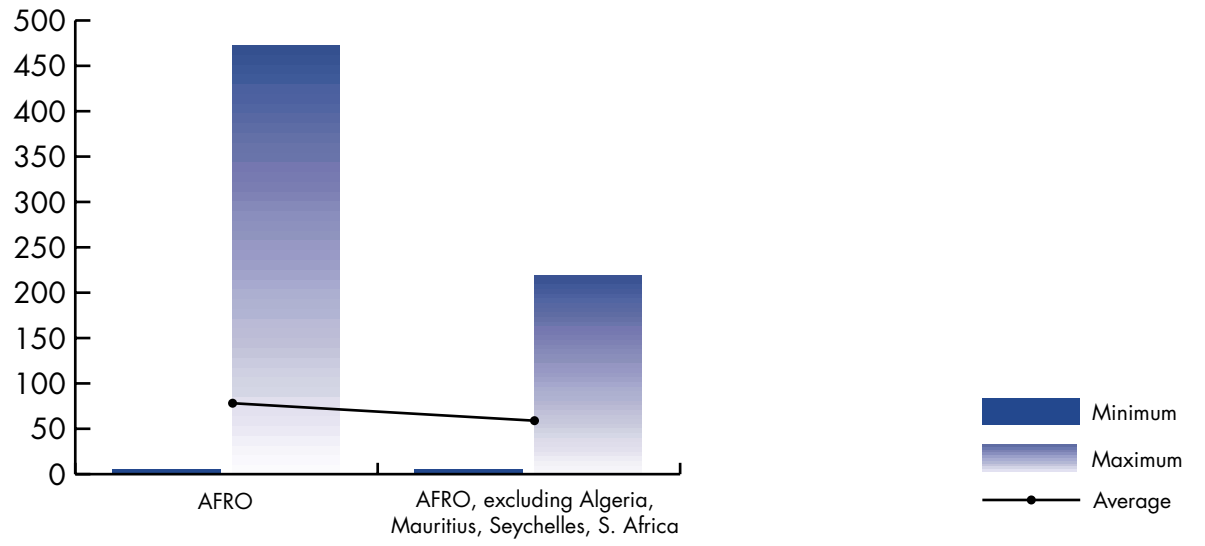


Source: WHO, 2004

Data for the Africa region of WHO are shown in Figure 4. It is presented with and without four "outlier" countries (Algeria, Mauritius, Seychelles and South Africa) as these countries report higher nurse:population ratios than most other countries in the AFRO region of WHO. Including these four outliers raises significantly the regional average. Data from several other countries in sub-Saharan African are not available. As these tend to be amongst the poorest and least developed countries, inclusion of this data would inevitably lower the regional average. Even so, the data from several sub-Saharan countries included in this graph (e.g. Central African Republic, Chad, Gambia, Liberia, Malawi, Mali and Uganda) show a ratio of less than 20 nurses per 100,000 population. Illustrating what this low level of ratio can mean in practice, a recent report[12] highlighted that nurse:patient ratios in general wards in three hospitals in Malawi were 1 nurse to 120 patients.

[d]For illustrative purposes WHO Euro sub divisions used in this report are: Central and south-eastern countries – Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, Slovenia, TFYR Macedonia, Turkey, Serbia and Montenegro[no data]; Commonwealth of Independent States – Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russian Federation, Tajikistan, Turkmenistan, Ukraine, Uzbekistan; Western Europe/Scandinavia – Austria, Belgium, France, Germany, Greece, Ireland, Italy, Luxembourg, Malta, Netherlands, Portugal, Spain, Switzerland, United Kingdom, Denmark, Finland, Iceland, Norway, Sweden [Note Israel, Monaco and San Marino are WHO Europe countries but are not included in this sub region analysis].

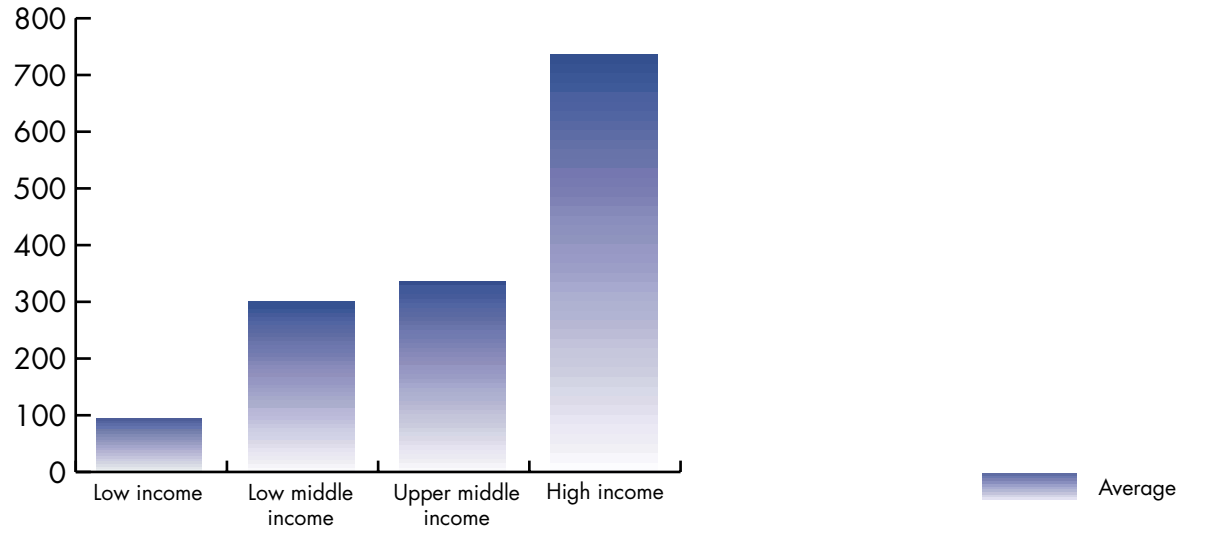
Figure 4: Afro region: Nurse:population ratio (100,000 HAB) whole region, and excluding four "outliers"



Source: WHO, 2004

The second focus of the analysis is to examine the nurse:population ratio by level of economic development of each country. Previous research[13, 14] has explored the ratios of health worker:population in relation to the level of health funding in different country health systems, and has shown a strong link between staff:population ratios and the level of funding. In simple terms, the more a country spends on health care, the higher the staffing levels in the health care system. Figure 5 shows the average ratios for each grouping of countries from low income to high income (the definitions and list of countries in each category were obtained from the World Bank website in August 2004: www.worldbank.org/data). Average nurse:population ratios in high income countries are almost eight times greater than those in low income countries.

Figure 5: Average nurse:population ratios by World Bank development status of countries



Source: WHO, 2004

Nurse:Physician Ratio

Looking in isolation at only one staff:population ratio may be misleading. WHO also collects data on other staff groups, including physicians and midwives. Table 1 shows the regional averages of selected categories of health workers per 100,000 population. At regional level, there are significant variations, but there tends to be a pattern that the regions with higher ratios of nurses also have higher ratios of doctors. This is a resource related feature: countries with higher spending on health care tend to have higher staffing levels.[15] Countries in two regions, the Americas and Eastern Mediterranean, do not tend to employ midwives.

Table 1: Selected categories of health workers per 100,000 population

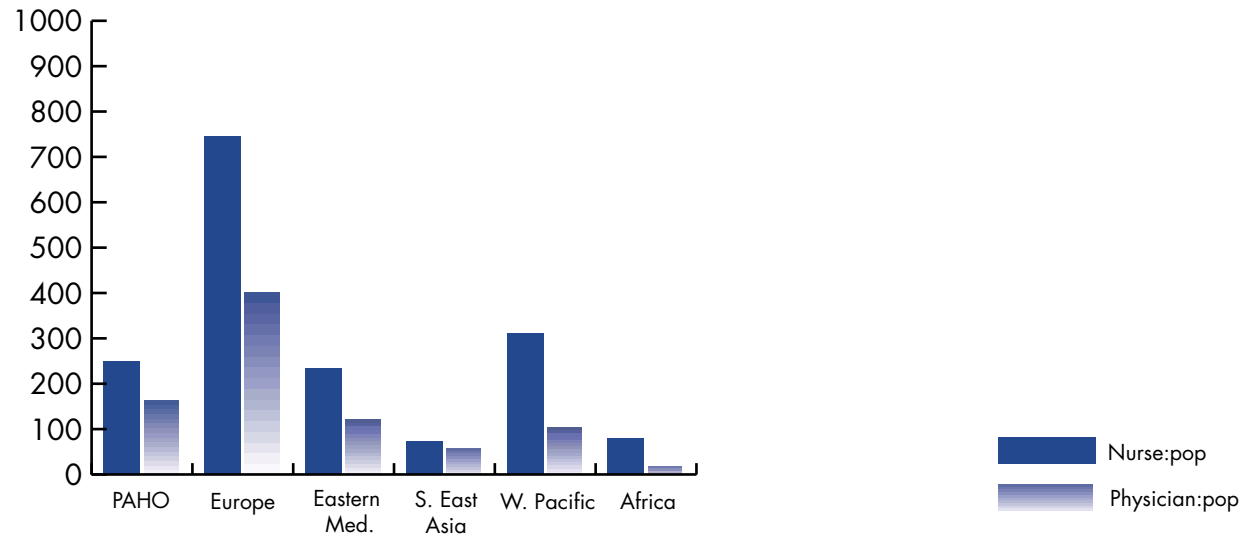
Region	Physicians	Nurses	Midwives
Africa	17	71	20
Americas	212	414	n/a
South East Asia	45	59	3
Europe	327	663	42
Eastern Mediterranean	96	159	n/a
Western Pacific	157	186	13

Source: WHO, 2004[16]

In order to highlight variations in the available skill mix of professional nurses and doctors in different countries and regions, the nurse:population/doctor:population ratio can also be analysed using WHO data.

Figure 6 shows the average nurse:population and physician:population ratios for the WHO regions. At a regional level, there is some correlation between the two ratios. The region with highest nurse:population ratio (Europe) also reports the highest physician:population ratio, and the region with the lowest nurse: population ratio (Africa) also reports the lowest physician:population ratio.

