Summary
The global shortage of registered nurses
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The global shortage of registered nurses: an overview of issues and actions

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Introduction

This is a summary of The Global Shortage of Registered Nurses: An Overview of Issues and Actions, a report 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 Nursing1. 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 full text of the report can be accessed on the ICN website at www.icn.ch or by contacting ICN directly.

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. In January 2004, the High Level Forum on the Health MDGs (2004:4) reported, “There is a human resources crisis in health, which must be urgently addressed”.

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, the report focuses on one of the most critical components of the workforce – nurses2. 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.

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.

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.

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1 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.

2 One key issue, which is exposed in the 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”.

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.

The report presents a global picture of the distribution of nurses, based on an analysis and interpretation of data on nurse:population ratios, collated by the World Health Organization (WHO). The data collated by WHO from some countries includes 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. The nurse:population ratio gives a very broad indication of the level of availability of professional nursing skills in each country.

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.

**Figure 1: Nurse:population ratio (100,000 inhab) - min, max and average by WHO region**


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.
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.

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 note that there are also wide variations within regions.

The second focus of analysis is to examine the nurse:population ratio by level of economic development of each country. Average nurse:population ratios in high-income countries are almost eight times greater than those in low income countries.

Skill mix and staff mix vary among 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 the report that 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. When examining how best to deal with shortages, the significant variations in current mix of staff, as well as the overall availability of any one occupation, must be considered.

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 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.
- OECD reports that many of its (high-income) member countries have increasing problems of 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 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" (WHO 2003:110).

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 into account the huge disparity in the current availability of nursing skills in different countries, sectors and regions.

In previous decades, nursing shortages in many countries have been a cyclical phenomenon, usually as a result of increasing demand outstripping static or a more slowly growing supply of nurses (Buchan 2002; Friss 1994; Goodin 2003). 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 projections point to actual reductions in the supply of available nurses 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.

At its most basic level, a nursing 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 (Buchan 1994). Some nurses may choose alternative non-nursing employment or no employment. 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.

The overall scale of the shortages in developing countries 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 (Kurowski et al. 2003).

High-income countries are also reporting nursing shortages. In a recent report on health systems, the OECD (2004) highlighted increasing concerns about nursing shortages in many OECD countries. 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, (Canadian Nurses Association 2004) and Australia, which projects a shortage of 40,000 nurses by 2010 (Australian Health Ministers Conference 2004).

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"; and the persistence of violence against health workers in many countries, with nurses often taking the brunt because they are in the forefront of the direct delivery of care.

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 (WHO/World Bank 2003:3).

HIV/AIDS is impacting negatively on health systems both by increasing demand for health services and by reducing health workforce availability and performance. Mortality rates among 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 (Tawfik and Kinoti 2001). 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.
Nurses in sub-Saharan Africa are at the forefront of the battle against HIV/AIDS and are feeling its impact. 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 increases 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**

Migration and international recruitment of nurses have become a more prominent feature 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).

It is important to view migration 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 sending country to attract back the nurse.

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. 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.

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.

Nurses wish to move because of push factors in source countries related to low pay, and poor career prospects 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.

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.

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, the use of "managed migration" initiatives, such as those being tested in the Caribbean and highlighted in the Commonwealth Secretariat International Code of Practice (Commonwealth Secretariat 2003).
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.

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. There is a need to have a more explicit assessment of the human resource impact of reforms and restructuring in health systems. 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 re-organisation is only likely to be effective where staff have been 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.

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 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.

Table 1 on the next page summarises the key nursing workforce issues for developing and developed countries. 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.
Table 1: Key issues for nursing workforce policy and planning

<table>
<thead>
<tr>
<th>Issues with a Regional/ Country Focus</th>
<th>Developing Countries</th>
<th>Developed Countries</th>
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<tbody>
<tr>
<td>Sub Saharan Africa – HIV/AIDS</td>
<td></td>
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<tr>
<td>Sub Saharan Africa, some Central/ South American, Asian states – low absolute ratio of nurses: population</td>
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<tr>
<td>Central/ South America – low ratio of registered nurses: other healthcare staff</td>
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<tr>
<td>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).</td>
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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 1.
**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.

Table 2 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 section. The detailed reports, which have also been commissioned as part of this project, will examine them in more detail.

