Health Professions Networks
Nursing and Midwifery
Human Resources for Health

Framework for Action on Interprofessional Education & Collaborative Practice

World Health Organization

Framework for Action on Interprofessional Education & Collaborative Practice (WHO/HRH/HPN/10.3)

This publication is produced by the Health Professions Network Nursing and Midwifery Office within the Department of Human Resources for Health.

This publication is available on the Internet at: http://www.who.int/hrh/nursing_midwifery/en/

Copies may be requested from:
World Health Organization, Department of Human Resources for Health, CH-1211 Geneva 27, Switzerland

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Edited by: Diana Hopkins, Freelance Editor, Geneva Switzerland

Layout: Monkeytree Creative Inc.
Cover design: www.sbgraphic.ch (illustration © Eric Scheurer)

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Acknowledgements

The *Framework for Action on Interprofessional Education and Collaborative Practice* is the product of the WHO Study Group on Interprofessional Education and Collaborative Practice (see Annex 1 for a complete list of members). The Framework was prepared under the leadership of John HV Gilbert and Jean Yan, with support from a secretariat led by Steven J Hoffman.

Preparation of background papers and project reports was led by: Marilyn Hammick (lead author, Glossary and IPE Working Group Report), Steven J Hoffman (co-author, IPE International Scan), Lesley Hughes (co-author, IPE Staff Development Paper), Debra Humphris (lead author, SLSS Working Group Report), Sharon Mickan (co-author, CP Case Studies), Monica Moran (co-author, IPE Learning Outcomes Paper), Louise Nasmith (lead author, CP Working Group Report and CP Case Studies), Sylvia Rodger (lead author, IPE International Scan), Madeline Schmitt (co-author, IPE Staff Development Paper) and Jill Thistlethwaite (co-author, IPE Learning Outcomes Paper).

Significant contributions were also made by Peter Baker, Hugh Barr, David Dickson, Wendy Horne, Yuichi Ishikawa, Susanne Lindqvist, Ester Mogensen, Ratie Mpofu, Bev Ann Murray and Joleen Tirendi. Considerable support was provided by the Canadian Interprofessional Health Collaborative.

Administrative and technical support was provided by Virgie Largado-Ferri and Alexandra Harris. Layout and graphics were designed by Susanna Gilbert.

The main writers were Andrea Burton, Marilyn Hammick and Steven J Hoffman.

> Interprofessional education... is an opportunity to not only change the way that we think about educating future health workers, but is an opportunity to step back and reconsider the traditional means of health-care delivery. I think that what we're talking about is not just a change in educational practices, but a change in the culture of medicine and health-care.
>
> –Student Leader

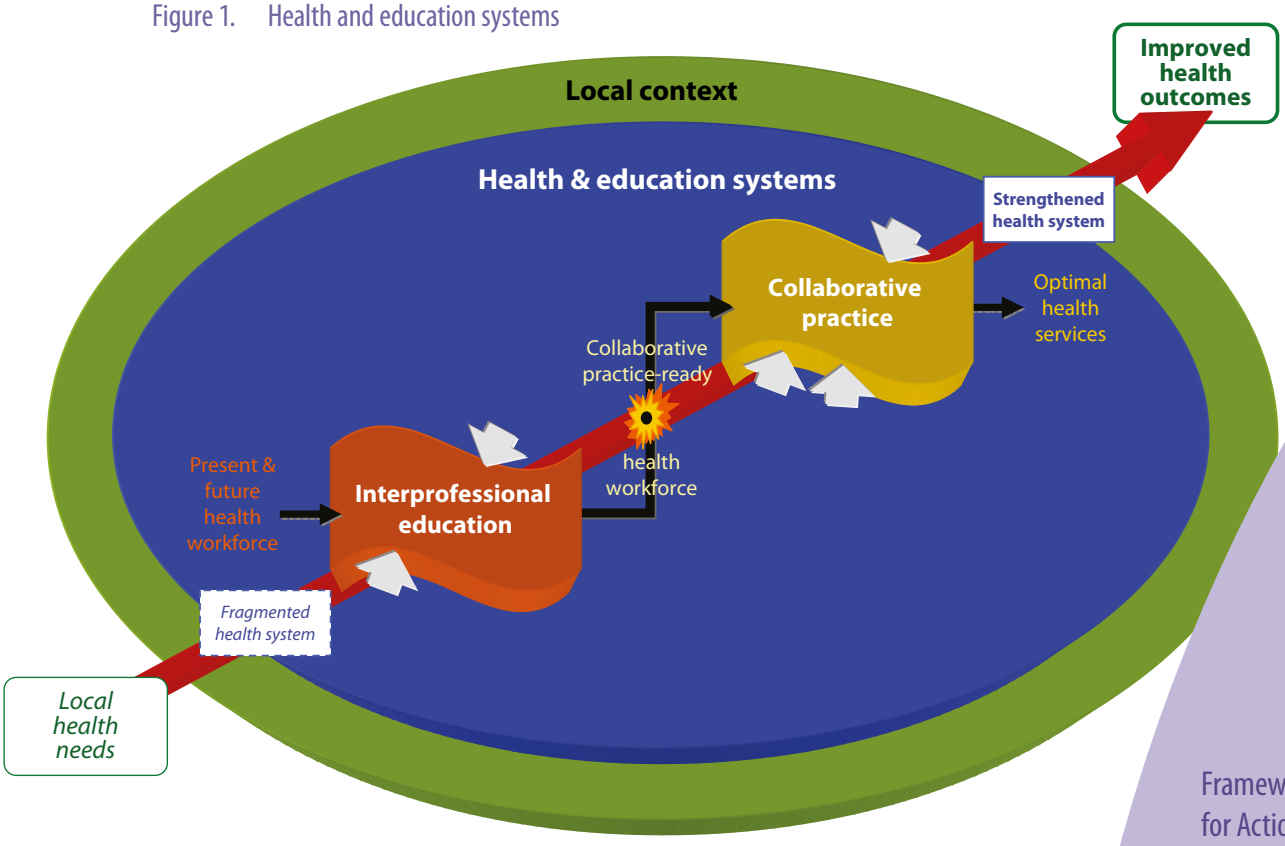
Key messages

* The World Health Organization (WHO) and its partners recognize interprofessional collaboration in education and practice as an innovative strategy that will play an important role in mitigating the global health workforce crisis.
* Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.
* Interprofessional education is a necessary step in preparing a "collaborative practice-ready" health workforce that is better prepared to respond to local health needs.
* A collaborative practice-ready health worker is someone who has learned how to work in an interprofessional team and is competent to do so.
* Collaborative practice happens when multiple health workers from different professional backgrounds work together with patients, families, carers and communities to deliver the highest quality of care. It allows health workers to engage any individual whose skills can help achieve local health goals.
* After almost 50 years of enquiry, the World Health Organization and its partners acknowledge that there is sufficient evidence to indicate that effective interprofessional education enables effective collaborative practice.
* Collaborative practice strengthens health systems and improves health outcomes.
* Integrated health and education policies can promote effective interprofessional education and collaborative practice.
* A range of mechanisms shape effective interprofessional education and collaborative practice. These include:
  - supportive management practices
  - identifying and supporting champions
  - the resolve to change the culture and attitudes of health workers
  - a willingness to update, renew and revise existing curricula
  - appropriate legislation that eliminates barriers to collaborative practice
* Mechanisms that shape interprofessional education and collaborative practice are not the same in all health systems. Health policy-makers should utilize the mechanisms that are most applicable and appropriate to their own local or regional context.
* Health leaders who choose to contextualize, commit and champion interprofessional education and collaborative practice position their health system to facilitate achievement of the health-related Millennium Development Goals (MDGs).
* The *Framework for Action on Interprofessional Education and Collaborative Practice* provides policy-makers with ideas on how to implement interprofessional education and collaborative practice within their current context.

Executive summary

At a time when the world is facing a shortage of health workers, policy-makers are looking for innovative strategies that can help them develop policy and programmes to bolster the global health workforce. The *Framework for Action on Interprofessional Education and Collaborative Practice* highlights the current status of interprofessional collaboration around the world, identifies the mechanisms that shape successful collaborative teamwork and outlines a series of action items that policy-makers can apply within their local health system (Figure 1). The goal of the Framework is to provide strategies and ideas that will help health policy-makers implement the elements of interprofessional education and collaborative practice that will be most beneficial in their own jurisdiction.

Figure 1. Health and education systems



The case for interprofessional education and collaborative practice for global health

The *Framework for Action on Interprofessional Education and Collaborative Practice* recognizes that many health systems throughout the world are fragmented and struggling to manage unmet health needs. Present and future health workforce are tasked with providing health-services in the face of increasingly complex health issues. Evidence shows that as these health workers move through the system, opportunities for them to gain interprofessional experience help them learn the skills needed to become part of the collaborative practice-ready health workforce.

A collaborative practice-ready workforce is a specific way of describing health workers who have received effective training in interprofessional education. Interprofessional education occurs when students from two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes. Once students understand how to work interprofessionally, they are ready to enter the workplace as a member of the collaborative practice team. This is a key step in moving health systems from fragmentation to a position of strength. Interprofessional health-care teams understand how to optimize the skills of their members, share case management and provide better health-services to patients and the community. The resulting strengthened health system leads to improved health outcomes.

> The faculty development interprofessional education program was an expanding (mind and soul) experience for me to interact with other health workers in various health professions…an opportunity to share with like-minded people in other professions who value interprofessional education and are committed to bringing it about.
>
> – Educator

Moving forward with integrated health and education policies

The health and education systems must work together to coordinate health workforce strategies. If health workforce planning and policymaking are integrated, interprofessional education and collaborative practice can be fully supported.

A number of mechanisms shape how interprofessional education is developed and delivered. In this Framework, examples of some of these mechanisms have been divided into two themes: educator mechanisms (i.e. academic staff training, champions, institutional support, managerial commitment, learning outcomes) and curricular mechanisms (i.e. logistics and scheduling, programme content, compulsory attendance, shared objectives, adult learning principles, contextual learning,

assessment). By considering these mechanisms in the local context, policy-makers can determine which of the accompanying actions would lead to stronger interprofessional education in their jurisdiction.

Likewise, there are mechanisms that shape how collaborative practice is introduced and executed. Examples of these mechanisms have been divided into three themes: institutional support mechanisms (i.e. governance models, structured protocols, shared operating resources, personnel policies, supportive management practices); working culture mechanisms (i.e. communications strategies, conflict resolution policies, shared decision-making processes); and environmental mechanisms (i.e. built environment, facilities, space design). Once a collaborative practice-ready health workforce is in place, these mechanisms will help them determine the actions they might take to support collaborative practice.

The health and education systems also have mechanisms through which health-services are delivered and patients are protected. This Framework identifies examples of health-services delivery mechanisms (i.e. capital planning, remuneration models, financing, commissioning, funding streams) and patient safety mechanisms (i.e. risk management, accreditation, regulation, professional registration).

A call to action

It is important that policy-makers review this Framework through a global lens. Every health system is different and new policies and strategies that fit with and address their local challenges and needs must be introduced. This Framework is not intended to be prescriptive nor provide a list of recommendations or required actions. Rather it is intended to provide policy-makers with ideas on how to *contextualize* their existing health system, *commit* to implementing principles of interprofessional education and collaborative practice, and *champion* the benefits of interprofessional collaboration with their regional partners, educators and health workers.