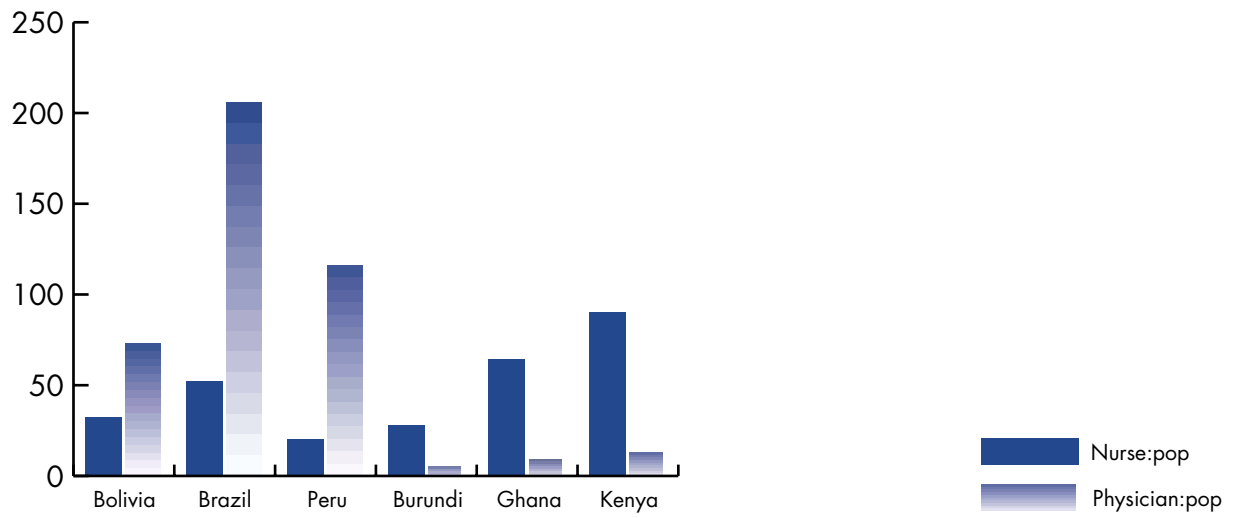
Figure 6: Average nurse:population ratio (100,000 HAB.) and physician:population ratio, WHO regions



Source: WHO, 2004

However, there are significant variations between countries in the mix of staff that tend to be lost when data are aggregated to regional level. For example, many Central and South American countries report that they actually have many more doctors than nurses. Figure 7 shows the nurse:population ratio and physician:population ratio for selected countries in South America and in Africa. The countries in South America report relatively low nurse: population ratios, but much higher physician:population ratios. Nearly all have a ratio of less than one nurse per physician, and some (e.g. Brazil and Peru) report that they have four or five times the number of doctors as nurses. Central and South America are the areas with the most significant cluster of countries demonstrating this relatively low ratio of nurses to physicians. In contrast, many sub-Saharan African countries report an extremely low physician:population ratio. This means that the ratio of nurses to physicians is markedly different to that in South America, with African countries reporting 5 or 10 times as many nurses as physicians. However, in absolute terms, even the nurse:population ratio in these African countries is low in comparison to the ratios reported in other regions.

Figure 7: Nurse:population ratio and physician:population ratio (100,000 HAB.), selected South American countries/African countries



Source: WHO, 2004

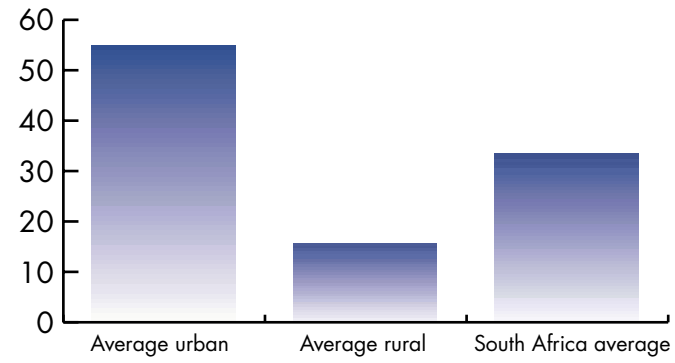
Skill mix and staff mix vary between organisations, systems and countries, and there is no single "optimal" mix to which all can aspire. However, it is clear from the data examined in this section that many countries, particularly in sub-Saharan Africa, Central/ South America and South East Asia, report very low ratios of nurses to population. They are struggling even to provide a minimum level of nurse staffing. Some, most notably in Central/South America, also report employing many more physicians than nurses. When examining how best to improve effectiveness and deal with shortages, the significant variations in current mix of staff as well as the overall availability of any one occupation, must be considered.

In-Country Regional Imbalances

Many countries report difficulties in recruiting and retaining nurses and other health care professionals in rural and remote areas. This is a feature of both developed and developing countries.[17, 18, 19, 20] This problem is often exacerbated by the tendency of health professionals to prefer to work in a large urban area, where job prospects and career opportunities are greater. The geographical 'misdistribution' which occurs creates difficulties

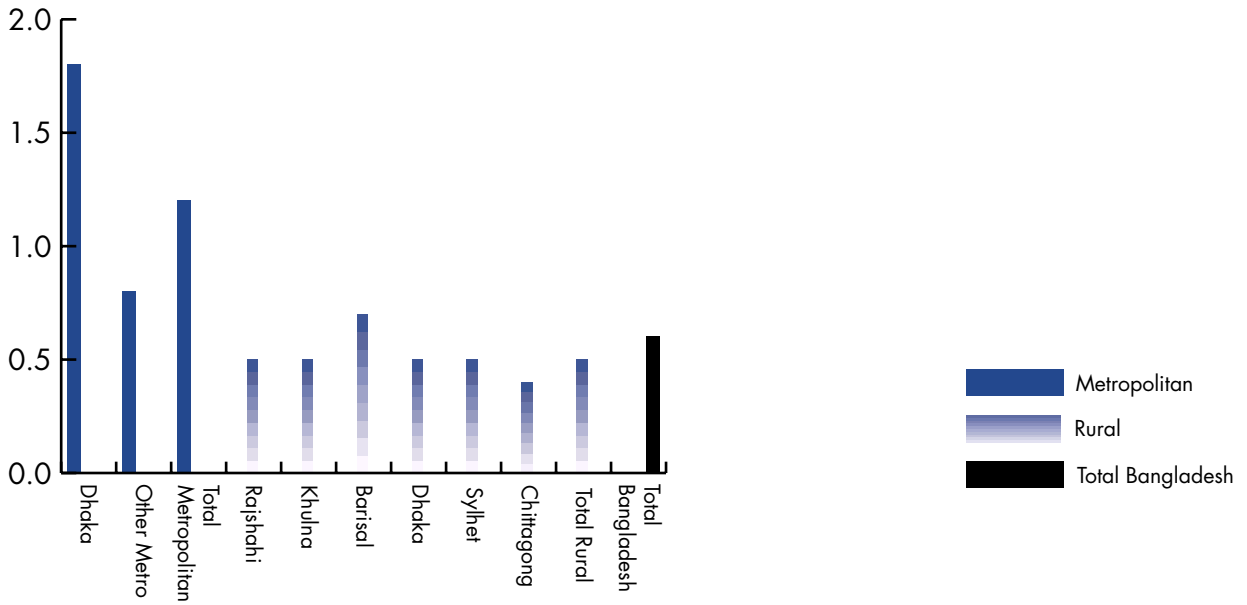
for workforce planners. The examples of South Africa and Bangladesh (Figures 8 and 9) illustrate significant variations in the geographical distribution of nursing skill in relation to population, with rural areas tending to have significantly lower availability of nurses in comparison to population size.

Figure 8: South Africa – professional nurse:population ratio (per 10,000 HAB.)



Source: Stats SA Labour Force Survey, 2001[21]

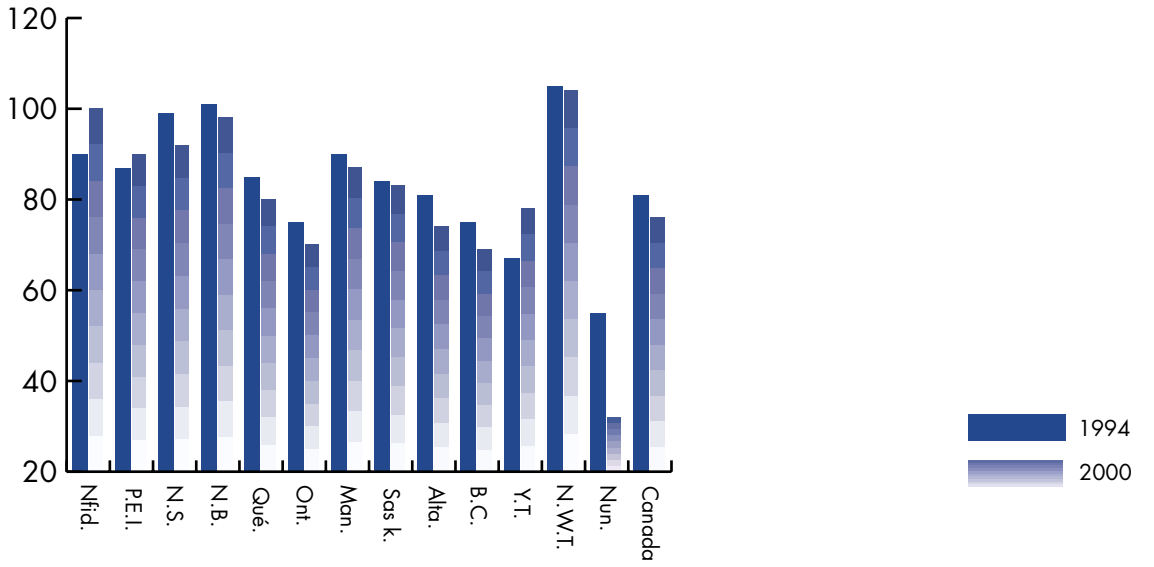
Figure 9: Bangladesh – professional nurse:population ratio (per 10,000 HAB.)



Source: adapted from Hossain and Begum, 1998[22]

Even in developed countries there tend to be marked variations between different geographic regions, reflecting different local approaches to planning or funding allocation, as well as, in some cases, actual variations in availability of nurses. The case of Canada, below, is illustrative of this regional variation.

Figure 10: Canada – professional nurse:population ratio (per 10,000 HAB.)