**Table 2: A policy-based interventions framework**

<table>
<thead>
<tr>
<th>Component</th>
<th>Interventions</th>
<th>Requirements</th>
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<tbody>
<tr>
<td>Workforce Planning</td>
<td>Needs Assessment&lt;br&gt;Integrated (or aligned) planning&lt;br&gt;Linkage with education sector&lt;br&gt;Scenario modelling&lt;br&gt;Geographical distribution</td>
<td>Planning capacity&lt;br&gt;Workforce data/information&lt;br&gt;Stakeholder involvement</td>
</tr>
<tr>
<td>Recruitment and Retention</td>
<td>Recruitment from traditional sources&lt;br&gt;Recruitment from &quot;new&quot; sources&lt;br&gt;Retention of current staff&lt;br&gt;Attract back returners</td>
<td>Financial and non-financial incentives&lt;br&gt;Career structure and opportunities&lt;br&gt;Flexible working models&lt;br&gt;Safe working conditions&lt;br&gt;Nurse involvement in decision-making</td>
</tr>
<tr>
<td>Deployment and Performance</td>
<td>Day-to-day matching of staff with workload&lt;br&gt;Flexible working models&lt;br&gt;Shift patterns for 24-hour care&lt;br&gt;Full-time/part-time/temporary staff&lt;br&gt;In-service training/&quot;lifelong learning&quot;</td>
<td>Effective local management&lt;br&gt;Data on activity and workforce&lt;br&gt;Financial and non-financial incentives&lt;br&gt;Allocation of necessary equipment, material, drugs, etc.&lt;br&gt;Nurse involvement in decision-making</td>
</tr>
<tr>
<td>Utilisation and Skill Mix</td>
<td>Strategic/ policy decisions on effective skill mix of staff&lt;br&gt;Regulatory infrastructure&lt;br&gt;Legislative infrastructure&lt;br&gt;In-service training/&quot;lifelong learning&quot;</td>
<td>Effective strategic management&lt;br&gt;Data on activity/output/outcome&lt;br&gt;Job descriptions /role definitions&lt;br&gt;Financial and non-financial incentives&lt;br&gt;Nurse involvement in decision-making</td>
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The critical issue in examining the framework is to recognise that the components and interventions are interdependent. 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 (education sector, regulators, nurses associations, and representatives of broader civil society).

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 (Buchan 2004). 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.

1. Workforce Planning

- An effective approach to workforce planning needs to take account of 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.

- 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 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.

- All stakeholders should have the opportunity to be involved in the planning process, which should not be just a "top down" and remote exercise.

- 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.

- Effective workforce planning is a pre-requisite for sustained improvement in nurse recruitment and retention. 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

- Nurses are attracted to, and retained at, their work because of the opportunities to develop professionally, to gain autonomy and to participate in decision-making, whilst being fairly rewarded.

- Work environment factors can be critical in encouraging retention, or causing turnover of nurses. A participative management style, flexible employment opportunities and access to continuing professional development can improve both the retention of nursing staff and patient care.
Nursing traditionally relied on recruiting from a fairly narrow defined group of school leavers (predominantly female). Many countries are now opening 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.

Nursing has to adopt strategies aimed at improving its "image" among 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.

Establishing good links between education "providers" and employers at a local level can also improve initial recruitment and subsequent retention of nurses.

"Returners" – nurses who have left the profession – are another possible source of recruits. Attention has to be paid to why the nurses left the health system in the first place and what needs to be done to get them back.

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. Non-pay initiatives to improve retention and motivation must be assessed. Enabling nurses to combine work and non-work commitments is one priority area. The safety of work environments and the rising reports of violence towards nurses in the work place influence nurses' retention and recruitment rates.

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. 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

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 give nurses in a work environment the responsibility to work with their managers to identify the best working pattern that fits 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. Marginalising experienced staff to non-career posts because they wish to work, or return to work, on less than a full-time basis is not an effective use of available resources.

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.

The challenge with using 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. There is no single "right" answer to the question: what is the best staffing level?
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 more likely to be effective where it is related to measurable indicators, where systems as well as individuals are assessed, where the approach is "owned" by staff rather than being imposed top down by managers, 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 an end, which is to improve effectiveness of individuals and organisations – a developmental process rather than a punitive one.