Interprofessional education and collaborative practice can play a significant role in mitigating many of the challenges faced by health systems around the world. The action items identified in this Framework can help jurisdictions and regions move forward towards strengthened health systems, and ultimately, improved health outcomes. This Framework is a call for action to policy-makers, decision-makers, educators, health workers, community leaders and global health advocates to take action and move towards embedding interprofessional education and collaborative practice in all of the services they deliver.

Learning together to work together for better health

The need to strengthen health systems based on the principles of primary health-care has become one of the most urgent challenges for policy-makers, health workers, managers and community members around the world. Human resources for health are in crisis. The worldwide shortage of 4.3 million health workers has unanimously been recognized as a critical barrier to achieving the health-related Millennium Development Goals (1,2). In 2006, the 59th World Health Assembly responded to the human resources for health crisis by adopting resolution WHA59.23 which called for a rapid scaling-up of health workforce production through various strategies including the use of "innovative approaches to teaching in industrialized and developing countries" (3).

Governments around the world are looking for innovative, system-transforming solutions that will ensure the appropriate supply, mix and distribution of the health workforce. One of the most promising solutions can be found in interprofessional collaboration.

Figure 2. Interprofessional education

Figure 3. Collaborative practice

Key concepts

Health worker is a wholly inclusive term which refers to all people engaged in actions whose primary intent is to enhance health. Included in this definition are those who promote and preserve health, those who diagnose and treat disease, health management and support workers, professionals with discrete/unique areas of competence, whether regulated or non-regulated, conventional or complementary (1).

Interprofessional education occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.

* Professional is an all-encompassing term that includes individuals with the knowledge and/or skills to contribute to the physical, mental and social well-being of a community.

Collaborative practice in health-care occurs when multiple health workers from different professional backgrounds provide comprehensive services by working with patients, their families, carers and communities to deliver the highest quality of care across settings.

* Practice includes both clinical and non-clinical health-related work, such as diagnosis, treatment, surveillance, health communications, management and sanitation engineering.

Health and education systems consist of all the organizations, people and actions whose primary intent is to promote, restore or maintain health and facilitate learning, respectively. They include efforts to influence the determinants of health, direct health-improving activities, and learning opportunities at any stage of a health worker's career (47–48).

* Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity (World Health Organization, 1948) (49).
* Education is any formal or informal process that promotes learning which is any improvement in behaviour, information, knowledge, understanding, attitude, values or skills (United Nations Educational, Scientific and Cultural Organization, 1997) (50).

A greater understanding of how this strategy can be implemented will help WHO Member States build more flexible health workforces that enable local health needs to be met while maximizing limited resources.

For health workers to collaborate effectively and improve health outcomes, two or more from different professional backgrounds must first be provided with opportunities to learn about, from and with each other. This *interprofessional education* is essential to the development of a "collaborative practice-ready" health workforce, one in which staff work together to provide comprehensive services in a wide range of health-care settings. It is within these settings where the greatest strides towards strengthened health systems can be made.

Policy-makers and those who support this innovative approach to human resources for health planning can use this Framework to move towards optimal health-services and better health outcomes by:

* examining their local context to determine their needs and capabilities
* committing to building interprofessional collaboration into new and existing programmes
* championing successful initiatives and teams.

The *Framework for Action on Interprofessional Education and Collaborative Practice* provides a unique opportunity for all levels in the health and education systems to reflect on how they might better utilize interprofessional education and collaborative practice strategies to strengthen health system performance and improve health outcomes (Figures 2,3).

The need for interprofessional collaboration

Health policy-makers have shifted their focus from traditional delivery methods to innovative strategies that will strengthen the health workforce for future generations (4–7).

Although there is a great deal of interest in moving interprofessional collaboration forward, the desire to engage in this type of long-term planning is often sidelined by urgent crises such as epidemics of HIV/AIDS and/or tuberculosis, spiralling health-care costs, natural disasters, ageing populations, and other global health issues. Fortunately, many policy-makers are recognizing that a strong, flexible and collaborative health workforce is one of the best ways to confront these highly complex health challenges. In recent years, a number of local, national and regional associations and academic centres of excellence have been launched, demonstrating the growing momentum for interprofessional collaboration.

> Building a regional network to support interprofessional collaboration not only ensured there was no competition for funding between projects, it also made it possible for all interprofessional projects to share best practices, challenges and opportunities.
>
> –Regional Health Leader

Interprofessional education and collaborative practice can positively contribute to some of the world's most urgent health challenges. For example:

Family and community health

Maternal and child health are essential to the overall well-being of a country. Every day 1500 women worldwide die from complications in pregnancy or childbirth. Health workers who are able to jointly identify the key strengths of each member of the health-care team and use those strengths to manage the complex health issues of the entire birthing family, will play a key role in reducing these alarming and preventable statistics.

HIV/AIDS, tuberculosis and malaria

The detection, treatment and prevention of global diseases, such as HIV/AIDS, tuberculosis and malaria, requires the collaboration of every type of worker within the health system. Interprofessional teams that have the expertise and resources to tailor their response to the local environment will be critical to the success of disease management programmes, education and awareness.

Health action in crisis

In situations of humanitarian crisis and conflict, a well-planned emergency response is essential. To overcome water, food and medical supply gaps, health workers must have the knowledge and skills to mobilize whatever resources and expertise are available within the health system and the broader community. Interprofessional education provides health workers with the kind of skills needed to coordinate the delivery of care when emergency situations arise.

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Health security

Epidemics and pandemics place sudden and intense demands on the health system. Individuals who regularly work on a collaborative practice team can enhance a region's capacity to respond to health security issues such as outbreaks of avian influenza. In the event of a global epidemic or natural disaster, collaboration among health workers is the only way to manage the crisis.

Non-communicable diseases and mental health

Interprofessional teams are often able to provide a more comprehensive approach to preventing and managing chronic conditions such as dementia, malnutrition and asthma. These conditions are complex and often require a collaborative response.

Health systems and services

Interprofessional education and collaborative practice maximize the strengths and skills of health workers, enabling them to function at the highest capacity. With a current shortage of 4.3 million health workers, innovations of this nature will become more and more necessary to manage the strain placed on health systems.

The *Framework for Action on Interprofessional Education and Collaborative Practice* lists a range of practice- and system-level mechanisms that can help policy-makers implement and sustain progress in interprofessional collaboration. Recognizing that health and education systems should reflect local needs and aspirations, this Framework has been designed to help decision-makers worldwide apply key mechanisms and actions according to the needs of their unique jurisdictions. This Framework provides internationally relevant ideas for health policy-makers to consider and adapt as appropriate.

Team-based learning at Jimma University, Ethiopia

Since 1990, Jimma University has placed 20 to 30 final year students in medicine, nursing, pharmacy, laboratory science and environmental health in district health centres. Students deliver services ranging from nutrition promotion to primary care and basic laboratory services while becoming familiar with regional health centres and other students from a wide range of disciplines (51).

International environmental scan of interprofessional education practices

To capture current interprofessional activities at a global level, the WHO Study Group on Interprofessional Education and Collaborative Practice conducted an international environmental scan between February and May 2008. The aim of this scan was to:

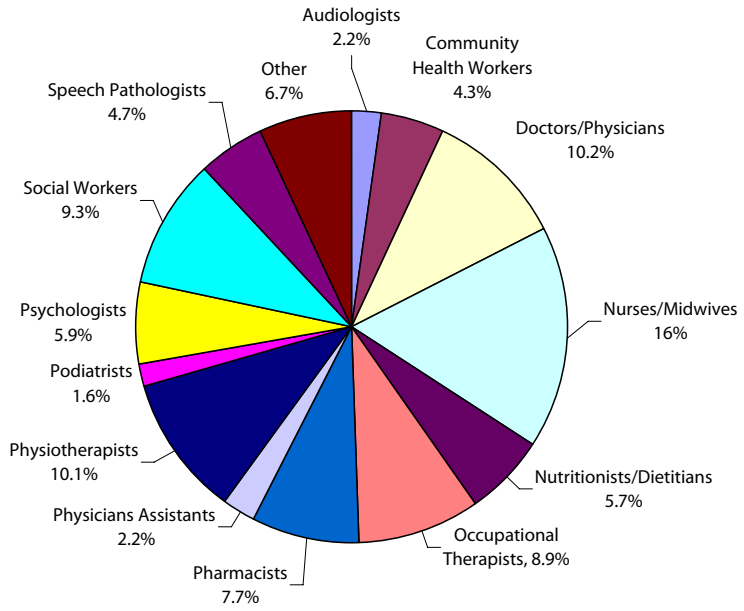
* Determine the current status of interprofessional education globally
* Identify best practices
* Illuminate examples of successes, barriers and enabling factors in interprofessional education.

A total of 396 respondents, representing 42 countries from each of the six WHO regions, provided insight about their respective interprofessional education programmes. These individuals represent various fields including practice (14.1 per cent), administration (10.6 per cent), education (50.4 per cent) and research (11.6 per cent).

Results indicate that interprofessional education takes place in many different countries and health-care settings across a range of income categories.* It involves students from a broad range of disciplines including allied health, medicine, midwifery, nursing and social work.

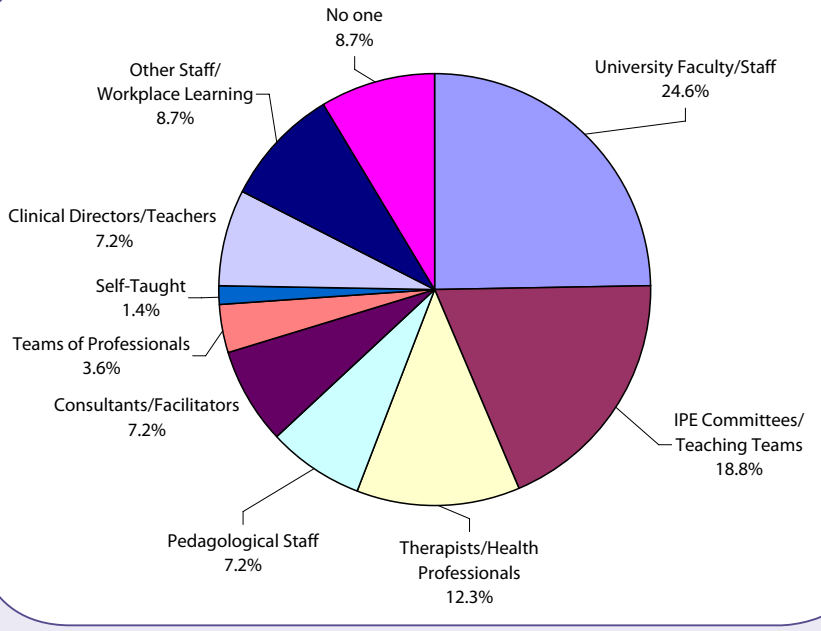
For most respondents, interprofessional education was compulsory. Student engagement occurs mainly at the undergraduate level, with a relatively even distribution among undergraduate years. Students are typically assessed in group situations (46.9 per cent in developed and 36.8 per cent in developing countries), followed by individual assignments, written tests and other methods. Although interprofessional education is normally delivered face-to-face, information technology is emerging as another valuable option.

Figure 4. Types of learners who received interprofessional education at the respondents' insitutions



* The countries of the respondents were categorized according to the World Bank's Income Classification Scheme.

Figure 5. Providers of staff training on interprofessional education



Internationally, preparing staff to deliver interprofessional education is uncommon. Courses are usually short and variable in nature and interprofessional education activities are not yet systematically delivered. In addition, routine evaluation of interprofessional education's impact on health outcomes and service delivery are rare.