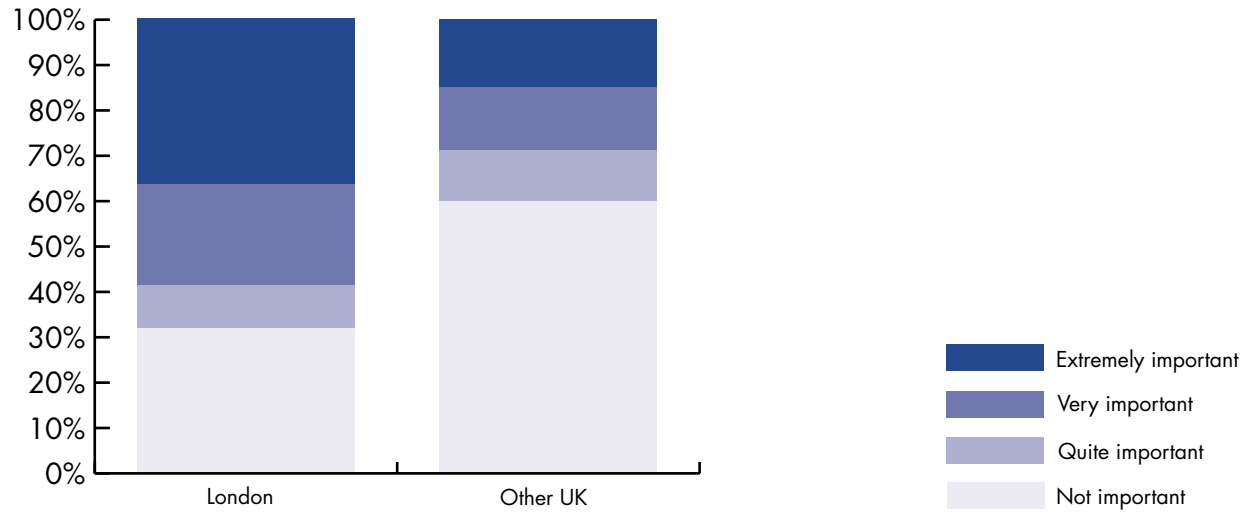
Source: Pitblado, R et al (2002). Supply and Distribution of Registered Nurses in Rural and Small Town Canada, 2000. Ottawa: Registered Nurses Database, Canadian Institute for Health Information.

Whilst some developed countries, such as Australia, Canada and the USA also experience difficulties in recruiting and retaining nurses in rural and remote areas, a parallel challenge can be attracting nurses to work in inner city urban areas, where housing costs can be high. Cities like Dublin in Ireland, and London in England, are experiencing higher than average levels of nurse shortages.

In England, for example, the National Health Service (NHS) in London has a much higher rate of vacant posts than the average for the rest of the country. In 2002, 6.1% of nursing posts in London were unfilled after three months – this figure represents twice the national average.

In its 2001 survey of members, the Royal College of Nursing found that over half of NHS nurses in London reported that the availability of affordable housing was 'extremely important' or 'very important' (see Figure 11). Almost two-thirds of those elsewhere in the United Kingdom (UK) reported that it was 'not important'.

Figure 11: England: importance of affordable accommodation for NHS nurses, 2001



Source: Royal College of Nursing, 2001[23]

A global analysis focusing on WHO regions can blur important distinctions between countries, and a country level analysis can hide significant geographic variations in the level of availability of nurses. Even in countries with low nurse:population ratio there is often a maldistribution of available nurses, which exacerbates the impact of shortages. Rural areas in developing countries tend to be the most underserved areas.

Section 2: Nursing Shortages and Critical Challenges

- Whilst there is no universal definition of a nursing shortage, there is increasing evidence of nurse supply/demand imbalances in many countries.
- Supply of nurses in many low-income and high-income countries is failing to keep pace with increasing demand.
- One recent estimate is that sub-Saharan African countries have a shortfall of more than 600,000 nurses needed to meet the Millennium Development Goals.
- OECD reports that many of its (high income) member countries have increasing problems with nursing shortages.
- Gender-based discrimination continues in many countries and cultures, with nursing being undervalued or downgraded as "women's work".
- Violence against health workers persists in many countries, with nurses often taking the brunt because they are in the forefront of the direct delivery of care.
- There is a link between adequate nurse staffing levels and positive care outcomes.
- Three critical challenges related to nursing shortages are:
  - the impact of HIV/AIDS;
  - internal migration and international migration of nurses;
  - achieving effective health sector reform and reorganisation.

The World Health Report in 2003 noted: "The most critical issue facing health care systems is the shortage of people who make them work".[24]

The USA, with a reported nurse:population ratio of 773 nurses to 100,000 population, is reporting nursing shortages. So is Uganda, with a reported nurse:population ratio of approximately 6 nurses per 100,000 population. Clearly, the issue of defining, measuring and addressing nursing shortages has to take account of the huge disparity in the current availability of nursing skills in different countries, sectors and regions.

From a country-level policy perspective, a shortage is usually defined and measured in relation to that country's own historical staffing levels, resources and estimates of demand for health services. It is the gap between the reality of current availability of nurses and the aspiration for some higher level of provision, however defined, that is the "shortage". As such, it is not easily quantifiable and is a label that is applied to different definitions or used |differently by different stakeholders even in the same county context.

> "There is no absolute norm regarding the "right" ratio of physicians or nurses to population. This depends on 1) demand factors, e.g. demographic and epidemiological trends, service use patterns, and macroeconomic conditions; 2) supply factors, such as labour market trends, funds to pay

> salaries, health professions education capacity, licensing and other entry barriers; 3) factors affecting productivity, e.g. technology, financial incentives, staff mix, and management flexibility in resource deployment; and 4) priority allocated to prevention, treatment, and rehabilitation in national health policies. Generally, shortages or oversupply are assessed based on comparisons with countries in the same region or at the same level of development."[25]

In a recent WHO-led paper examining the issue of imbalances in the health workforce,[26] the authors noted that there are both "economic" and "non-economic" definitions of skill imbalance, and that these imbalances may be "static" or "dynamic". If static, they are likely to respond only slowly, if at all, to market forces due to regulatory mechanisms, monopoly situations or wage controls, which can exist in healthcare labour markets.

At its most basic level, a shortage would be identified where an imbalance exists between the requirements for nursing skills (usually defined as a number of nurses) and the actual availability of nurses. Availability has to be qualified by noting that not all "available" nurses will actually be willing to work at a specific wage or package of work-related benefits.[27] Some nurses may choose alternative non-nursing employment or no employment.

A 'shortage' is therefore not merely about a numbers game or an economic model, it is about individual and collective decision-making and choice.[28] In this case the shortage is not necessarily a shortage of individuals with nursing qualifications, it is a shortage of nurses willing to work as nurses in the present conditions. As such, the search for solutions to shortages has to focus on the motivation of nurses, and incentives to recruit and retain them, and encourage them back into nursing, as well as on the planning framework.

The other dimension of shortage exists in systems or countries where the financial resources made available to employ nurses are relatively low, and this has the effect of "capping" the numbers that can be employed. This is a shortage created by limited funding, and is not necessarily linked to a lack of availability of nurses. This is seen in some South American countries, for example, and is sometimes associated with a planning "disconnect" – more nurses are being trained than there is funding available to employ.

Imbalances in nurse staffing vary between regions, countries, levels of care, sectors, specialties and organisations. In short, there is no universal definition of nursing shortages – and therefore no single global measure of their extent and nature. What is evident is that the dynamics of supply and demand are out of balance in many countries and regions, with the shortage gap growing. Various "process" indicators (such as vacancy rates, and the extent of use of temporary staff) and outcome indicators (such as mortality rates, cross infection, patient accidents) can be used to identify the existence of shortages. These indicators are discussed in more detail in Appendix 1.

In previous decades, nursing shortages in many countries have been a cyclical phenomenon, usually as a result of increasing demand outstripping static or more slowly growing supply of nurses.[29, 30, 31] At the beginning of this new millennium, the situation is more serious. Driven by growing and ageing populations, demand for health care and for nurses continues to grow, whilst the supply of available nurses has actually fallen in some developed and developing countries. Shortages may not relate only to clinical nurses; in some countries there is a critical shortage of nurse tutors and educators, which will constrain any attempts to increase the numbers of nurses being educated.

The World Health Organization recently summarised the seriousness of the human resources situation in health systems in a report for the World Health Assembly in May 2004.[32] Countries in sub-Saharan Africa are having to face up to the impact of HIV/AIDS, which is creating a huge increase in demand for care,

whilst also reducing the availability of nurses and other health care staff, through increased mortality and burnout.[33, 34] Many developing countries are also struggling with making available sufficient resources to provide appropriate pay and career structures for nurses and other health professionals with the result that vacancy rates are high, and nurses choose to work in other sectors, or to migrate, taking their in-demand (and portable) skills to other countries that offer more pay, better educational and career opportunities, or just a more stable and secure environment.

The overall scale of the shortages is staggering. One recent assessment of nursing shortages in sub-Saharan Africa is that the countries of that sub-region have a shortfall of more than 600,000 nurses in relation to the estimated numbers required for scaling up priority interventions, as recommended by the Commission on Macroeconomics and Health.[35]

High-income countries are also reporting nursing shortages. In a recent report on health systems,[36] the OECD highlighted that, "There are increasing concerns about nursing shortages in many OECD countries". The OECD noted: "Nursing shortages are an important policy concern in part because numerous studies have found an association between higher nurse staffing ratios and reduced patient mortality, lower rates of medical complications and other desired outcomes. Nursing shortages are expected to worsen as the current workforce ages".[37] Some recent examples of OECD country assessments of nursing shortages include Canada, where the shortfall of nurses was quantified at around 78,000 nurses by 2011,[38] and Australia, which projects a shortage of 40,000 nurses by 2010.[39] HOPE, the standing committee of hospital employers in the European Community, has also recently reported on nursing shortages in many European countries.[40]

Many high-income countries in Europe, North America, and elsewhere are facing a demographic "double whammy" – they have an ageing nursing workforce caring for increasing numbers of elderly.[41, 42, 43, 44] For these countries, the pressing challenge will be how to replace the many nurses who will retire over the next decade. Some of these countries face shortages due to marked reductions in the numbers of nurses they trained in the 1990s as well as reduced numbers entering the nursing profession today. Attractive alternative career opportunities are now available to the young women who have been the traditional recruits into the profession.