4. Utilisation and Skill Mix

Longer-term 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 to other staff, 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. Examinations of "qualified/unqualified" mix in nursing have reported varying results. Some 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 other cost factors such as on call, sick leave and overtime working, higher workload for registered nurses, and higher turnover or absence rates.

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. Research in this area suggests that there is scope for maintaining or improving quality of care (whilst maintaining or reducing organisational costs) by increasing the role and deployment of clinical nurse specialists, nurse practitioners and clinical nurse-midwives.

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.

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

Regulation and legislation may impose constraints on skill mix change or different forms of utilisation of skills. Where current legislation or regulations prevent nurses from being effective, these laws or regulations need review and amendment – one example is the enabling of prescriptive authority for nurses so that they can be effective in nurse practitioner roles.

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.

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 nurses and other workers to enter new roles.
**Conclusions**

The policy framework outlined in the report 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 utilised 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 identified in this report have been known about for decades. 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, 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.
References


Abbreviations

3 x 5 Global Initiative Strategic and Operational Framework
AC Audit Commission
ACETERA Argentinean Civil Association of Non-University Schools of Nursing in Argentina
ACHIEEN Chilenean Association of Nursing Education
ACOFAEN Colombian Association of Schools of Nursing
ADHA Additional Duty Hour Allowances
AEUERA Argentinean Association of University Schools of Nursing
AFRO AFRICA Regional Office
AHRQ American Health Research and Quality
AHSN Africa Honour Society for Nurses
ALADEFE Latin American Association of Faculties and Nursing Schools
ANA American Nurses Association
APE Paraguayan Association of Nursing
ARVs Anti Retroviral drugs
ASEDEFE Ecuatorian Association of Schools of Nursing
ASOVESE Association of Schools of Nursing of Venezuela
ASPEFEN Peruvian Association of Schools of Nursing
AU Africa Union
AWG Africa Working Group
CEDU Uruguay College of Nurses
CHI Commission for Health Improvement
CHN Community Health Nurse
CHSRF Canadian Health Services Research Foundation
CIPD Chartered Institute of Personnel and Development
CM Community Midwifery
CN Community Nursing
CNO Caribbean Nurses Organization
COFEN Federal Council of Nursing, Brazil
CREM Mercosur Regional Council of Nursing
CRHCS Commonwealth Regional Health Community Secretariat
DENOSA Democratic Nursing Organization of South Africa
DFID Department for International Development
DH Department of Health
DJCC Directors Joint Consultative Committee
DOT Directly Observed Treatment
ECN Enrolled Community Nurse
ECSA East, Central and Southern Africa
ECSACON East, Central and Southern Africa College of Nursing
ECSA-HC East, Central and Southern Africa Health Community
EN Enrolled Nurse
EPI Expanded Programme on Immunisation
EU European Union
FAE Argentinean Federation of Nursing of Schools of Nursing
FEMAFEN Mexican Federation of Associations of Schools of Nursing
FEPPEN Pan American Federation of Nursing Professionals
FIM Functional Independence Measure
FNHP Federation of Nurses and Health Professionals (USA)
FP Family Planning
FTE Full-Time Equivalents
FUDEN Nursing Development Foundation (Spain)
GATS General Agreement on Trade in Services
GAVI Global Alliance for Vaccines and Immunizations
GDP Gross Domestic Product
GNP Gross National Product
GP General Practitioner
GRNA Ghana Registered Nurses Association
HC Healthcare Commission
HIPC Highly Indebted Poor Countries
HPCA Health Professionals’ Competency Assurance Act
HPPD Hours per Patient Day
HR Human Resource
HHR Health Human Resource
HRM Human Resource Management
HSR Health Sector Reform
ICN International Council of Nurses
ICNP® International Classification of Nursing Practice
ICU Intensive Care Units
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<td>Inter-American Development Bank</td>
<td>PRODEC</td>
<td>Nursing Development Programme in Central America and the Caribbean</td>
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<td>Infant Mortality Rate</td>
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<td>IPC</td>
<td>Infection, Prevention and Control</td>
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<td>Joint Learning Initiative</td>
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<td>Médecins Sans Frontières</td>
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<td>Science and Technology</td>
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<td>PDP</td>
<td>Performance Development Plan</td>
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<td>President’s Emergency Program for AIDS Relief</td>
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<td>Philippine Overseas Employment Authority</td>
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