Despite this, respondents reported that they had experienced many educational and health policy benefits from implementing interprofessional education. For example:

Educational benefits

* Students have real world experience and insight
* Staff from a range of professions provide input into programme development
* Students learn about the work of other practitioners

Health policy benefits

* Improved workplace practices and productivity
* Improved patient outcomes
* Raised staff morale
* Improved patient safety
* Better access to health-care

Significant effort is still required to ensure interprofessional initiatives are developed, delivered and evaluated in keeping with internationally recognized best practice.

The 42 countries represented by the respondents

Armenia, Australia, Bahamas, Belgium, Canada, Cape Verde, Central African Republic, China, Croatia, Denmark, Djibouti, Egypt, Germany, Ghana, Greece, Guinea, India, Iran (Islamic Republic of), Iraq, Ireland, Japan, Jordan, Malaysia, Malta, Mexico, Nepal, New Zealand, Norway, Pakistan, Papua New Guinea, Poland, Portugal, Republic of Moldova, Saudi Arabia, Singapore, South Africa, Sweden, Thailand, United Arab Emirates, United Kingdom, United States of America, Uruguay.

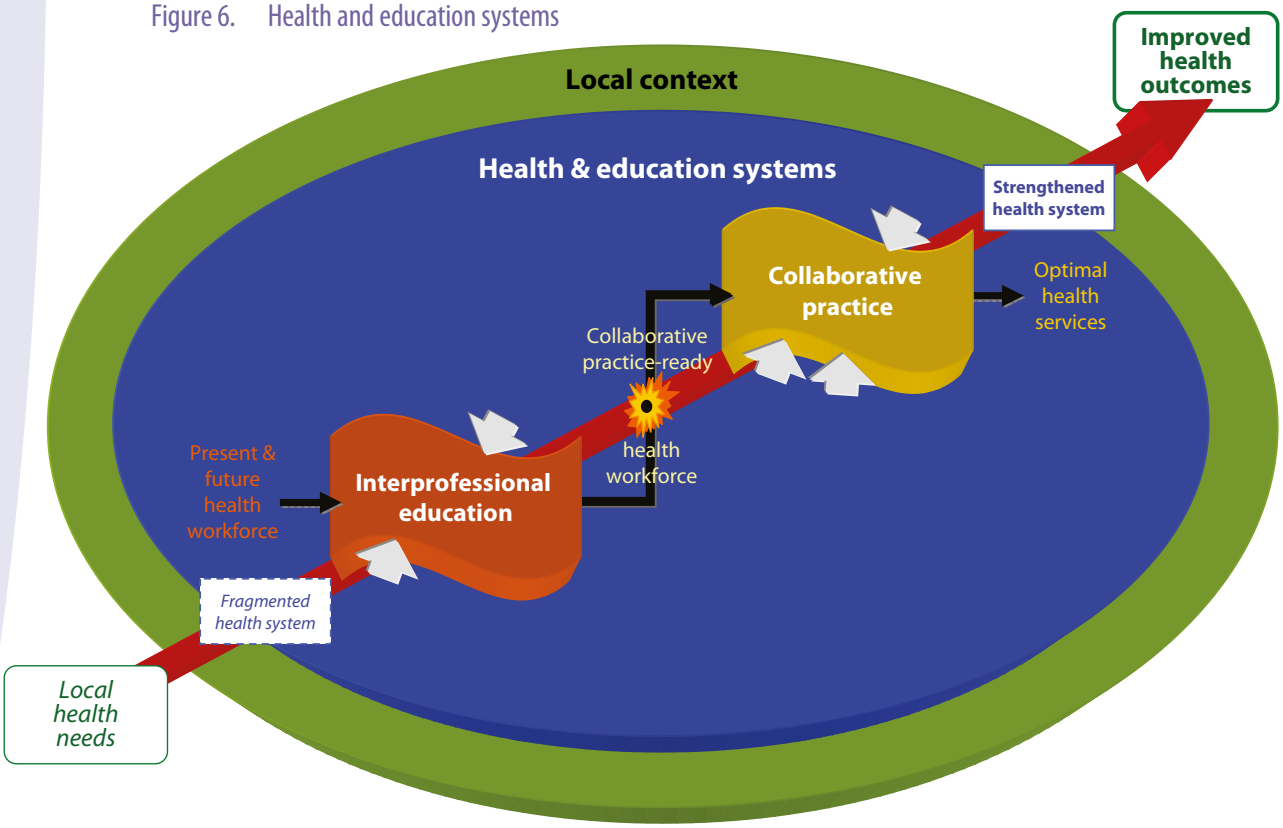
Interprofessional education and collaborative practice for improved health outcomes

After almost 50 years of inquiry, there is now sufficient evidence to indicate that interprofessional education enables effective collaborative practice which in turn optimizes health-services, strengthens health systems and improves health outcomes (Figure 6) (6–21). In both acute and primary care settings, patients report higher levels of satisfaction, better acceptance of care and improved health outcomes following treatment by a collaborative team (22).

Research evidence has shown a number of results:

* Collaborative practice can improve:
  - access to and coordination of health-services
  - appropriate use of specialist clinical resources
  - health outcomes for people with chronic diseases
  - patient care and safety (23–25).
* Collaborative practice can decrease:
  - total patient complications
  - length of hospital stay
  - tension and conflict among caregivers
  - staff turnover
  - hospital admissions
  - clinical error rates
  - mortality rates (18–20, 22,23, 26–29).
* In community mental health settings collaborative practice can:
  - increase patient and carer satisfaction
  - promote greater acceptance of treatment
  - reduce duration of treatment
  - reduce cost of care
  - reduce incidence of suicide (17,21)
  - increase treatment for psychiatric disorders (30)
  - reduce outpatient visits (30).

Figure 6. Health and education systems



Cross-sectoral interprofessional collaboration during health crises

In 2005, northern Pakistan experienced a severe earthquake resulting in thousands of injuries. Relief efforts were particularly challenging in isolated mountain communities. A wound clinic was eventually opened within a partially constructed hotel, but had no source of water, making infection control extremely difficult. One of the volunteer health workers took the initiative to locate a trained plumber who was able to provide the clinic with a constant source of clean water within 48 hours. In this situation, seeking expertise outside of the conventional health-care team ensured earthquake victims were able to receive quality health-services in spite of the difficult circumstances (52). This is a common occurrence in emergency situations where collaboration across sectors can be essential to improving health outcomes (48).

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* Terminally and chronically ill patients who receive team-based care in their homes:
  - are more satisfied with their care
  - report fewer clinic visits
  - present with fewer symptoms
  - report improved overall health (24,31).
* Health systems can benefit from the introduction of collaborative practice which has reduced the cost of:
  - setting up and implementing primary health-care teams for elderly patients with chronic illnesses (31)
  - redundant medical testing and the associated costs (32)
  - implementing multidisciplinary strategies for the management of heart failure patients (19)
  - implementing total parenteral nutrition teams within the hospital setting (18).*

This evidence clearly demonstrates the need for a collaborative practice-ready health workforce, which may include health workers from regulated and non-regulated professions such as community health workers, economists, health informaticians, nurses, managers,

Any project that encompasses different specialties or jurisdictions needs to coordinate activities to achieve the greatest effectiveness. This is particularly the case with emergency situations. It is in that capacity that interprofessional teams may have the greatest impact on a public health emergency. The increased coordination and smoother functioning will facilitate a more efficient and effective response, as well as delivering assistance more quickly to those in need.

– National Chief Public Health Officer

* Summary charts of research evidence from systematic reviews related to interprofessional education and collaborative practice can be found in Annexes 6 and 7 respectively. The Canadian Interprofessional Health Collaborative has also recently prepared an evidence synthesis for policy-makers on the effects of interprofessional education, including 181 studies from 1974–2005, that can be accessed at http://www.cihc.ca/resources-files/the_evidence_for_ipe_july2008.pdf

social workers and veterinarians. Cross-sectoral interprofessional collaboration between health and related sectors is also important because it helps achieve the broader determinants of health such as better housing, clean water, food security, education and a violence-free society.

> Having a personal relationship with the team members helped to build trust among us, and colleagues that trust each other are much more inclined to seek collaboration.
>
> – Rural health worker

Interprofessional education can occur during pre- and post-qualifying education in a variety of clinical settings (e.g. basic training programmes, post-graduate programmes, continuing professional development and learning for quality service improvement). Interprofessional education is generally well-received by participants who develop communication skills, further their abilities to critically reflect, and learn to appreciate the challenges and benefits of working in teams. Effective interprofessional education fosters respect among the health professions, eliminates harmful stereotypes, and evokes a patient-centred ethic in practice (8).

Many health workers already practice in teams and actively communicate with colleagues. While coordination and cooperation lay the foundation for collaboration, they are not the same as collaborative practice, which takes cooperation one step further by engaging a collaborative practice-ready health workforce, poised to take on complex or emergent problems and solve them together. These health workers know how to collaborate with colleagues from other professions, have the skills to put their interprofessional knowledge into action and do so with respect for the values and beliefs of their colleagues. They can interact, negotiate and jointly work with health workers from any background.

Interprofessional education and collaborative practice are not panaceas for every challenge the health system may face. However, when appropriately applied, they can equip health workers with the skills and knowledge they need to meet the challenges of the increasingly complex global health system.

The role of health and education systems

Regional issues, unmet health needs and local background influence how health and education systems are organized around the world. No two contexts are exactly the same, yet all share six common building blocks. Collaborative practice can be seen in each of the six building blocks of the health systems:

1. health workforce
2. service delivery
3. medical products, vaccines and technologies
4. health systems financing
5. health information system
6. leadership and governance (32)

Critical reflection on collaborative practice

Several primary health-care clinics in Denmark maintain records on the services that each of its health workers provide to facilitate reflection, open discussion and improvement among its staff in how they work collaboratively. This process facilitates the sharing of best practices and fosters a team spirit (53).

Health workforce satisfaction and well-being

Health workers in Australian and English primary care teams have reported high levels of well-being. They share problems and support each other and the resulting cooperation buffers individuals from negative workplace interactions (54–56).

Because of the unique nature of each health region, collaborative practice strategies must be considered according to local needs and challenges. In some regions, this may mean that collaborative, team-based approaches to care are driven by efforts to promote patient safety (34,35), maximize limited health resources, move care from acute to primary care settings or encourage greater integrated working (36,37). In others, the focus may be on human resource benefits such as increased health worker job satisfaction or greater role clarity for health workers when working in teams (22).

Regardless of the context in which policy-makers choose to introduce collaborative practice, research evidence and experience have demonstrated that a team-based approach to health-care delivery maximizes the strengths and skills of each contributing health worker. This enhances the efficiency of teams through reduced service duplication, more frequent and appropriate referral patterns, greater continuity and coordination of care and collaborative decision-making with patients (22). It can also assist in recruitment and retention of health workers (29) and possibly help mitigate health workforce migration.

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Family health teams in Brazil

In Brazil, the reform of the national constitution in the late 1980's saw the establishment of the Sistema Unificado e Descentralizado de Saúde (SUDS, unified and decentralized health system). This led to the creation of Family Health Teams, which are comprised of a doctor, two nurses and community health workers. The teams are responsible for monitoring a specific number of families living in defined geographical areas for a range of health needs (57). Twenty years after the establishment of the Unified Health System (SUS) and 15 years after the implementation of the Family Health Team programme, more than 88 million Brazilians are followed by 28,000 Family Health Teams and 16,000 Family Oral Health Teams (57). In 2006, the National Primary Health-care Policy reaffirmed the commitment of the Brazilian government to the expansion and consolidation of the Health-care Network in SUS on the basis of a broad base of Family Health Teams linked to the population (58).