Cutting across the developing/developed divide are other factors which have a universal resonance: the continued existence of gender-based discrimination in many countries and cultures, with nursing being undervalued or downgraded as "women's work";[45] the persistence of violence against health workers in many countries,[46, 47] with nurses often taking the brunt because they are in the forefront of the direct delivery of care; and the legacy of demotivation that exists in some organisations or countries which have persevered with ill conceived or badly implemented health sector reforms or "re-engineering" projects or adjustment programmes.[48, 49]

Another common challenge is that of achieving the "best" (i.e. the optimal) mix of health workers, from different groups and occupations. Ensuring that the correct resources and technical support are available to facilitate nurses to function at the top of their skills range is one factor. Another is achieving an effective mix of skills and roles appropriate to patient needs. In this latter case, many countries, both developed and developing, are seeking to introduce advanced roles for nurses, such as nurse practitioners, and extend their skills range, such as by introducing prescriptive authority. Current policy and practice in many countries and in all regions fall short of this ideal. Table 2 overleaf reports on the WHO South East Asia Region, but similar challenges have been reported in other regions, such as Central/South America[50] and the Western Pacific.[51]

Table 2: Managing the nursing workforce in South-East Asia: Country Reports 2002

Country	Skill mix strategy?	Plan for flexible deployment and utilisation?	Are the numbers of nurses/ midwives sufficient to meet needs?	Is the quality of nurses/midwives sufficient to meet future needs?	Need for nurse practitioners?
Bangladesh	No	No	No	No	Unstated
Bhutan	Partial	No	No	Yes	Unstated
DPR Korea	No	No	No	No	Unstated
India	No	No	No, if standards were enforced	No, more specialist nurses and midwives needed	Yes
Indonesia	No	No	Unstated	Unstated	Unstated
Maldives	Partial, policies not evidenced based but appear sensible	Yes, through changes in education	No, heavy reliance on expatriate nurses/ midwives	No	Unstated
Myanmar	No	No	Unstated	Unstated	Unstated
Nepal	Yes	Yes	No	No	Yes
Sri Lanka	No	No, however, some nurses and midwives are deployed to rural areas	No	No	Unstated
Thailand	No	No	No, geographical distribution inappropriate and numbers inadequate	No	Yes, implementing 14-month Advanced Practice Programme and a 2-year Nurse Practitioner Programme

Source WHO, 2003[32]

There have been a series of reports on nurse workforce planning in a range of developed countries[53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63] that have highlighted common challenges and solutions to nursing shortages. On the supply side, most of these countries acknowledge a growing problem of nursing shortages. In many developed countries this is related to an ageing of the nursing profession (for example, the average age of a nurse is in the low-mid 40s in many developed countries – see Table 3).

Table 3: Developed countries: average age of nurses										
	Canada	Denmark	Germany	Iceland	Ireland	Japan	New Zealand	Norway	Sweden	USA
Average age of employed nurse	43.7	43	39.5	44	41.4	M 36 F 38.9	42.6	43.4	44.7	43.3

Source: ICN, 2004[64]

In some countries, there is also reported concern about the decline in entrants to pre-registration nurse education. As well, challenges related to understaffing, high workload, and poor planning are reported in many areas of the world, such as in Latin America[65] and South-East Asia (Table 4).

Table 4: WHO, South-East Asia, Country Reports, 2002						
Country	Satisfactory working conditions overall	Salaries satisfaction	Nurse and midwife to patient ratios satisfactory	Good health team spirit	Flexible rosters	Abuse
Bangladesh	No	Not stated	No	No	Not stated	Some physical and verbal abuse
Bhutan	Partial	No	No	Yes	Not stated	Some physical and verbal abuse
DPR Korea	Yes	Yes	Yes	Yes	Yes	No
India	No	No	No	Yes	Traditional rosters	Some physical and verbal abuse
Indonesia	No, but is a governmental priority	No	Centrally, yes	In general	Not stated	Some physical and verbal abuse
Maldives	Yes, although housing is a major issue	Yes	Yes	Yes	Not stated	Occasional
Myanmar	Partial	No	No	No	Not stated	Not stated
Nepal	No	'Equal pay'– adequacy not stated	In theory but not implemented	Yes	Not stated	Some victimisation, physical and verbal abuse

Table 4: WHO, South-East Asia, Country Reports, 2002 continued

Country	Satisfactory working conditions overall	Salaries satisfaction	Nurse and midwife to patient ratios satisfactory	Good health team spirit	Flexible rosters	Abuse
Sri Lanka	No, housing and transport are issues as well as rural working conditions	Need improving	No	No	Some difficulties	Occasional
Thailand	No, feel unsafe especially in rural areas	No, poor incentives when compare to other health professions	No, inappropriate	No, improving	Improved but need more change	Yes

Source: WHO, 2003[66]

The discussion above sets out some of the main dynamics related to the nursing workforce and nursing shortages. In addition, there are also factors that are having a pronounced impact in certain regions. These represent the current critical challenges facing those responsible for policy on the nursing workforce.

Critical Challenge # 1: Sub-Saharan Africa: the Impact of HIV/AIDS on the Nursing Workforce

Whilst HIV/AIDS is a challenge throughout the world, its regional impact has, so far, been most pronounced in sub-Saharan Africa. In December 2003, the High Level Forum on the Health Millennium Development Goals noted that "the HIV/AIDS epidemic has led health service delivery systems to collapse" in sub-Saharan Africa.[67]

HIV/AIDS is having a negative impact on health systems both by increasing demand for health services and by reducing health workforce availability and performance. Mortality rates amongst the health workforce increase, absence rates increase, remaining staff can become demoralised, and potential recruits select alternative career paths. One recent estimate is that 19-53% of all deaths in government employees in Africa is due to HIV/AIDS.[68] The impact of HIV/AIDS is also a factor in increasing internal and international migration of health workers from sub-Saharan Africa, which in turn creates heavier workload for the nurses who remain.

Nurses in sub-Saharan Africa are at the forefront of the battle against HIV/AIDS and are feeling its impact. Their workload has increased significantly. One study of nurses in Zaire in the 1990s reported a doubling of effort to care for AIDS patients.[69] Another study, in rural South Africa reported a significant increase in nurses' absenteeism from work due to burnout from excessive workload related to HIV/AIDS.[70] Deaths of nurses in Malawi (1997/8) were reported to account for 43% of all losses of nurses to the health system.[71]

A large-scale survey of the impact of HIV/AIDS on South Africa has estimated that increased prevalence of AIDS will lead to a 40-45% increase in demand on healthcare facilities over 2002-2007. It also stated that approximately 14% of professionally qualified health workers are HIV positive.[72] The survey reported that nurses, although wishing to take a holistic approach to care delivery, "could barely find time to attend to the

physical health of patients" because of increasing workload and staff shortages. Table 5 summarises the key impact of HIV/AIDS on the nursing workforce.

Table 5: Impact of HIV/AIDS on the nursing workforce in sub-Saharan Africa

↑ Demand for Health Services:	↓ Supply of Nurses
Direct impact: more patients with HIV/AIDS	Increase in mortality
Indirect impact: more patients with associated diseases	Increased absence because of stress, higher workload, attendance to funerals, care of relatives with AIDS
	Increased outflow (including migration)
	Reduced applicants for nurse training

Whilst HIV/AIDS is evident in most parts of the world, its prevalence in sub-Saharan Africa has compounded an already difficult human resources situation in that region. The negative impact on care of extremely low levels of staffing and geographic maldistribution has been exacerbated by HIV/AIDS, which has increased demand for care and directly and indirectly reduced the number of carers. With projections of a continuing high level of increase of HIV/AIDS, the nursing workforce challenge in sub-Saharan Africa is the most critical of any region in the world.

Critical Challenge #2: Internal and International Migration

"The loss of human resources through migration of professional health staff to developed countries usually results in a loss of capacity of health systems in developing countries to deliver health care equitably. Migration of health workers also undermines the ability of countries to meet global, regional and national commitments, such as the health-related United Nations Millennium Development Goals, and even their own development. Data on the extent and the impact of such migration are patchy and often anecdotal and fail to shed light on the causes, such as high unemployment rates, poor working conditions and low salaries."[73]

Migration and international recruitment of nurses have become more prominent features in the last few years. The practice of "active" recruitment has generated controversy because of the potential to cause nursing "brain drain" in some developing countries. Often as important, but less prominent in policy arenas, is internal migration – from rural to urban areas, from public sector employment to private sector employment, and from nursing employment to non-nursing employment (or no employment). For example, of 30 nurses who graduated from one nursing college in Malawi in 2000/2001, only two were reported to have taken up employment in the public sector, with the rest being employed by NGOs, where salaries were reportedly much higher.[74]

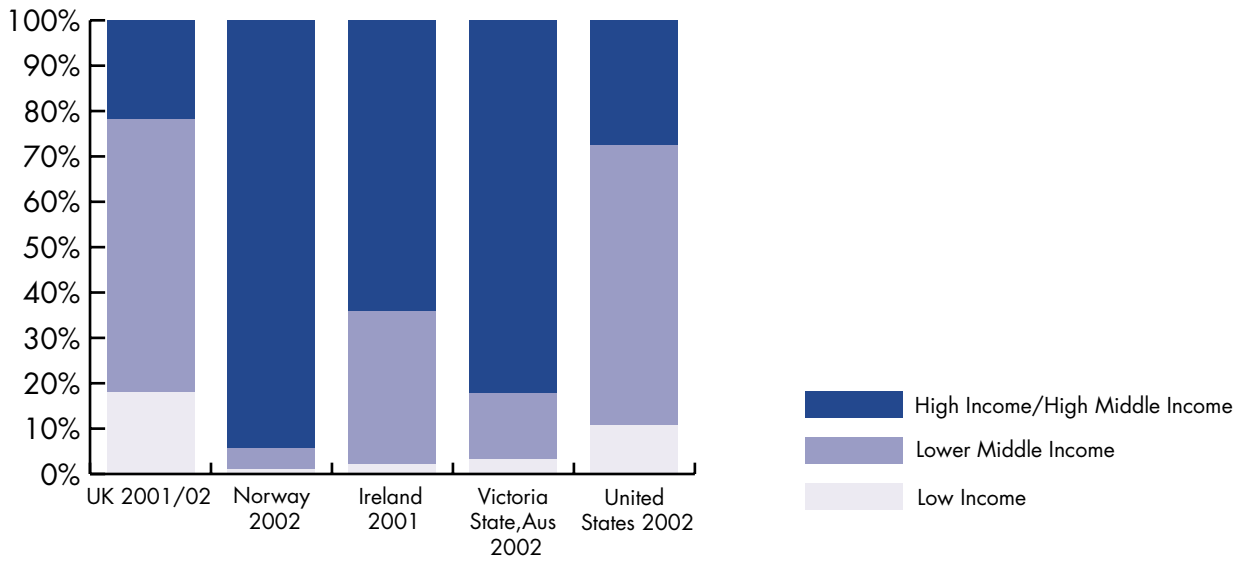
International nurse migration has been a high profile issue in recent years, but it is important to view it in the broader context of all "flows" of nurses into and out of nursing employment in a country. It is also important to be clear that such migration may be temporary or permanent; in the former, there may be scope for the source country to attract back the nurse.

Whilst there is nothing new in nurses moving across borders,[75] what has changed in recent years is the increase in active (some would argue aggressive) recruitment by employers from developed countries facing nursing shortages. Often, recruitment agencies are used as intermediaries in this process. The driving force

for this increase in international recruitment of nurses has been the growth of nursing shortages in the labour markets of developed countries. Increased reliance on international recruitment is a key dynamic in some developed countries. For example, in the space of a few years, Ireland has moved from being a traditional exporter of nurses, to being an importer. In 1990, three-quarters of new nurses entering the Irish nursing register were "home grown". One decade later, Ireland is reliant on recruiting from other countries for more than two-thirds of its "new" nurses. Many of these nurses come from the UK, a reverse migration. Others are recruited in South Africa and the Philippines.

Whilst many developed countries are either actively or passively recruiting nurses from other countries, the pattern of reliance on foreign trained nurses varies significantly (see Figure 12). For example, the UK and USA are recruiting mainly from lower income and lower middle-income countries (e.g. sub-Saharan Africa, the Indian sub-continent and the Philippines), whilst some other countries, such as Australia and Norway, are recruiting mainly from other developed countries.

Figure 12: Flow of nurses to selected developed countries, by World Bank development status of source countries



Source: adapted from Buchan, Parkin, Sochalski, 2003[76]

The pattern that is emerging is a trend of increase in inflow of nurses to developed countries, as these countries become more active in using international recruitment to combat shortages. Shared language, common educational curriculum, and post colonial ties between countries tend to be the factors determining which developing countries are being targeted as sources of nurses.

Because of active recruitment and individual choice, many sub-Saharan countries are experiencing high levels of outflow of nurses to the developed world (see e.g. UK recruitment from sub-Saharan Africa: Table 6).

Table 6: Annual "outflow" of registered nurses from selected sub-Saharan countries to the UK, 1998/9 to 2002/3					
Country	1998/1999	1999/2000	2000/2001	2001/2002	2002/2003
South Africa	599	1460	1086	2114	1368
Nigeria	179	208	347	432	509
Zimbabwe	52	221	382	473	485
Ghana	40	74	140	195	251
Malawi	1	15	41	75	47

Source: Nurses and Midwives Council, 2004[77]

The impact of out-migration of nurses on some developing countries is severe. The BBC[78] recently reported on the case of Malawi, which is "losing" through migration more nurses than it can train. One main hospital in Malawi has half its nursing posts vacant, and only two nurses were available to staff a maternity ward with 40 births a day. Malawi, and other countries in sub-Saharan Africa, are losing scarce, and relatively expensive to train, resources. Levels and quality of care are suffering. Many of the nurse recruits who cross national borders are relatively young and well skilled. This means that these countries are also losing out on future leaders in the profession. Similar problems can be created by internal migration, where nurses take their skills and expertise into other types of employment.

Nurses wish to move because of push factors in source countries related to low pay, and poor career prospects (see Table 7 below), and in some countries because of instability and violence. They can move because so many destination countries are exerting "pull" factors of pay, career and educational opportunities.

Table 7 "Push" factors encouraging Caribbean nurses to emigrate

- Financial (e.g. relatively low pay).
- Poor working conditions.
- Lack of professional development opportunities.
- Lack of promotion opportunities.
- Non involvement in decision making.
- Lack of support from supervisors.

Source: PAHO, 2001[79]

It is difficult for developing countries to compete in the global market for nurses. The salary disparity between low and high-income countries means the low-income source countries cannot hope to match the pay that is on offer in the high-income destination countries.[80]

At the aggregate level, the problems caused for some low-income countries by nurse migration are all too obvious. At the level of the individual nurse it is not possible to be critical. Nurses who can exercise a right to move are in some cases doing so because they cannot exercise a right to stay. In some countries, this movement may also be beneficial to their home country if they remit a portion of their income. Recent research on Tongan and Samoan nurses in Australia suggests this is the case.[81]

Recruiting internationally may be a quick fix solution, but it is far from clear that it is a cost effective solution in all situations. There is also increasing debate about the ethical dimension of international recruitment activity. Better monitoring of the flows of nurses in international nursing labour markets is required to highlight the pressure points, and to pinpoint the countries that are being aggressive and unethical in their recruitment activities. This should include an assessment of the equity of treatment of migrant nurses in destination countries. There is also a need to evaluate new models and policies. This can include bilateral agreements between countries, and the use of "managed migration" initiatives, such as those being tested in the Caribbean and highlighted in the Commonwealth Secretariat International Code of Practice.[82]

The next focus of research on the trends and impact of health worker migration should be to assess these interventions and possible interventions. The ICN position statement on ethical recruitment[83] sets out the principles, which should underpin this approach. The World Health Assembly Resolution 57.19 (2004) on international migration of health workers gives it further impetus. Policy analysis needs to focus more clearly on evaluating the impact of nurse migration, both internally and internationally, and on assessing the scope to "manage" migration.

Critical Challenge #3: Achieving Effective Health Sector Reform and Organisational Restructuring

Reform of health systems is often an essential component of improving efficiency, access and outcomes from health service delivery. Many countries are going through a process of health sector reform, and many health organisations within countries are restructuring. The driving forces for these changes are cost containment, quality improvement and performance enhancement. In the case of some countries, reforms may be driven by external agencies – donors, the International Monetary Fund, etc., often drawing from organisational models and reform experiences in developed countries.

Liese and Dussault (2004)[84] have summarised the impact of these factors on the health workforce in Africa:

> "The consequences of a series of reform processes, starting in the mid-1980s, have largely determined the present situation. When many African countries were confronted with a dramatic fall in public revenue from exports of commodities, a series of important economic reforms were introduced. In many of the countries, the reforms were executed through structural adjustment programs (SAP) of the World Bank and International Monetary Fund (IMF). A central tenet of these reforms included better control of public wages, reduction of public expenditures, privatization of public enterprises, elimination of subsidies, liberalization of the economy, and devaluation of the currency in order to achieve sustained growth."

However, whilst some approaches have led to improvements, not all attempts at restructuring have been successful. Some "successful" reforms have paid little attention to the impact on human resources within the health sector. For example, reforms have impacted on staffing levels and wage rates with some countries, such as Cameroon, reporting periods of "freezes" on the appointment of new employees.[85] There is a need to have a more explicit assessment of the human resource impact of reforms and restructuring in health systems. An approach to "Human Resource Impact Assessment" has been advocated.[86] This is a necessary step in any process of health system reform or organisational restructuring if the full costs, as well as possible benefits, are to be assessed. The costs can include sudden underemployment or unemployment of nurses and other health workers with the need to develop redeployment strategies.

Studies in various countries have highlighted that reorganisation is only likely to be effective when staff are involved in the processes of change. Some ill-advised restructuring in the 1990s led to a lowering in morale and motivation of health workers and was counterproductive to achieving the goals of improved health services.

Case studies conducted in Cameroon, Columbia, Jordan, Philippines, Poland and Uganda in the late 1990s highlighted the potential for negative impact on health personnel during health sector reform.[87]

Research in Australia, USA and Canada[88, 89, 90] has highlighted the negative impact of some reorganisation efforts on nursing morale and willingness to remain in the workforce. The transition states of South-Eastern Europe and Central Asia are one example where restructuring and reform have had a marked impact on human resources in health. Many of these countries reported an actual decline in the number of nurses working in the health system in the period since the mid-1990s (e.g. Turkmenistan; Table 8). The transition for many of these countries has been a painful process, with reductions in salaries and limited career prospects (see Table 9).

Table 8: Annual number of nurses employed in Turkmenistan 1980 – 1997

	1980	1985	1990	1991	1992	1993	1994	1995	1996	1997
No. of Nurses	19,608	21,255	30,902	32,729	33,920	34,863	35,996	38,089	28,200	27,067

Source: European Observatory, 2000[91]

Table 9: Average monthly wages – Kyrgyzstan

(In local currency-Soms)	1994	1995	1996	1997	1998
Economy wide average	233.4	368.2	490.9	680.2	789.3
Health sector	215.3	291.5	325.7	385.3	467
Health as a percentage of average	92%	79%	66%	57%	59%

Source: European Observatory, 2002[92]

Health personnel in many instances, have to work in other jobs, or receive "under the counter" or informal payments, to earn a living wage. The case of Moldova is not unique:

> "Health staff face difficult working conditions at present. Staff continues to be salaried employees of their institutions and there are no plans to move any workload type payments. However, salaries are very low and often delayed by three to four months. Informal payments are therefore frequently requested of patients, even for services intended to be provided free by the state. Informal payments consequently make up a large part of income for many medical professionals. Working conditions within many of the medical facilities are also challenging for many staff. Many health facilities do not have basic medical equipment, some have an erratic power supply and are consequently dark and cold throughout the winter months and may have inadequate cleaning services."[93]

Reforms in Latin America have also been highlighted as a factor in reducing job security for health workers. Countries, such as Ecuador and Argentina, have introduced short contracts for staff who previously had greater job security.[94]

Under-resourced health systems mean underpaid, or late paid, health workers. Nurses and others working in dysfunctional or "failing" health systems have to develop various coping strategies[95] to survive. This can include taking on additional employment in the private sector, or non-nursing work. For some, it may mean working without pay whilst they seek or await funded employment. Reforms and restructuring of health systems cannot ignore these factors if they hope to achieve the goals of health improvement and improved access to health care.