A culture shift in health-care delivery

One of the benefits of implementing interprofessional education and collaborative practice is that these strategies change the way health workers interact with one another to deliver care. Both strategies are about people: the health leaders and policy-makers who strive to ensure there are no barriers to implementing collaborative practice within institutions; the health workers who provide services; the educators who provide the necessary training to health workers; and most importantly, the individuals and communities who rely on the service. By shifting the way health workers think about and interact with one another, the culture of the working environment and attitudes of the workforce will change, improving the working experience of staff and benefiting the community as a whole.

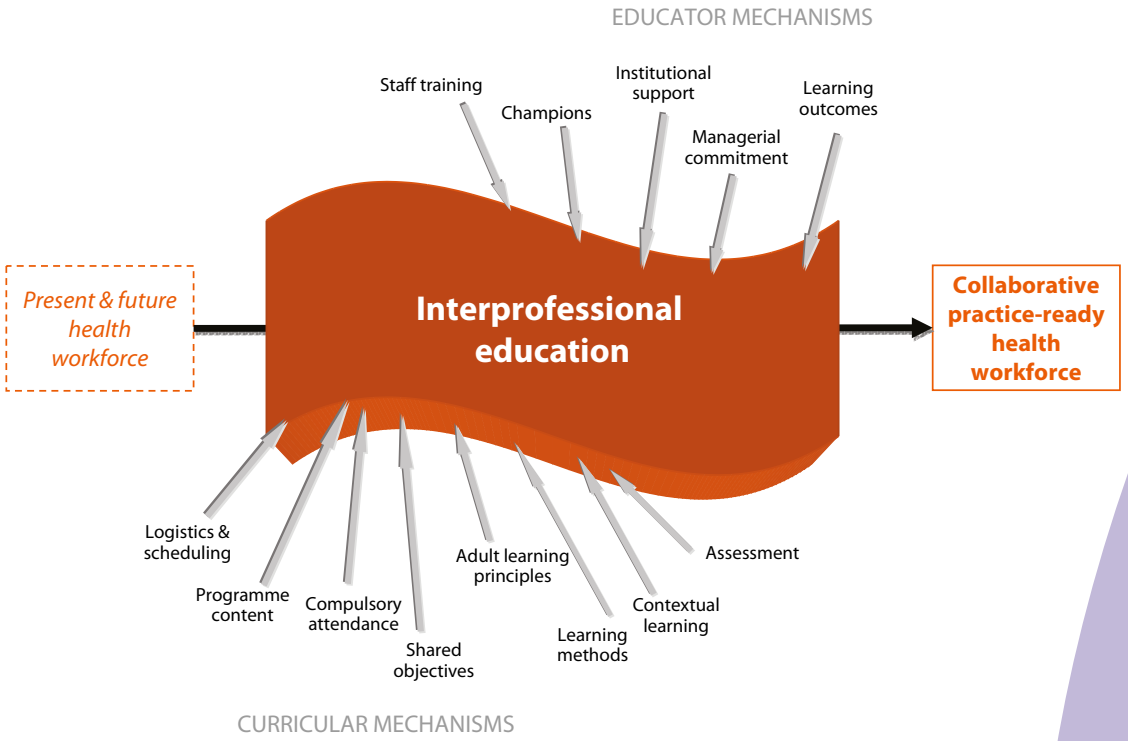
Internationally, interprofessional education and collaborative practice are now considered credible strategies that can help mitigate the global health workforce crisis. The growing evidence and research base continues to identify interprofessional collaboration as beneficial to health workers, systems and communities. In order to move interprofessional education and collaborative practice forward, this Framework outlines the mechanisms that policy-makers and civil society leaders can use to begin making the shift to system-wide interprofessional collaboration.

> It made me more aware of how important the process of change is. Teams can benefit patients if they are working well. If the team is not working well it can also affect the patient. It also makes me more aware of how I will want to practice in the future.
>
> - Pharmacy Student

Moving forward

Achieving interprofessional education and collaborative practice requires a review and assessment of the mechanisms that shape both. For this Framework, a number of key mechanisms were identified from a review of the research literature, results of an international environmental scan of interprofessional education practices, country case studies and the expertise of key informants. These mechanisms have been organized into broad themes and grouped into three sections: 1) interprofessional education, 2) collaborative practice, and 3) health and education systems. For each section, possible action items have been identified that health policy-makers can implement in their local context. However, while the mechanisms and actions have been assigned under the broad categories of interprofessional education and collaborative practice, there is a great degree of overlap, and many of the mechanisms influence both sections (Figure 7). As these strategies are introduced and expanded, interprofessional education and collaborative practice will become more embedded, strengthening health systems and improving health outcomes.

Figure 7. Examples of mechanisms that shape interprofessional education at the practice level



Staff training for interprofessional education

An interprofessional preceptor development course for East Carolina University's Rural Health Training Program in the United States of America consisted of four three-hour sessions over four months. Educators learned how to increase student comfort with the interprofessional curriculum and one another. Content included regular meetings to discuss shared cases and provide feedback (59).

Interprofessional education: achieving a collaborative practice-ready health workforce

Interprofessional education is shaped by mechanisms that can be broadly classified into those driven by:

* staff responsible for developing, delivering, funding and managing interprofessional education
* the interprofessional curricula.

Educator† mechanisms. Developing interprofessional education curricula is a complex process, and may involve staff from different faculties, work settings and locations. Sustaining interprofessional education can be equally complex and requires:

* supportive institutional policies and managerial commitment (38)
* good communication among participants
* enthusiasm for the work being done
* a shared vision and understanding of the benefits of introducing a new curriculum
* a champion who is responsible for coordinating education activities and identifying barriers to progress (39).

Careful preparation of instructors for their roles in developing, delivering and evaluating interprofessional education is also important (10,14,40,41). For most educators, teaching students how to learn about, from and with each other is a new and challenging experience. For interprofessional education to be successfully embedded in curricula and training packages, the early experiences of staff must be positive. This will ensure continued involvement and a willingness to further develop the curriculum based on student feedback.

Curricular mechanisms. Health-care and education around the world are provided by different types of educators and health workers who offer a range of services at different times and locations. This adds a significant layer of coordination for interprofessional educators and curriculum developers. Evidence has shown that making attendance compulsory and developing flexible scheduling can prevent logistical challenges from becoming a barrier to effective interprofessional collaboration.

Research indicates that interprofessional education is more effective when:

* principles of adult learning are used (e.g. problem-based learning and action learning sets)
* learning methods reflect the real world practice experiences of students (39)
* interaction occurs between students.

Effective interprofessional education relies on curricula that link learning activities, expected outcomes and an

† The term "educator" includes all instructors, trainers, faculty, preceptors, lecturers and facilitators who work within any education or health-care institution, as well as the individuals who support them.

assessment of what has been learned (42). It is important to remember that expected outcomes will be influenced by the student's physical and social environment as well as their level of education. Well-constructed learning outcomes assume students need to know: what to do (i.e. knowledge); how to apply their knowledge (i.e. skills); and when to apply their skills within an appropriate ethical framework using that knowledge (i.e. attitudes and behaviour).

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Interprofessional education offers students real-world experience

In 1996, Linköping University in Sweden implemented an extensive commitment to interprofessional education for all health science students. Up to 12 weeks of the curriculum for all students is devoted to interprofessional education (60). A part of this commitment was the launch of the first interprofessional student training ward at the Faculty of Health Sciences at Linköping University (61).

A similar training program has been offered at the nearby Karolinska Institutet since 1998, where a two week mandatory interprofessional course for medical, nursing, physiotherapy and occupational therapy students is delivered on a training ward. Five to seven students work in teams to plan and organize patient care while their supervisors act as coaches. At the end of every shift the student teams reflect on their learning experience with their supervisors (62).

Interprofessional curriculum development and delivery

At Tribhuvan University's Maharajgunj Nursing Campus in Nepal, the curricula on newborn care was updated at a workshop that included nursing and medical faculty. Participants worked together to identify essential components of a new curriculum. They found that the nursing faculty were more knowledgeable and skilled in areas like essential newborn care while the medical faculty were more knowledgeable and skilled in advanced care (63).

At Christian Medical College in Vellore, India, nursing students are taught about interprofessional teamwork and the role of interpersonal relationships when communicating with patients and colleagues. They learn about different ways to improve collaboration, including strengthening referral services. (64).

The New Generation Project at the University of Southampton is at the forefront of making common learning across the health-care practices a reality. The project comprises a team of educationalists and researchers who have created and are developing a new syllabus that brings the distinct health-care professions closer together through common understanding, mutual respect and communication (65).

Mandatory interprofessional education

In Sweden, the Centres for Clinical Education Project conducted evaluations of a two week interprofessional course for medical, nursing, physiotherapy and occupational therapy students. Evaluators noted that in making the interprofessional clinical course mandatory, there was greater contact among faculty, staff and students – who expressed an interest in having these interactions continue (66).

These outcomes may be seen in the following examples grouped under the interprofessional learning domains.

1. Teamwork:
   - being able to be both team leader and team member
   - knowing the barriers to teamwork
2. Roles and responsibilities:
   - understanding one's own roles, responsibilities and expertise, and those of other types of health workers
3. Communication:
   - expressing one's opinions competently to colleagues
   - listening to team members
4. Learning and critical reflection:
   - reflecting critically on one's own relationship within a team
   - transferring interprofessional learning to the work setting
5. Relationship with, and recognizing the needs of, the patient:
   - working collaboratively in the best interests of the patient
   - engaging with patients, their families, carers and communities as partners in care management
6. Ethical practice:
   - understanding the stereotypical views of other health workers held by self and others
   - acknowledging that each health workers views are equally valid and important

> We welcome white brothers and sisters who are working together to improve the health of our people. We will go out with you – we will guide and support you – we will introduce you to the community. You will find that each of our communities share a sense of humor – we hang on to it – we are a resilient people and we welcome working together on this journey towards interprofessional collaboration."
>
> – Aboriginal Community Leader

Interprofessional education provides learners with the training they need to become part of the collaborative practice-ready health workforce. Once health workers are ready to practice collaboratively, additional mechanisms and actions can help shape their experience (Table 1). In developing collaborative practice, health system planners and health educators must engage in discussions about how they can help learners transition from education to the workplace.