Key Issues

This section has examined the demographic drivers and dynamics of nursing shortages, and has identified critical challenges, both universal and regional. Table 10 below summarises the key issues for developing and developed countries, and also identifies the key issues that appear to be either universal, or which have a particular prominence in specific regions. Many issues are universal, or near universal ,and apply to all or most countries. These include the effectiveness of education, training and regulation, workforce planning, motivation and performance of the nursing workforce, and achieving optimal skill mix.

At a regional level, sub-Saharan Africa has the biggest challenge, with relatively low current staffing trends and the current challenge of HIV/AIDS. Most countries in Latin America report low absolute and relative ratios of registered nurses in relation to medical staffing and nurses aides. The small island states of the Caribbean and Western Pacific are particularly vulnerable to out-migration because their total nursing workforce is numerically small or the nurse:population ratio is low. Many countries are having to cope with the human resource impact of structural reform.

Table 10: Key issues for nursing workforce policy and planning

Issues	Developing Countries	Developed Countries
Demographics	Growing population	Ageing population Ageing nursing workforce Shrinking recruitment pool (in some countries)
Universal Issues	Shortages = planning responses Maldistribution: Understaffing in rural areas Education/regulation Incentives/motivation Reform/reorganisation Effective skill mix and utilisation Out-migration	Shortages = planning responses Maldistribution: Understaffing, both rural and inner-city Education/regulation Incentives/motivation Reform/reorganisation Effective skill mix and utilisation Management of in-migration
Issues with a Regional/Country Focus	Sub-Saharan Africa – HIV/AIDS	
	Sub-Saharan Africa, some Central/ South American, Asian states – low absolute ratio of nurses:population	
	Central/South America – low ratio of registered nurses:other healthcare staff	
	Western Pacific/Caribbean/some African/ South Asian/ Central/South Europe accession states and Central Asia transition states – vulnerability to out-migration (compounded by low actual numbers in small states).	

The final section of the report highlights some of the key policy interventions, which should be considered in any country or region faced with meeting some or all the issues and challenges outlined in Table 10.

Section 3: Policy Interventions Framework

- Four components of a policy framework to address nursing shortages:
  - Workforce Planning
  - Recruitment and Retention
  - Deployment and Performance
  - Utilisation and Skill Mix
- The framework components and associated policy interventions are interdependent.
- Effective policy intervention requires leadership and stakeholder involvement.
- Policy interventions must be appropriate to the country context and objectives.

The nursing shortage "crisis" is now firmly on the policy agenda in many countries, and policy initiatives are underway in some to address the causes and impacts of shortages.[96] The previous sections of this report have highlighted that there is clear evidence of relative understaffing in many countries, particularly in the developing world, and a "tightening" in the nursing labour market in many developed countries. Many countries are facing significant and growing staff shortages. Factors, such as an ageing workforce, a decline in recruits in some countries, a diminishing pool of potential returners and the likelihood of increased demand, all point to the need to identify the most effective balance of interventions to prevent or combat staff shortages. For the purposes of this overview, four components of a policy interventions framework for sustained improvement are set out below:

- Workforce Planning
- Recruitment and Retention
- Deployment and Performance
- Utilisation and Skill Mix

Table 11 (see page 32) highlights the main elements within each component, and also some of the main capacity and resource requirements that are necessary if the component is to be effective. The framework is evidence-based, drawing from research in many countries. Some of the key research sources are discussed in the following sections. The detailed reports, which have also been commissioned as part of this project, will examine them in more detail.

Table 11: A policy-based interventions framework continued

Component	Interventions	Requirements
Workforce Planning	Needs assessment Integrated (or aligned) planning Linkage with education sector Scenario modelling Geographical distribution	Planning capacity Workforce data/information Stakeholder involvement
Recruitment and Retention	Recruitment from traditional sources Recruitment from "new" sources Retention of current staff Attract back returners	Financial and non financial incentives Career structure and opportunities Flexible working models Safe working conditions Nurse involvement in decision making
Deployment and Performance	Day-to-day matching of staff with workload Flexible working models Shift patterns for 24 hour care Full-time/part-time/temporary staff In-service training/"lifelong learning	Effective local management Data on activity and workforce Financial and non financial incentives Allocation of necessary equipment, material, drugs etc Nurse involvement in decision making
Utilisation and Skill Mix	Strategic/policy decisions on effective skill mix of staff Regulatory infrastructure Legislative infrastructure In-service training/"lifelong learning"	Effective strategic management Data on activity/output/outcome Job descriptions/role definitions Financial and non-financial incentives Nurse involvement in decision making

The critical issue in examining the framework is to recognise that the components and interventions are interdependent. Furthermore, it must be acknowledged that, whilst "evidence" is necessary both to inform policy and support advocacy, on its own it is insufficient to achieve positive change.[97]

Change requires leadership and, in many health systems, it also requires improved opportunities for stakeholder involvement. "Top down" change is often unsustainable: the support of nurses and other workers is required, as is the active participation of other stakeholders (the education sector, regulators, nurses associations, and representatives of broader civil society). One recent analysis of what "went wrong" with nurse workforce planning in a Canadian province identified a lack of nurse leadership as a key factor.[98] A review of the impact of human resources development policies on nurse training in Latin America concluded, "existing policies do not link planning, training and personnel use."[99]

Whilst effective leadership and stakeholder involvement are critical to positive and sustainable change, so too is a strategic approach which recognises the interdependency of different policy interventions. Leadership development is a critical underpinning for sustained improvement in both the clinical and the managerial aspects of utilising the skills of nurses. ICN has two principal leadership programmes:

Leadership Development

Leadership for Change
The ICN "Leadership for Change" initiative is aimed at assisting senior nurses at a country or organisational level to influence health policy and decisions; be effective leaders and managers in nursing and health services; and prepare other future nurse managers and leaders for changing health services. The programme is based on action-learning principles. The LFC programme has been implemented in various regions including Latin America, the Caribbean, East, Central and South Africa, the South Pacific, Bangladesh, Myanmar, Nepal, Mongolia, Vietnam, Singapore, the United Arab Emirates, Saudi Arabia, and Yemen.

Leadership in Negotiation
The "Leadership in Negotiation" project has been developed in several regions of the world. It was initially undertaken in Africa and has since been adapted to the needs of nurses in the Caribbean, Eastern Europe, Latin America, South East Asia, the Pacific Rim and the South Pacific. At present, national nurses' associations in Cook Islands, Fiji, Samoa and South Africa are training nurse leaders in negotiation, worker representation, communication and marketing while sensitising members to the impact of the work environment on the delivery of care. Adaptations of this project have in recent years been introduced by ICN member associations to train nurse leaders in Eastern Europe, Nepal, and Zambia as well.

The objectives of the project are:
- To support national nurses' associations in their efforts to exercise leadership in the delivery of health care and for the nursing profession.
- To provide nurse leaders with knowledge and skill development in the area of negotiation.
- To provide basic knowledge in economics and management sciences.

Research on a human resource management and workforce strategy highlights that single interventions are unlikely to achieve widespread or long term benefits in workforce development.[100] What is required is a co-ordinated effort across the range of inter-dependent components, with interventions that are appropriate ("contingent") to the context and objectives. The framework sets out the policy options, and assists nurse leaders and policy makers to determine which interventions will be most effective.

The four main components are discussed below.

1. Workforce Planning

One key element of effective staffing is to develop appropriate workforce planning mechanisms, which can monitor the indicators of supply and demand for nursing staff, and plan for future requirements. An effective approach to workforce planning needs to take into account the health service implications of the demographics and health needs of the client population, the services for which there is expressed demand, and the profile and dynamics of workforce ("supply"), and should assess the extent to which a balance of demand and supply can be achieved.[101, 102]

In some countries, computer-based projections or simulation models are used to forecast human resource needs. Whilst there are limitations with using this approach[103], projection models can be helpful in informing policy

decisions about the number of new nurses to educate, and can identify possible constraints on achieving staffing targets. Planning also has to take account of the time lag between beginning to educate new nurse entrants, and their qualification and entry into the labour market, which will take at least three years in most countries. If there is a "disconnect" between planning, education providers and the registration system, there can also be additional time delays – with newly qualified nurses in some countries having to wait months for their registration to be approved so that they can begin to practise.

Workforce planning can focus too narrowly on headcounts, rather than taking into account skills and competencies required to meet projected demand. It should not be conducted in isolation, but should be integrated within the overall approach to service planning within a health system. Employers and the education sector must be involved in this process. Integration of planning should extend to developing appropriate mechanisms for ensuring that the basic training for nurses, and subsequent continuous professional development or "lifelong learning", are based on an assessment of the numbers and skills required.

One critical aspect of effective workforce planning is to ensure that all stakeholders have the opportunity to be involved in the planning process, and that it is not just a "top down" and remote exercise. The approach in Scotland (see box below) is one example of using projections, whilst involving stakeholders. Another example of the benefits of workforce planning includes Thailand,[104] where supply projections identified the need to address attrition during training. A third is recent work in Samoa, which examined projected needs in comparison to likely supply of nurses.[105]

Multi stakeholder workforce planning in Scotland

The nurse workforce planning system in Scotland is one working example that involves employers and the private sector in national level nurse workforce planning.[106] This annual system uses "bottom up" planning involving all health service employers, as well as representatives from nursing associations and the education sector. The approach attempts a whole system perspective by factoring in estimates of future demand for nurses from the private sector.

Workforce planning in nursing also has to take proper account of the labour market behaviour patterns of nurses. In many countries insufficient attention is given to the incidence of part-time working or career breaks when overall planning is being conducted. The absence of an appropriate gender focus in planning can undermine its effectiveness.[107]

Effective workforce planning is a pre-requisite for sustained improvement in nurse recruitment and retention. Planning will not necessarily prevent shortages from occurring, but an effective planning system will give early warning of where shortages may occur, and provide a mechanism for early and effective intervention. Aligning or integrating planning across the health professions will also support the attainment of effective skill mix and deployment of staff.

2. Recruitment and Retention

Research indicates that nurses are attracted to and retained at their work because of opportunities to develop professionally, to gain autonomy and to participate in decision-making, whilst being fairly rewarded.[108, 109] Workplace factors can be critical both in encouraging retention and in causing turnover of nurses.[110, 111, 112, 113, 114, 115, 116] There is some evidence that a participative management style, flexible employment opportunities and

access to continuing professional development can improve the retention of nursing staff as well as patient care.[117, 118, 119] Many of these issues are addressed in the "magnet hospital" model (see box below), which has developed over the last 20 years. It highlights the benefits of a systematic approach to staff involvement in improvements in nurse recruitment/retention and in improved health outcomes.

The case for being a "good" employer – Magnet Institutions

The concept of the magnet hospital was developed initially in the 1980s in the United States.[120] At a time of staffing shortages, policy attention turned to identifying the characteristics of "successful" health care employers in challenging labour markets. The initial focus of that research was to identify the human resource practices and associated organisational characteristics that enabled these hospitals to attract and retain staff, even in difficult labour market conditions. Some of the key characteristics of successful hospitals were:

- participatory and supportive management style,
- well prepared and qualified nurse executives,
- flexible working schedules,
- clinical career opportunities,
- emphasis on in-service/continuing education.

The idea of the magnet institution has been sustained and developed over the successive decades through a series of research studies,[121] and by the development of a magnet nursing services accreditation programme.[122] This and similar approaches are now being investigated in several countries.

The main message from the various research studies is that "magnetism" does appear to be related to "better" staffing indicators, such as reduced turnover and absenteeism, and to improved quality of care. This has been attributed to the sustained implementation of a "bundle" of human resource management (HRM) interventions which fit with organisational priorities, and which support autonomous working by nurses, enable participation in decision making, facilitate career development and enable high level skills to be deployed effectively.

Traditionally nursing and midwifery have relied on recruiting from a fairly narrowly defined group of school leavers (predominantly female) within a defined band of school leaving qualifications. Various initiatives are underway in many countries to open access routes into nurse education for a broader range of applicants, including mature entrants, entrants from ethnic minorities, and entrants with vocational qualifications or work-based experience. These initiatives include nurse cadet schemes, and career bridges between the roles of auxiliary/health care assistant and nurse.

There has also been a recent emphasis on attracting students from non-traditional backgrounds, particularly minority groups, to nursing education in some countries. Local schemes have been successful in attracting and retaining nursing recruits from ethnically diverse and disenfranchised groups via access courses and aggressive marketing. Strategies for success included support services and flexible programme policies.[123, 124] It has been suggested that using specific strategies to attract men to nursing, such as the use of male role models in recruitment campaigns, and tackling the myths of men in nursing, may increase recruitment of men to the profession.[125]

It is also clear that nursing, if it wishes to compete for new recruits, has to adopt strategies aimed at improving its "image" amongst potential recruits and promoting nursing as a career. Image must also reflect reality. The career opportunities and financial and emotional rewards of working in nursing need to be made explicit, but they need to stand up to comparison with the attractions of other careers. This will be the case in relation to pay rates at entry into the profession in order to attract new recruits, and also in relation to these potential recruits' perceptions of overall scope for career and salary advancement. In some countries, there is also the added difficulty that nurses are underpaid because their work is undervalued and regarded as "women's work".[126]

Mature entrants to nurse education are an untapped source in many countries, which persist in targeting pre-registration nurse education at a narrow age band. Mature entrants may be more geographically stable and, as such, they may have lower attrition rates during the course of study than do other entrants.[127]

Establishing good links between education "providers" and employers at a local level can also improve initial recruitment and subsequent retention of nurses. In one example from England, nursing students surveyed indicated that their choice to work locally was influenced by convenience, familiarity, loyalty, the enjoyment of clinical placements and perceived supportiveness of the employer.[128]

"Returners" – nurses who have left the profession – are another possible source of recruits. Whilst participation rates in nursing employment are quite high in some countries, in others the average career life of a nurse is relatively short. In the latter case, this is sometimes related to a short-sighted (and sometimes gender bias)[129] policy that prevents nurses being employed on a part-time basis, or does not enable them to have managed career breaks and re-entry to the world of work. Irrespective of the current situation, there will always be scope to examine how best to attract back those who have left. Attention has to be paid to why the nurses initially left the health system and what needs to be done to get them back. Recent initiatives in the UK, Ireland (see following box) and Australia have proved successful in attracting "returners".[130]

Ireland: Identifying potential nurse "returners"

The Irish Nurses Organisation was instrumental in commissioning a survey of non-practising nurses in Ireland, in order to assess the potential numbers of nurse "returners", and to evaluate the likely effectiveness of different strategies to encourage nurses to return to nursing employment. The research[131] highlighted the need to focus on the provision of flexible working hours and increased pay levels.

Geographical "maldistribution" of nurses was highlighted earlier in this report. Recruiting registered nurses to work in rural areas in many countries,[132] and inner city areas in some developed countries, has proved difficult. Initiatives to improve recruitment and retention include mandatory rural service, tuition reimbursement for working in underserved areas,[133] relocating nurse education establishments to rural areas, pay incentives to work in underserved areas, clinical placements in underserved areas and providing rotation schemes that temporarily locate staff in underserved areas. These interventions have been relatively unexamined in nursing while there has been more focus on doctors.

The complex interaction of pay, job satisfaction, career prospects and non-work issues means that there is no single solution to retaining and motivating nursing staff.[134] Many countries report that the incentives made available for nurses are inadequate and/or inflexible, and do not make most effective use of available resources (see Table 12).

Table 12: Adequacy of incentives, South East Asia: WHO Country Reports, 2002		
Country	Adequate incentives	Key incentives needed
Bangladesh	No	Night duty allowances Free treatment in hospitals as available to doctors Salary increments Support for lactating mothers Higher education/career opportunities Overseas employment opportunities Quality assurance systems Performance assessment Introduction of 'hire and fire' in government sector
Bhutan	Partial	Financial reward Recognition of good performance Quality assurance (being introduced)
DPR Korea	Need more	Salary Pension Title of honour
India	Limited	Quality assurance system Higher education allowances Attractive salary package Career advancement opportunities Incentives for working in special areas (e.g. intensive care unit, rural areas) Safety and security (e.g. when working at night)
Indonesia	No	Adequate salary Appreciation and protection of staff, including in remote areas Opportunity to participate in continuing education Career advancement
Maldives	Need strengthening	Quality assurance system Recognition of good work Housing
Myanmar	Limited	Promotion Exposure to international seminars and discussions Access to ASEAN fellowship programme Government-to-government employment contracting for overseas experience

Table 12: Adequacy of incentives, South East Asia: WHO Country Reports, 2002 continued

Country	Adequate incentives	Key incentives needed
Nepal	No	Transportation allowances Communication facilities (pager, telephone, email for officer level) Allowances linked to inflation for overtime, housing, education, children's education, night duty and odd hours Pension Research grants Food provided on night duty Health hazard compensation Regular health check-up for vaccination for staff Provision of health insurance
Sri Lanka	Limited	Implementation of standard Quality assurance mechanisms Allowances, transport and housing to work in specials areas (e.g. rural and remote areas, mental hospitals) Equal access to education opportunities
Thailand	No	Opportunities for advancement Further education opportunities supported by the organisation Recognition by peers and managers (e.g. awards for achievement or for a good work performance) Being a speaker or consultant Additional payment for working in rural or remote areas, or evening or night shifts anywhere Quality assurance system focused on prevention rather than correction

Source: WHO, 2003[135]

Even in countries with the lowest salaries it is not just poor pay that is a problem. Nurse midwives in Malawi reported that risky work environments, scarce resources and heavy workloads were even more pressing issues than low salaries (see Table 13).

Table 13: Malawi: registered nurse-midwives' perceptions of the most pressing issues in nursing.	
Pressing issues in nursing today	Nurse (N=90) percentage
Risky work environment	68.8
Scarce material resources	50
Heavy workload	48
Scarce human resources	42
Poor or low salaries	38
Poor promotion strategies	25
Poor recognition for nurses' contribution to health care	25
Limited career development	17
Effects of working conditions	17
Poor professional image	16
Long unsociable hours	16

Source: Kaponda, 1999[136]

Non-pay initiatives to improve retention and motivation must also be assessed. Enabling nurses to combine work and non-work commitments is one priority area for policy research in many countries, such as Canada.[137] The quality of work/life balance is reported as an important incentive in retaining nurse managers.[138] The safety of work environments and the rising reports of violence towards nurses in the work place influence nurse retention and recruitment rates.[139]

Differences in motivation and work and life expectations between different generations in the nursing workforce have been highlighted in the literature, and one solution for improving job satisfaction may not be successful in all sections of the nursing workforce.[140] Equally, the impact of heavy workloads and shift work on older nurses has to be considered.[141] The key is to identify which flexible employment practices and pay and non-pay incentives are effective in specific labour market conditions, and for specific groups of nurses and other workers. Research indicates that nurses are attracted to, and retained at, their work because of the opportunities to care for people, to develop professionally, to gain autonomy and to participate in decision making, whilst being fairly rewarded.[142]

As noted earlier, research on "magnet hospitals"[143, 144, 145] has shown that organisations, which adopt a participative management style, offer flexible employment opportunities, and access to continuing professional development can improve the recruitment and retention of nursing staff. The research also highlights that these improvements in staffing indicators are also related to reported improvements in patient care.

Employers need to take a whole-career perspective of the nurses' motivations, incentives and career plans. Career structures, the provision of lifelong learning, and workforce planning must take account of this dynamic process.

3. Deployment and Performance

Staff deployment can be considered as the short-term managerial response to matching staffing with workload and activity. Healthcare is a 24-hour, 365-day industry, and its nursing resources have to be deployed to match continuous, but changing, demand. This requires interventions which match nurse staffing levels to

"peaks and troughs" in the workload, using effective rota systems and evaluating the benefits of different working patterns.

The challenge in improving "flexibility" is to identify interventions which will enable a closer match between staffing levels and workload, but which are also attractive to nurses as a means of better matching their work commitments with other demands. One solution is to provide nurses with the opportunity to work with their managers and identify the best working pattern for their local needs. This "self scheduling" can raise job satisfaction, and improve productivity.

The role of part-time staff is another area where there is potential for more effective use of current resources. Often, experienced staff who wish to work or return to work on less than a full-time basis are marginalised to non-career posts. The prerequisite for an effective deployment of staff is an information system that enables management and nurses to review patterns of activity and variations in workload, so that they can use informed judgement to make decisions on day-to-day staffing levels.

Identifying what constitutes a 'safe', a 'minimum' or an 'effective' staffing level in nursing remains a contentious issue. Some commentators have argued that a vicious cycle can arise where "understaffing" in relation to workload can lead to more nurses leaving, which then compounds the problem of understaffing. The conventional wisdom tends to be that staffing levels are something best left to local level management, taking account of local workload and resources. This "bottom up" philosophy has now been challenged by a fundamentally different approach – the use of "top down" standardized and mandatory nurse:patient ratios.