Table 1. Actions to advance interprofessional education for improved health outcomes

ACTION	PARTICIPANTS	LEVEL OF ENGAGEMENT EXAMPLES	POTENTIAL OUTCOMES
1. Agree to a common vision and purpose for interprofessional education with key stakeholders across all faculties and organizations	• Decision-makers • Policy-makers • Health facility directors and managers • Education leaders • Educators • Health workers	CONTEXTUALIZE • Vision: "Whether students are in the classroom or participating in practice education, interprofessional education will be encouraged and collaborative practice principles upheld"	• All health-worker education is directed by an interprofessional vision and purpose
2. Develop interprofessional education curricula according to principles of good educational practice	• Curriculum developers • Educators • Education leaders • Researchers	CONTEXTUALIZE • Link with local researchers to understand how best practices in interprofessional education can be applied to their local context • Develop curricula based on existing resources and local needs	• An interprofessional education framework that is specific to the local region and takes into account culture, geography, history, challenges, etc. • Engagement of numerous community layers, such as health workers, researchers and facilities
3. Provide organizational support and adequate financial and time allocations for: • the development and delivery of interprofessional education • staff training in interprofessional education	• Health facility directors and managers • Education leaders	COMMIT • Set aside a regular time for interprofessional champions, staff and others to meet • Provide incentives for staff to participate in interprofessional education	• A collaborative practice-ready health workforce • Improved workplace health and satisfaction for health workers
4. Introduce interprofessional education into health worker training programmes: • all pre-qualifying programmes • appropriate post-graduate and continuing professional development programmes • learning for quality service improvement	• Government leaders • Policy-makers • Education leaders • Educators • Curricula developers • Health facility directors and managers	COMMIT • Introduce new system-wide curricula • Manage senior health worker resistance to 're-education'	• A collaborative practice-ready health workforce • Interprofessional education and collaborative practice embedded into health-system delivery
5. Ensure staff responsible for developing, delivering and evaluating interprofessional education are competent in this task, have expertise consistent with the nature of the planned interprofessional education and have the support of an interprofessional education champion	• Educators • Education leaders	COMMIT • Provide educators and training staff with opportunities to discuss shared challenges and successes • Provide resources for educators and staff • Focus on continuous improvement using appropriate evaluation tools	• Strengthened education with a focus on interprofessional education and collaborative practice
6. Ensure the commitment to interprofessional education by leaders in education institutions and all associated practice and work settings	• Education leaders • Health facility directors and managers	CHAMPION • Allow educators, clinical supervisors and staff to share positive interprofessional experiences with their supervisors and leaders	• Improved attitudes toward other health professions • Improved communication among health workers

Collaborative practice: achieving optimal health-services

Collaborative practice works best when it is organized around the needs of the population being served and takes into account the way in which local health-care is delivered. A population-based or needs-based approach is necessary when determining the best way to introduce new interprofessional concepts. While a collaborative practice-ready health workforce is an essential mechanism towards shaping the effectiveness of collaborative practice, by itself it will not guarantee the provision of optimal health-services (Figure 8).

Other practice-level mechanisms, such as institutional supports, working culture and environment can enable the effectiveness of collaborative practice (Table 2).

Institutional supports. Institutional mechanisms can shape the way a team of people work collaboratively, creating synergy instead of fragmentation (43). Staff participating in collaborative practice need clear governance models, structured protocols and shared operating procedures. They need to know that management supports teamwork and believes in sharing the responsibility for health-care service delivery among team members. Adequate time and space is needed for interprofessional

Delivery of interprofessional education using information communication technologies

In the virtual learning environment, students from different health professional groups gain an understanding of the roles and responsibilities of each member of the health-care team. Experiences from the Universitas 21 global consortium of universities show that information communication technology can be used to help break down established stereotypes and promote equal partnership in patient care (67).

Effective communication strategies

At a psychiatry hospital in Tamilnadu, India, a mental health team works interprofessionally to deliver patient care. In this setting clinical rounds are done together, allowing all professions to be engaged in the decision-making process. Individuals from this team have emphasized that their success is largely due to a clear understanding of responsibilities, trust between professions, open and honest communication, and inclusion of the family in patient care (68).

Students' views of interprofessional education

At the University of Queensland in Australia, students reported gaining a better understanding of the need for 'communication and listening' following an interprofessional workshop about children who have developmental coordination disorders (69).

Structures for shared decision-making

In an urban community health clinic in India, care is managed by a team of health workers. Each practitioner has a caseload of over 3,000 patients, and physicians provide weekly support during clinic hours (64).

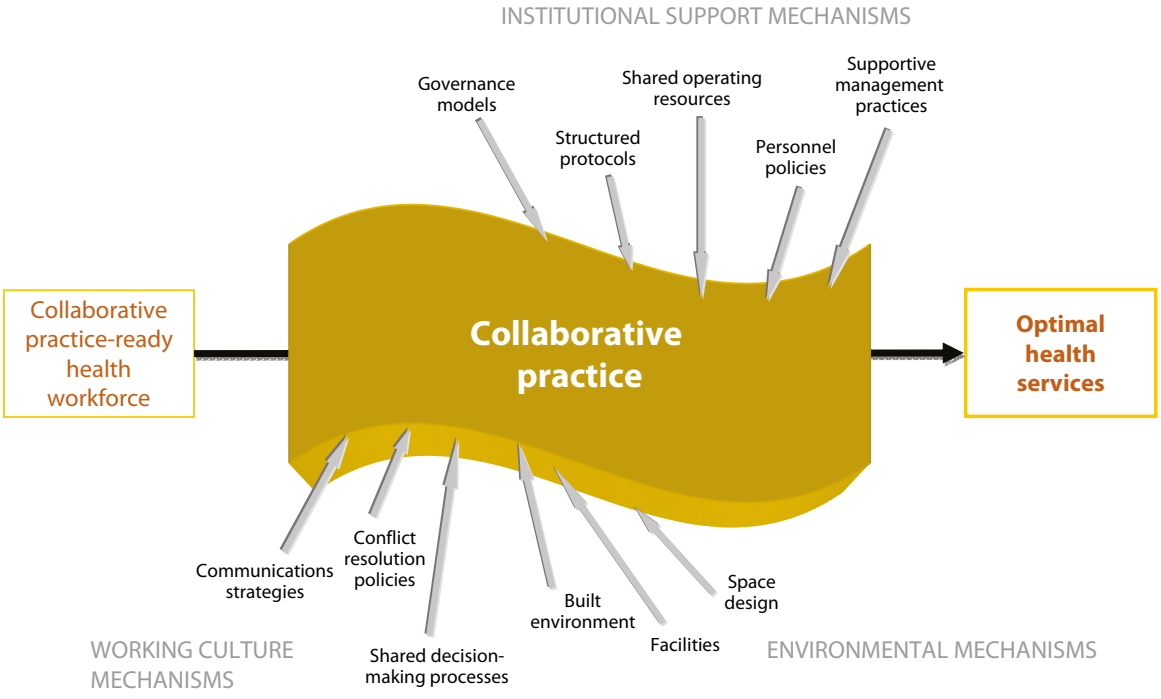

Figure 8. Examples of mechanisms that shape collaboration at the practice level

collaboration and delivery of care. At the same time, personnel policies need to recognize and support collaborative practice and offer fair and equitable remuneration.

Working culture. Collaborative practice is effective when there are opportunities for shared decision-making and routine team meetings. This enables health workers to decide on common goals and patient management plans, balance their individual and shared tasks, and negotiate shared resources. Structured information systems and processes, effective communication strategies, strong conflict resolution policies and regular dialogue among team and community members play an important role in establishing a good working culture.

Environment. Space design, facilities and the built environment can significantly enhance or detract from collaborative practice in an interprofessional clinic. In some cases, effective space design has included input and recommendations from the community and patients, as well as members of the health-care team. Most notably, physical space should not reflect a hierarchy of positions. Additional considerations could include developing a shared space to better facilitate communication or organizing spaces and rooms in ways that eliminate barriers to effective collaboration (44).

> The course was very helpful in gaining an understanding of the roles and perspectives of other health professions, working as a team, and developing efficient relationships in the workplace.
>
> – Physiotherapy Student

Table 2. Actions to advance collaborative practice for improved health outcomes

ACTION	PARTICIPANTS	LEVEL OF ENGAGEMENT EXAMPLES	POTENTIAL OUTCOMES
1. Structure processes that promote shared decision-making, regular communication and community involvement	• Health facility managers and directors • Health workers	CONTEXTUALIZE • Discuss and share ideas for improved communication processes • Develop a sense of community through interaction and staff support	• A model of collaborative practice that recognizes the principles of shared decision-making and best practice in communication across professional boundaries
2. Design a built environment that promotes, fosters and extends interprofessional collaborative practice both within and across service agencies	• Policy-makers • Health facility managers and directors • Health workers • Capital planners • Architects/space planners	CONTEXTUALIZE • Relocate and rearrange equipment to better facilitate communication flow	• Improved communication channels • Improved satisfaction among health workers
3. Develop personnel policies that recognize and support collaborative practice and offer fair and equitable remuneration models	• Government • Health facility managers and directors • Policy-makers • Regulatory/labour bodies	COMMIT • Review personnel policies and consider innovative remuneration and incentive plans	• Improved workplace health and well-being for workers • Improved working environment
4. Develop a delivery model that allows adequate time and space for staff to focus on interprofessional collaboration and delivery of care	• Health facility managers and directors • Policy-makers • Health workers	COMMIT • Set aside time for staff to meet together to discuss cases, challenges and successes • Provide opportunity for staff to be involved in development of new processes and strategic planning	• Improved interaction between management and staff • Greater cohesion and communications between health workers
5. Develop governance models that establish teamwork and shared responsibility for health-care service delivery between team members as the normative practice	• Health facility managers and directors • Policy-makers • Government leaders	CHAMPION • Review and update the existing governance model • Develop a strategic plan for an interprofessional education and collaborative practice model of care	• A sustained commitment to embedding interprofessional collaboration in the workplace • Updated governance model, job descriptions, vision, mission and purpose

Vision and programme aims

In Nepal, a national strategy called Saving Newborn Lives was implemented to address high rates of newborn mortality. Bringing together nursing and medical faculty, this common goal became the catalyst for the development of an integrated curriculum and strengthened relationships between the two professions (56).

Collaborative practice and the built environment

The physical setting for collaborative practice plays an important role in the quality of care provided by interprofessional teams. For health workers providing services to patients and family dealing with sensitive health issues such as mental illness or chronic disease, a private, quiet area is essential in order to provide quality, compassionate, patient-centred care (47).

Legislation to support collaborative practice

In 2008, the Government of British Columbia in Canada passed legislation that included a provision on interprofessional collaboration. Each of the province's health professional regulatory colleges are now asked, "(k) in the course of performing its duties and exercising its powers under this Act or other enactments, to promote and enhance the following: (ii) interprofessional collaborative practice between its registrants and persons practising another health profession" (45).

Government mechanisms shaping interprofessional education in norway

In 1972, the Norwegian Government stated that to prepare students to work across boundaries and to further interprofessional collaboration, health professional students should be educated together. In 1995 they recommended that all undergraduate allied health, nursing and social work programmes include a common core curricula that covered: scientific theory; ethics; communication and collaboration; and scientific methods and knowledge about the welfare state. All university colleges adopted the common core. Government encouraged shared studies, but provided a great degree of flexibility for university colleges that had too few professions or were located far from potential partner institutions (70).

Health and education systems: achieving improved health outcomes

The health and education systems must coordinate their efforts in order to ensure the future health workforce consists of appropriately qualified staff, positioned in the right place at the right time. Institutions and individuals working within the health and education systems can help foster a supportive climate for interprofessional collaboration. In developing collaborative practice, health workers and health educators must discuss how to make the transition from education to the work environment. Key principles that can guide the movement towards interprofessional education and collaborative practice include context relevance, policy integration, multi-level system change and collaborative leadership. It is also important to note that service users, patients and carers

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and families are all engaged in the collaborative practice process.