The pressures of increased workload, the need to improve staffing efficiency and effectiveness, and the growing recognition of the linkages between effective staffing levels and outcomes (including patient safety) have led to attempts to identify the "best" methods of determining staffing levels.[146, 147] The challenge of using "off the shelf" or bespoke systems of workload assessment and staffing determination is that their application can all too easily become a "numbers game" – an end in itself rather than a decision support mechanism. These systems can also be time intensive to use, can be "data hungry", and can fall into disrepute if their recommended staffing levels are not consistently implemented by the organisation. The other major point to note when selecting a system is that there is no single "right" answer to the question: what is the best staffing level? Research has demonstrated that different systems applied in the same care environment will give different staffing "answers".[148]

Some countries have used national recommended staffing rates but these vary in terms of definition, source, and the extent to which they could be regarded as mandatory or minimum, and they often apply to narrow, precise specialties. More recently, nurses in Victoria, Australia, and in California have secured minimum staffing ratios across all hospitals as a method of improving staffing levels[149] There is as yet no independent evidence of the impact of this development on care outcomes.[150]

The performance of nurses and other health staff is linked closely to the methods of deployment, to the mix of staff available, and to the systems, if any, that are used to assess performance of individuals or teams in the organisation. It will also be underpinned by any systems of regulation that are in place.

"Performance management" is a term that is often used in health care, but it does not have a universally accepted definition. Amongst other possible factors, it may be related to individual performance, appraisal management by objectives, quality assurance techniques, or performance-related pay.[151] Research highlights

that the range of techniques that are available are more likely to be effective where performance management is related to measurable indicators, where systems as well as individuals are assessed,[152] where the approach is "owned" by staff rather than being imposed top down by managers,[153] and where there is a focus on staff development rather than reward. Quality assurance is often an integral part of the process of performance management in many countries. It is critical that, whatever approach to performance management of individuals or organisations is adopted, it is recognised that this is a means to improving effectiveness of individuals and organisations – a developmental process rather than a punitive one.

4. Utilisation and Skill Mix

Decisions on the best mix of staff and skills are a key element in dealing with staffing problems. Achieving a balance of skill mix, with the optimum proportion of registered nurses and midwives, other health professionals, support workers, and nursing assistants is one of the main staffing challenges facing management. The challenge has both quantitative and qualitative dimensions and requires assessment of the relative effectiveness of different mixes of staff.

The evidence base in this area is limited, but growing. There are two main areas of research, which can inform current policy and practice: skill mix within nursing and skill mix between nurses and doctors.

Examinations of "qualified/ unqualified" mix in nursing have mainly been conducted in the USA.[154] There are examples of studies which report cost and quality improvements after introducing care assistants, but other studies suggest that the scope for improvement may be more apparent than real. These latter studies argue that there has been decreased quality of care, and increases in cost factors such as on call, sick leave and overtime working, higher workloads for registered nurses, and higher turnover or absence rates. It is clear that any organisation that deploys nurses has to be confident that their skills are being well utilised. Part of the process of achieving and maintaining maximum effectiveness must be regular reviews to ensure that the mix of registered nurses and other nursing and support staff is the best that can be achieved with available resources.

The evidence base on substitution of nurses for doctors generally supports the contention that there is scope for effective substitution in defined areas of care, with much greater scope to support the establishment of advanced practice roles for nurses.[155, 156, 157] Research in this area suggests that the quality of care can be maintained or improved (whilst maintaining or reducing organisational costs) by increasing the role and deployment of clinical nurse specialists, nurse practitioners and clinical nurse-midwives.

One aspect of "skill mix" in its broadest sense is the need to integrate the contribution of voluntary workers and patients' relatives. Although this is becoming a major issue in countries such as sub-Saharan Africa, which have scarce resources in the "formal" health workforce, there has been little research to inform the evidence base in this area.

When current regulation and legislation impose constraints on skill mix change or different forms of utilisation of skills, thus preventing nurses from being effective, these laws or regulations need to be reviewed and amended. For example, enabling prescriptive authority for nurses will allow them to be effective in nurse practitioner roles. The role and contribution of the education sector and training providers is another major constraint. The extent to which cross training, new roles and new workers are realisable will depend on the capacity of the education sector to respond effectively by providing appropriate training and education. In some countries, there has been a "disconnect" or time lag between the identified need for new roles or new

workers, and the capacity of education providers to meet this need with new curricula and courses. New roles for nurses or other workers mean new role definitions and job descriptions, which in turn mean new curriculum and training content.

A second major potential constraint is the connection with the pay and employment conditions of nurses and other health workers. If new roles or new workers are to be introduced into the health system, the pay and career structure, and associated terms of employment, will have to be responsive to this change. If a pay and career structure does not properly reflect the job content of new roles or workers, and their contribution relative to that made by other groups, there will be a disincentive for workers to enter new roles.

Conclusions

The policy framework outlined above can support informed decision-making and prioritisation at local, regional and national levels in any country. Action in any one area of the framework can bring positive results, but the real benefits will accrue if policy intervention and action are developed through stakeholder involvement, co-ordinated across all areas, and drawn from relevant evidence and best practice.

Nursing shortages are often a symptom of wider health system or societal ailments. Nursing in many countries continues to be undervalued as "women's work", and nurses are given only limited access to resources to make them effective in their jobs and careers. For sustainable solutions, policy interventions are required which are based on recognition that health care is labour intensive and that available nursing resources must be utilized effectively. It is not just about nursing numbers, it is about how the health system functions in order to enable these nurses to use their skills effectively.

Many countries need to enhance, reorientate and integrate their workforce planning capacity across occupations and disciplines to identify the workforce skills and roles required to meet identified service needs. They can also improve day-to-day matching of nurse staffing with workload. "Flexibility" should be about using working patterns that are efficient, but which also support nurses in coordinating their work and non-work commitments.

A whole system perspective is required to achieve clarity of roles and a better balance of registered nurses, physicians, other health professionals, and support workers. The evidence base on skill mix is developing, and studies highlight scope for effective deployment of clinical nurse specialists and nurse practitioners in advanced roles, and for improving the effectiveness of skill mix across different occupations and within nursing.

Some of the policy interventions mentioned in this report were identified decades ago. Why are they only rarely implemented in a systematic approach? The very fact that some interventions are wide-reaching means that they often challenge current practice, health system inertia and vested interests. Nursing shortages are then portrayed as a "problem" only for nursing. They are not. They are a health system problem that undermines health system effectiveness and requires health system solutions. Without effective and sustained interventions, global nursing shortages will persist, undermining attempts to improve care outcomes and the health of nations.

Appendix 1: Indicators and Impact of Shortages

When demand outstrips supply, what indicators can be used to identify a shortage and perhaps point to its impact? There are several *process* indicators that can be used to highlight trends and variations in nurse staffing shortages. These include: 1) vacancy rates, 2) staff turnover rates, 3) the extent of use of temporary staff, 4) the quantity of overtime/excess hours worked, and, 5) application rates to nurse education. Identifying indicators of the *outcome* of shortages, in terms of the impact on patient care, is more complex, and relates to the overall challenge of measuring and assessing health outcomes.

Vacancy rates: the extent to which an organisation is unable to recruit staff to fill vacant posts is often used as an indicator of shortages (see Table A1 below). Trend information of vacancies can be helpful in monitoring the impact of shortages or other imbalances between supply and demand.

Table A1: Estimates of vacancy levels in the Ghana Health Service 2002

Staff Type	Current Status	Workable Number	Shortfall & Percentage	Ideal Number	Shortfall & Percentage
Professional Nurses	4319	10,000	5681 **57%**	13,340 **68%**	9021

Source: Buchan and Dovlo, 2004[158]

There are, however, a number of limitations in using vacancy data. In general, vacancy rates may understate the extent of shortages. There may be "suppressed" vacancies (where a post is not advertised or maintained by the establishment because management has no expectation of successful recruitment) and "hidden" vacancies (where a post is filled, but by an individual with insufficient skills/experience to successfully meet the requirements of the job).

Job turnover or wastage rates are often used as an indicator of recruitment/retention difficulties. Distinction has to be drawn between 'turnover', which normally records nurses' job moves (including transfer within an organisation) and 'wastage', which records nurses leaving an organisation. Both measures can be useful in monitoring nurse behaviour, and in examining the link between the organisation and the external labour market, particularly where there is long-term trend data to assess changing patterns. Distinction has also to be made between controlled wastage (e.g. retirement, redundancy and redeployment) and uncontrolled or voluntary wastage due to employees leaving for their own reasons (e.g. career progression, better pay in new job, dissatisfaction in previous job, etc.).

The level of turnover/wastage, and variations in that level, can be impacted by factors such as age profile and length of service. As such, turnover may be related to factors other than changes in job satisfaction, job opportunity or labour market conditions.

The extent of use of temporary nursing staff (e.g. agency nurses) may be an indicator of staffing difficulties in some health systems. If employers cannot recruit permanent staff, they may attempt to meet staffing needs by resourcing temporary staff.

One limitation of temporary staff use as an indicator of shortages relates to the reasons for using temporary staff. Although they may be used to cover 'shortages', there could be other reasons for their use. These could include an organisational policy to increase the 'flexible' element in the workforce to accommodate

fluctuations in activity levels, because of sickness absence and maternity cover, or to decrease long term benefit costs.

The extent to which nursing staff regularly and consistently must work additional hours can be used as a proxy for staffing difficulties. Persistent *excess working hours* can be a sign of recruitment difficulties, but can also highlight a lack of willingness of employers to recruit more nurses. Unpaid additional hours are 'cheaper' than recruiting more paid nursing staff, even if resources are available to meet the pay bill.

Temporary increases in overtime may also be due to other factors, such as sickness absence, unplanned 'peaks' in workload, etc. The distinction must be drawn between temporary 'unplanned' overtime and persistent 'institutionalised' overtime.

Application rates to pre-registration nursing and midwifery education can give an indication of trends in the attractiveness of nursing as a career. The number of acceptable applicants per advertised vacancy can be a useful indicator of a tightening labour market.

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International Council of Nurses
3, place Jean-Marteau
1201 Geneva
Switzerland

Tel +41 22 908 0100
Fax +41 22 908 0101
email icn@icn.ch
www.icn.ch