Legislation is a key mechanism through which health and education systems are organized, monitored and managed. Because legislative changes can influence how health workers are educated, accredited, regulated and remunerated, legislation has a significant impact on the development, implementation and sustainability of interprofessional education and

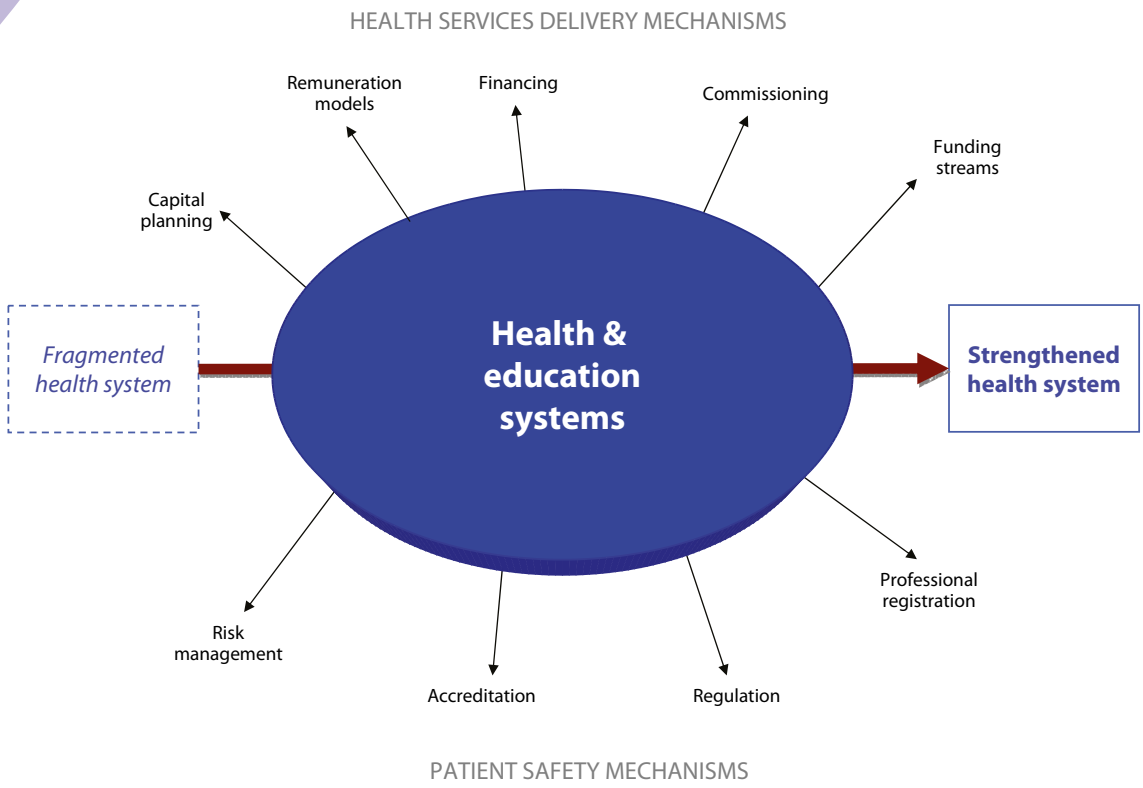

Figure 9. Examples of influences that affect interprofessional education and collaborative practice at the system level

collaborative practice (Figure 9). It can also play an important role in championing interprofessional collaboration when government agrees to develop legislation that removes barriers to collaborative practice. Regulation is often an important part of the legislative agenda. As the health workforce diversifies, policy-makers must address the role that regulation could or should play in recognizing and supporting new and emerging professions, particularly those that include a unique mix of skills.

Health-services delivery. The way in which health and education services are financed, funded and commissioned‡ can influence the success of interprofessional education and collaborative practice. For example, how health workers are remunerated can affect the amount of time they spend collaborating with one another and demonstrating "teamwork in practice" to students. Reviewing how different workforce remuneration models, funding streams and risk management processes may impact patient care and student learning is

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‡ Financing is how money is raised, funding is how money is spent, and commissioning is the process of choosing service providers.

essential to moving interprofessional education and collaborative practice forward. At the same time, coordinating policies for health-services that support the development and delivery of integrated team-based services would:

* engage other areas of public policy such as social care, education, housing and justice
* systematize interprofessional collaboration in education and health as a national strategic direction
* facilitate the commissioning of health and education services that support the principles of collaborative practice.

> It was an encouraging feeling to have the support, camaraderie and cooperation of the other students and preceptors in the community, and it gave us the opportunity to experience both learning and teaching roles with each other. It helped make me aware of some of the misconceptions existing between professions and the limitations of our own profession.
>
> – Medical Student

Patient safety. Governance mechanisms that establish system-wide standards and support patient safety can be used to embed interprofessional education and collaborative practice within the health-care system. Many of the governance mechanisms that are enacted throughout the world exist to protect patients and the community. If regulation is too rigid, processes may become fragmented and result in an escalation of costs and additional strain on the health system. Alternately, if regulation is reasonably flexible, opportunities to embed interprofessional education into practice increase.

Sustained political commitment

In Japan, the Kobe Municipal Government committed to a collaborative practice model for maternal and child health to help reduce infant mortality rates. This programme, called The Supporting Room, provides comprehensive services (prenatal, postpartum and during early childhood) delivered by staff from different professions in a collaborative setting (71).

Integrated health and education policies as supportive mechanisms

An explicit change in health policy in England required all universities who train health professionals to develop and integrate interprofessional education in the classroom and in practice (6). In Canada, one of the outcomes of the Romanow Commission (72) which reviewed and advised on a future model for the Canadian health-care system, was the recommendation that interprofessional education be taken forward with the explicit intention to promote team-based working (73–74).

In Thailand, Khon Kaen University is responding to the worldwide shortage of health workers by coordinating meetings between community hospitals, administrative organizations and faculty to develop programmes to support local practitioners and educators (75).

Interprofessional education and patient safety

In the United States of America, the Institute of Medicine issued a landmark report in 2003 titled, *Health Professions Education: A Bridge to Quality* (76), which emphasized the need for interprofessional education and collaborative practice. This publication was a follow-up to two earlier reports on patient safety, *To Err is Human* (77) and *Crossing the Quality Chasm* (78), released in 1999 and 2001 respectively.

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> Before this [interprofessional education] project, people didn't really see each other as people. They saw each other as a "doctor" or a "nurse" and forgot about the human side. Now, they go beyond the job title and communicate with each other with more respect. Because of this project, they see each other as people now and that's a big change.
>
> – Education Leader

In almost every country there are legal and regulatory structures that can be both barriers to and enablers of interprofessional education and collaborative practice. Accreditation requirements for health centres and registration criteria for students can also transform education and practice (42). One government, for example, has included a clause in their health legislation that requires regulatory bodies to include interprofessional education as part of their bylaws (45). Another includes a requirement that community members be part of the selection panel for student admission into health professional education programmes and, alongside the professional bodies that oversee health professional education, strongly indicates that students should experience interprofessional education as part of their initial professional education (46–48). By embedding interprofessional education and collaborative practice in legislation, accreditation requirements and/or registration criteria, policy-makers and government leaders can be champions of interprofessional collaboration. In response to issues raised around patient safety in *To err is human*, in 2003 the United States Institute of Medicine issued a landmark report *Health professions education: a bridge to quality* which emphasized the need for interprofessional education and collaborative practice (Table 3).

Table 3. Actions to support interprofessional education and collaborative practice at the system-level

ACTION	PARTNERSHIPS	LEVEL OF ENGAGEMENT EXAMPLES	POTENTIAL OUTCOMES
1. Build workforce capacity at national and local levels	• Government leaders • Health facility managers and directors • Education leaders • Policy-makers	CONTEXTUALIZE • engage in focused discussions with partners and health-care leaders • develop short and long term planning strategies for recruitment, retention and education	• Short-, medium- and long-term planning for an interprofessional workforce • Clear and defined direction for human resources for health planning
2. Create accreditation standards for health worker education programmes that include clear evidence of interprofessional education	• Education leaders • Regulatory bodies • Legislators • Government leaders • Researchers	CONTEXTUALIZE • Review current accreditation standards and ensure future standards include interprofessional education and collaborative practice components • Ensure accreditation standards of all professions include similar language on interprofessional education and collaborative practice	• Updated accreditation standards for all professions with a shared theme of interprofessional education and collaborative practice
3. Create policy and regulatory frameworks that support educators and health workers to promote and practice collaboratively, including new and emerging roles and models of care	• Government leaders • Professional associations • Regulatory authorities • Education leaders • Legislators	COMMIT • Encourage legislators to develop appropriate legislative models to support collaborative practice • Engage partners and health workers in discussions around roles and responsibilities of new and emerging professions	• Legislative and regulatory frameworks that support interprofessional education and collaborative practice
4. Create frameworks and allocate funding for clear interprofessional outcomes as part of life long learning for the health workforce	• Professional associations • Regulatory bodies • Government leaders • Government agencies • Education leaders • Legislators	COMMIT • Develop programmes and courses that suit pre- and post-qualifying education	• Lifelong learning for health workers to enable them to become and remain collaborative-practice ready throughout their career
5. Create an environment in which to share best practices from workforce planning, financing, funding and remuneration which are supportive of interprofessional education and collaborative practice	• Government leaders • Researchers • Education leaders • Health facility managers and directors	CHAMPION • Host meetings that bring together regional champions to share successes and challenges	• A coherent funding model for interprofessional collaboration • Improved communication between all levels of the health system • Development of a database of best practices/evidence

Conclusion

The World Health Organization recognizes interprofessional collaboration in education and practice as an innovative strategy that will play an important role in mitigating the global health crisis.

The purpose of the *Framework for Action on Interprofessional Education and Collaborative Practice* is to provide policy-makers with a broad understanding of how interprofessional education and collaborative practice work in a global context. This Framework uses research evidence and a range of examples from existing projects around the world to provide readers with new ideas on how to implement and integrate these strategies in their region.

> We know that inter-professional collaboration is key to providing the best in patient care. That means we need to ensure our health and human services students gain the knowledge and skills they need through interprofessional education that begins at the earliest stages of their schooling.
>
> – Assistant Deputy Minister for Health and Education

Interprofessional education and collaborative practice can be difficult concepts to explain, understand and implement. Many health workers believe themselves to be practicing collaboratively, simply because they work together with other health workers. In reality, they may simply be working within a group where each individual has agreed to use their own skills to achieve a common goal. Collaboration, however, is not only about agreement and communication, but about creation and synergy. Collaboration occurs when two or more individuals from different backgrounds with complementary skills interact to create a shared understanding that none had previously possessed or could have come to on their own. When health workers collaborate together, something is there that was not there before. The only way health workers can achieve an understanding of how collaboration applies to health-care, is to participate in interprofessional education which will enable them to be collaborative-practice ready.

This Framework focuses on the importance of introducing interprofessional education and collaborative practice as strategies that can transform the health system. It is no longer enough for health workers to be professional. In the current global climate, health workers also need to be interprofessional. By working collaboratively, health workers can

A role for global health organizations

Health policy is increasingly influenced by international health organizations. Global health institutions, non-governmental organizations and donor agencies can play an important role in supporting and championing interprofessional education and collaborative practice.

Examples of how global health organizations might consider taking a leading role in interprofessional collaboration include:

* Support national health policy-makers in their efforts to introduce, enable and sustain interprofessional education and collaborative practice.
* Ensure projects and programmes are developed that include interprofessional education and collaborative practice and link education and practice initiatives.
* Provide funding streams that facilitate regional, national and local level collaborative practice efforts.
* Support coordination between health and education systems.
* Advocate for interprofessional education and collaborative practice and ensure it remains a priority on the global health agenda.
* Work across organizations to identify possibilities and harness opportunities where interprofessional education and collaborative practice could strengthen existing and new programmes.
* Take a global leadership role by committing and championing interprofessional education and collaborative practice internationally.

positively address current health challenges, strengthening the health system and improving health outcomes.

Ultimately, interprofessional education and collaborative practice are about people: the health workers who provide services and work together to ensure patients and the community receive the best treatment as efficiently as possible; the educators who understand the importance of bringing together students from a range of disciplines to learn about, from and with one another; the health leaders and policy-makers who strive to ensure there are no barriers to implementing collaborative practice within institutions; and most importantly, the individuals who require and use health-services, trusting that their health workers are working together to provide them with the best service possible (Table 4).

Rather than providing a set of instructions or recommendations for the introduction and implementation

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of interprofessional education and collaborative practice, this Framework instead seeks agreement from policy-makers around the world to act now. Policy-makers will move towards optimal health-services and better health outcomes by examining their local context to determine their needs and capabilities; committing to building interprofessional collaboration into new and existing programmes; and championing successful initiatives and teams.

Table 4. Summary of identified mechanisms that shape interprofessional education and collaborative practice

INTERPROFESSIONAL EDUCATION	COLLABORATIVE PRACTICE	HEALTH AND EDUCATION SYSTEMS
Educator mechanisms • Champions • Institutional support • Managerial commitment • Shared objectives • Staff training Curricular mechanisms • Adult learning principles • Assessment • Compulsory attendance • Contextual learning • Learning outcomes • Logistics and scheduling • Programme content	Institutional supports • Governance models • Personnel policies • Shared operating procedures • Structured protocols • Supportive management practices Working culture • Communication strategies • Conflict resolution policies • Shared decision-making processes Environment • Built environment • Facilities • Space design	Health-services delivery • Capital planning • Commissioning • Financing • Funding streams • Remuneration models Patient safety • Accreditation • Professional registration • Regulation • Risk management

Contextualize

No two health systems in the world are exactly alike. Structure, processes, key health issues, types of health workers and the cultural context are just some of the factors which may influence how health-care is delivered. Countries seeking to move towards more collaborative types of practice are all at different starting points, with different challenges to overcome.

For this reason, the Framework suggests that those who wish to develop and engage a collaborative practice-ready health workforce begin by assessing what is readily and currently available, and building on what they have. Moving to implement interprofessional education and collaborative practice will only work if there is a realistic possibility of achieving success and an authenticity around how and what needs to be achieved. Developing, maintaining and nurturing strong partnerships within the community is key to health system transformation.

Examples of actions that policy-makers might take to contextualize interprofessional education and collaborative practice in their local jurisdiction could include:

* agreeing on why interprofessional education and collaborative practice could benefit the local community and how key stakeholders in local regional facilities and organizations can work together to achieve this
* considering how to structure processes in a way that promotes shared decision-making, regular communication and community involvement
* introducing integrated workforce capacity and capability planning across the health and education systems at regional, national and local levels.

Commit

Once policy-makers feel they have contextualized their own health system and have identified areas where they can move forward, a commitment can be made to pursue interprofessional collaboration as an innovative strategy for health system transformation (Figure 10).

This type of commitment may come in a variety of forms. In some regions, there is a demonstrated need for evidence (especially research and evaluation) that supports interprofessional education and collaborative practice. While we know a lot about the positive impact of effective interprofessional education and collaborative practice, particularly from those who have personally benefitted from this type of practice, there is still much we do not know. Health workers and policy-makers could benefit from a strong global commitment to support this research.

The commitment by leaders in health and education to work together to implement innovative ways of delivering interprofessional education and collaborative practice is often one of the most important steps toward a strengthened health system. Together, leadership can ensure that traditional barriers to collaborative practice, such as legislation and regulation, are reconsidered. Without coordination between the two systems, which are linked at the core, it can be challenging for health workers to follow the necessary steps to achieve collaborative practice readiness.

Examples of actions that policy-makers might take to demonstrate their

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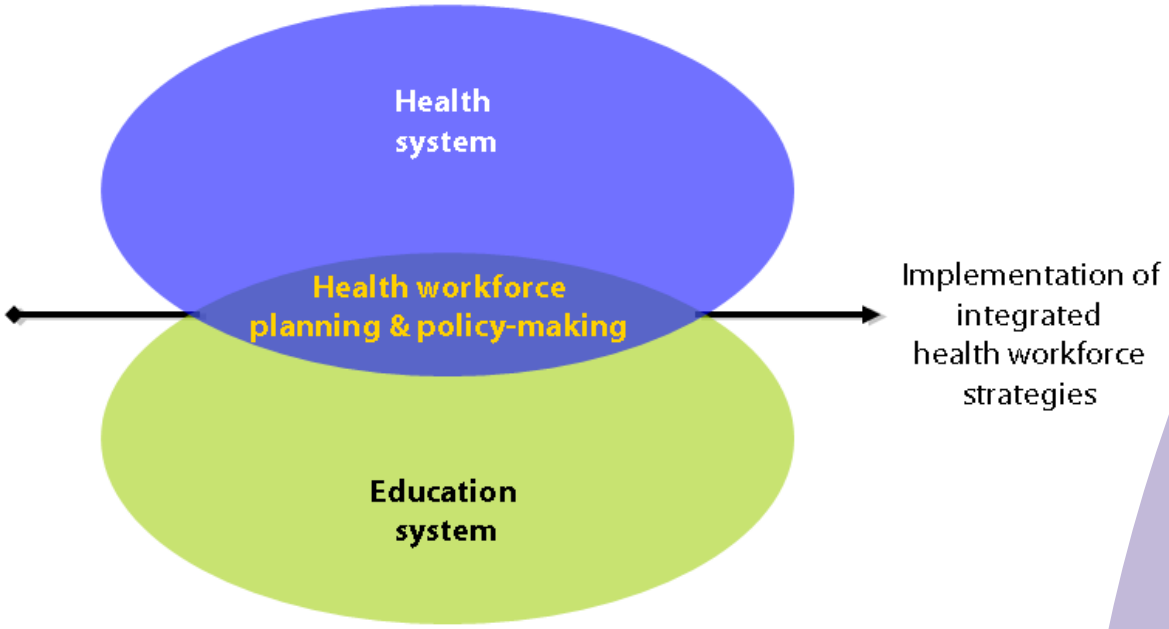
Figure 10. Implementation of integrated health workforce strategies



Student leaders as partners for change

Thousands of health professional students from across Canada came together in 2005 to form the National Health Sciences Students' Association as a grassroots movement to champion interprofessional education. Drawing on a network of 22 university/college-based chapters and over 20 health professions, student leaders design and deliver local academic, social and community service programmes that promote collaborative practice. The Association's University of Toronto chapter, for example, hosted a series of social events coinciding with the university's interprofessional 'Pain Week' curriculum. The Dalhousie University chapter recruited hundreds of health professional students to participate in a breast cancer charity run while learning about, from and with one another. The local chapter at the University of British Columbia partnered with its provincial Ministry of Health to coordinate innovative health programming for elementary and high school students (79).

commitment to interprofessional education and collaborative practice in their local jurisdiction could include:

* introducing interprofessional education into all health-related education and training programmes
* updating personnel policies to recognize and support collaborative practice and offer fair and equitable remuneration models
* harmonizing the way in which health programmes are funded, financed and commissioned to ensure there are no barriers to collaborative practice.

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Champion

Like most innovative ideas, interprofessional education and collaborative practice require advocates who recognize that the health system is not ideal or sustainable in its current form, and that the move to build a collaborative health workforce is one of the ways to strengthen and transform the system. Over time, the goal is for collaborative practice to become an integral part of every health worker's education and practice, so that it is embedded in the training of every health worker and the delivery of every appropriate health-service. Collaborative practice should be the norm, but to achieve this goal, changes are needed in attitudes, in systems and in operations.

Politics and policy can play a huge role in advocating for change. Identifying and supporting interprofessional education and collaborative practice champions, ensuring appropriate collaborative practice-friendly policies are in place, and sharing the positive outcomes of successful collaborative programmes are small but significant steps towards broadening the use of interprofessional collaboration around the world.

Examples of actions policy-makers might take to champion interprofessional education and collaborative practice in their local jurisdiction could include:

* encouraging leaders in education institutions, governments and practice settings to share their commitment to interprofessional education, and actively seek to embed it in related programmes and discussion;
* sharing the lessons learned from models of health workforce planning, financing, funding, commissioning and remuneration that are supportive of interprofessional education and collaborative practice;
* encouraging management to support teamwork and the sharing of responsibility for health-care service delivery among team members.

Interprofessional education and collaborative practice can play a significant role in mitigating many of the challenges faced by health systems around the world. Now is the time to act, to implement these strategies which have the potential to transform health-care delivery, strengthen health systems and ultimately improve health outcomes. While every jurisdiction, region and country has unique challenges and needs, the goal of this Framework is to provide suggestions and ideas that will build on the work currently underway and open dialogue and discussion around key interprofessional education and collaborative practice initiatives that could be implemented in the future. It is the hope of the WHO Study Group on Interprofessional Education and Collaborative Practice that this Framework will be the impetus for policy-makers throughout the world to embrace interprofessional education and collaborative practice. By implementing strategies that promote interprofessional collaboration, the system will begin to move from a fragmented state to one where health systems are strengthened and health outcomes are improved.

> Watching the excitement of these future health-care leaders learning from and about each other, it is exciting to think what the next few years will bring in terms of changes and renewal in our health-care system. Which at the end of the day, is what it is all about!
>
> – Chief Nursing Officer

Championing interprofessional collaboration

In the Muscat Region of Oman, several clinics identified strong support for collaborative practice among high-level policy-makers as an enabling factor for achieving effective teamwork among their health workers. The availability and willingness of health managers and health system planners to meet with front-line staff was also recognized as being important (80).

References

1 World Health Organization. *World health report 2006 – working together for health*. Geneva, 2006.

2 Global Health Workforce Alliance. *GHWA welcomes G8 commitment for action on chronic health worker shortages*. Geneva, World Health Organization, 2008 (http://www.who.int/workforcealliance/news/g82008/en/index.html, accessed 12 August 2008).

3 Resolution WHA59.23. Rapid scaling up of health workforce production. In: *Fifty-ninth World Health Assembly, Geneva, 22–27 May 2006. Resolutions and decisions, annexes*. Geneva, World Health Organization, 2006 (WHA59/2006/REC/1).

4 Matthews Z, Channon A, Van Lerberghe W. *Will there be enough people to care? Notes on workforce implications of demographic change 2005–2050*. Geneva, World Health Organization, 2006 (http://www.who.int/hrh/resources/workforce_implications.pdf, accessed on 11 August 2008).

5 *Strategic principles for workforce development in New Zealand*. Wellington, Health Workforce Advisory Committee, 2005.

6 *Working together, learning together: a framework for lifelong learning for the NHS*. London, Department of Health, 2001 (http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4009558, accessed 27 July 2008).

7 *The primary health care package for South Africa – a set of norms and standards*. Pretoria, South Africa, Department of Health, 2000 (http://www.doh.gov.za/docs/policy/norms/full-norms.html, accessed on 31 July 2008).

8 Reeves S et al. Interprofessional education: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2008, Issue 1.

9 Barr H et al. *Evaluations of interprofessional education: a United Kingdom review for health and social care*. London, BERA/CAIPE, 2000.

10 Reeves S. Community-based interprofessional education for medical, nursing and dental students. *Health and Social Care in the Community*, 2001, 8:269–276.

11 Reeves S. A systematic review of the effects of interprofessional education on staff involved in the care of adults with mental health problems. *Journal of Psychiatric Mental Health Nursing*, 2001, 8:533–542.

12 Cooper H et al. Developing an evidence base for interdisciplinary learning: a systematic review. *Journal of Advanced Nursing*, 2001, 35:228–237.

13 Barr H et al. *Effective interprofessional education: assumption, argument and evidence*. Oxford, Blackwell Publishing, 2005.

14 Hammick M et al. A best evidence systematic review of interprofessional education. *Medical Teacher*, 2007, 29:735–751.

15 Reeves S et al. *Knowledge transfer and exchange in interprofessional education: synthesizing the evidence to foster evidence-based decision-making*. Vancouver, Canadian Interprofessional Health Collaborative, 2008.

16 Zwarenstein M, Bryant W. Interventions to promote collaboration between nurses and doctors. *Cochrane Database of Systematic Reviews*, 2000, Issue 1.

17 Simmonds S et al. Community mental health team management in severe mental illness: a systematic review. *The British Journal of Psychiatry*, 2001, 178:497–502.

18 Naylor CJ, Griffiths RD, Fernandez RS. Does a multidisciplinary total parenteral nutrition team improve outcomes? A systematic review. *Journal of Parenteral and Enteral Nutrition*, 2004, 28:251–258.

19 McAlister FA et al. Multidisciplinary strategies for the management of heart failure patients at high risk for admission. *Journal of the American College of Cardiology*, 2004, 44:810–819.

20 Holland R et al. Systematic review of multidisciplinary interventions in heart failure. *Heart*, 2005, 91:899–906.

21 Malone D et al. Community mental health teams (CMHTs) for people with severe mental illnesses and disordered personality.

Cochrane Database of Systematic Reviews, 2007, Issue 2. (Art. No.: CD000270. DOI: 10.1002/14651858.CD000270.pub2)

22 Mickan SM. Evaluating the effectiveness of health care teams. *Australian Health Review*, 2005, 29(2):211-217.

23 Lemieux-Charles L et al. What do we know about health care team effectiveness? A review of the literature. *Medical Care Research and Review*, 2006, 63:263–300.

24 Hughes SL et al. A randomized trial of the cost-effectiveness of VA hospital-based home care for the terminally ill. *Health Services Research*, 1992, 26:801–817.

25 Jansson A, Isacsson A, Lindholm LH. Organisation of health care teams and the population's contacts with primary care. *Scandinavian Journal of Health Care*, 1992, 10:257–265.

26 *Teamwork in healthcare: Promoting effective teamwork in healthcare in Canada*. Ottawa, Canadian Health Services Research Foundation, 2006 (http://www.chsrf.ca/research_themes/pdf/teamwork-synthesis-report_e.pdf, accessed 30 July 2009).

27 Morey JC et al. Error reduction and performance improvements in the emergency department through formal teamwork training: Evaluation results of the MedTeams project. *Health Services Research*, 2002, 37:1553–1581.

28 West MA et al. Reducing patient mortality in hospitals: the role of human resource management. *Journal of Organisational Behaviour*, 2006, 27:983–1002.

29 Yeatts D, Seward R. Reducing turnover and improving health care in nursing homes: The potential effects of self-managed work teams. *The Gerontologist*, 2000, 40:358–363.

30 Jackson G et al. A new community mental health team based in primary care: a description of the service and its effect on service use in the first year. *British Journal of Psychiatry*, 1993, 162:375–384.

31 Sommers LS et al. Physician, nurse, and social worker collaboration in primary care for chronically ill seniors. *Archives of Internal Medicine*, 2000, 160:1825–1833.

32 Loxley A. *Collaboration in health and welfare*. London, Jessica Kingsley Publishers, 1997.

33 *Everybody's business – strengthening health systems to improve health outcomes: WHO's framework for action*. Geneva, World Health Organization, 2007 (http://www.who.int/healthsystems/strategy/everybodys_business.pdf, accessed 12 August 2008).

34 *Learning from Bristol: the report of the public inquiry into children's heart surgery at the Bristol Royal Infirmary 1984-1995 [Command Paper: CM 5207]*. London, Department of Health, 2001 (http://www.bristol-inquiry.org.uk/, accessed 27 July 2008).

35 Borrill C, West M. *Team working and effectiveness in health care: findings from the Healthcare Team Effectiveness Project*. Birmingham, Aston Centre for Health Service Organisation Research, 2002.

36 Ham C. *Clinically integrated systems: The next step in English health reform?* London, The Nuffield Trust, 2005 (http://www.nuffieldtrust.org.uk/ecomm/files/Clinically_Integrated_Systems.pdf, accessed 31 July 2008).

37 Fabbricotti I, Helderman J. Integrated care for elderly. *Health Policy Monitor*, October 2003 (http://www.hpm.org/survey/nl/b1/3, accessed 30 July 2008).

38 Stone M. Coming in from the interprofessional cold in Australia. *Australian Health Review*, 2007, 31:332–340.

39 Freeth D et al. *Effective interprofessional education: development, delivery and evaluation*. Oxford, Blackwell Publishing, 2005.

40 Davidson M et al. Interprofessional pre-qualification clinical education: a systematic review. *Australian Health Review*, 2008, 32:111–120.

> With my student and I, it sparked a good discussion about peoples' roles in the workplace, and how to manage that communication back and forth better. We spent quite a while talking about that and the fact that when things go wrong, it's often because there's a lack of understanding of the other guy's job and if you had some idea of what they were going through to try and streamline things together, how all the pieces fit, you'd have a more cohesive workplace."
>
> –Nurse Preceptor

41 Steinert Y. Learning together to teach together: interprofessional education and faculty development. *Journal of Interprofessional Care*, 2005, 19(Suppl. 1): 60–75.

42 Gilbert JHV. Interprofessional learning and higher education structural barriers. *Journal of Interprofessional Care*, 2005, 19(Suppl. 1):87–106.

43 D'Amour D, Oandasan I. Interprofessionality as the field of interprofessional practice and interprofessional education: an emerging concept. *Journal of Interprofessional Care*, 2005, 19(Suppl. 1):8–20.

44 Newton C, Bainbridge L. *Space design can enhance interprofessional health education and collaborative practice*. (In preparation.)

45 *Health Professions Act*, R.S.B.C. 2008, c. 183, s. 16(2)(k). Victoria, Government of British Columbia, 2008.

46 Wenman H. *Working towards full participation*. London, General Social Care Council, 2005/*Tomorrow's doctors*. London, General Medical Council, 2003/ *Statement of common purpose for subject benchmark statements for the health and social care professions*. Gloucester UK, Quality Assurance Agency for Higher Education, 2006.

47 *World health report 2000 – health systems: improving performance*. Geneva, World Health Organization, 2000.

48 *World health report 2007 – a safer future: global public health security in the 21st century*. Geneva, World Health Organization, 2007.

49 Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19 June - 22 July 1946. Signed on 22 July 1946 by the representatives of 61 States and entered into force on 7 April 1948. *Official Records of the World Health Organization*, 1946, No. 2, p. 100.

50 *International standard classification of education*. Paris, United Nations Educational, Scientific and Cultural Organization, 1997 (http://www.unesco.org/education/information/nfsunesco/doc/isced_1997.htm, accessed 13 August 2008).

51 Global Health Workforce Alliance. *Scaling up, saving lives: Task Force for Scaling Up Education and Training for Health Workers*. Geneva, World Health Organization, 2008 (http://www.who.int/workforcealliance/documents/Global_Health%20FINAL%20REPORT.pdf, accessed 9 August 2008).

52 Redwood-Campbell L. [unpublished data: personal communication], 8 August 2008.

53 Ledderer L et al. *Collaborative practice in general practice in Denmark*. Odense, University of Southern Denmark, 2008.

54 Borril C et al. Team working and effectiveness in health care. *British Journal of Health Care Management*, 2000, 6:34–37.

55 Haward R et al. Breast cancer teams: the impact of constitution, new cancer workload, and methods of operation on their effectiveness. *British Journal of Cancer*, 2003, 89:15–22.

56 Taylor J, Blue I, Misan G. Approach to sustainable primary health care service delivery for rural and remote South Australia. *Australian Journal of Rural Health*, 2001, 9:304–310.

57 Lobato L, Burlandy L. The context and process of health care reform in Brazil. In: Fleury S, Belmartino S, Baris E, eds. *Reshaping health care in Latin America: a comparative analysis of health care reform in Argentina, Brazil, and Mexico*. Ottawa, International Development Research Centre, 2000 (http://www.idrc.ca/fr/ev-35305-201-1-DO_TOPIC.html, accessed 11 August 2008).

58 Lehmann U, Saunders D. *Community health workers: what do we know about them? The state of evidence on programmes, activities, costs and impact on health outcomes of using community health workers*. Geneva, World Health Organization, 2007 (http://www.who.int/hrh/documents/community_health_workers.pdf, accessed 11 August 2008).

59 Clay MC et al. Applying adult education principles to the design of a preceptor development program. *Journal of Interprofessional Care*, 1999, 13:405–415.

60 Areskog NH. Multiprofessional education at the undergraduate level – the Linköping model, *Journal of Interprofessional Care*, 1994, 8:279–282.

61 Wahlström O, Sandén I, Hammar M. Multiprofessional education in the medical curriculum. *Medical Education* 1997, 31:425–429.

62 Ponzer, S et al. Interprofessional training in the context of clinical practice: goals and student's perception on clinical education wards. *Medical Education*, 2004, 38:727–736.

63 Shrestha S. *A case study of collaborative practice from Nepal*. Kathmandu, Tribhuvan University, 2008.

64 Jacob B, Vijayakumar C, Jayakaran R. *A collaborative practice case study describing the College of Nursing Community Health Programme in India*. Vellore, Christian Medical College, 2008.

65 O'Halloran C, Hean S, Humphris D, Macleod-Clark J. Developing common learning: the New Generation Project undergraduate curriculum model. *Journal of Interprofessional Care*, 2006, 20:12–28.

66 Mogensen E et al. Centre for Clinical Education: developing the health care education of tomorrow. *Education for Health*, 2002, 15:19–26.

67 Ho K et al. Opportunities for global academic contribution to interprofessional education in e-health: case study of Universitas 21. *Journal of Interprofessional Care*. (In press.)

68 Chandy S, Jacob B. *A collaborative practice case study from a mental health centre in India*. Vellore, Christian Medical College, 2008.

69 Rodger S et al. Enhancing teamwork among allied health students: evaluation of an interprofessional workshop. *Journal of Allied Health*, 2005, 34:230–235.

70 Almås S, Barr H. Differential implementation and differential outcomes in undergraduate health and social care education. *Journal of Interprofessional Care*. (In press.)

71 Ishikawa Y. [unpublished data: personal communication], 9 July 2008.

72 *Commission on the Future of Health Care in Canada: The Romanow Commission*. Ottawa, Health Canada, 2002 (http://www.hc-sc.gc.ca/hcs-sss/hhr-rhs/strateg/romanow-eng.php, accessed 27 July 2008).

73 Ontario Interprofessional Care Steering Committee. *Interprofessional care: a blueprint for action in Ontario*. Toronto, HealthForceOntario, 2007 (http://www.healthforceontario.ca/upload/en/whatishfo/ipc%20blueprint%20final.pdf, accessed 11 August 2008).

74 Mable AL, Marriott J. *Steady state – finding a sustainable balance point: international review of health workforce planning*. Ottawa, Health Canada, 2001 (http://www.hc-sc.gc.ca/hcs-sss/alt_formats/hpb-dgps/pdf/pubs/2002-steadystate-etatstable/2002-steadystate-etatstable-eng.pdf, accessed 11 August 2008).

75 Khanitta N. *A collaborative practice case study from Thailand*. Khon Kaen, Khon Kaen University, 2008.

76 Institute of Medicine. *Health professions education: a bridge to quality*. Washington DC, National Academy Press, 2003.

77 Institute of Medicine. *To err is human: building a safer health system*. Washington DC, National Academy Press, 1999.

78 Institute of Medicine. *Crossing the quality chasm: a new health system for the 21st century*. Washington DC, National Academy Press, 2001.

79 Hoffman SJ et al. Student leadership in interprofessional education: benefits, challenges and implications for educators, researchers and policymakers. *Medical Education*, 2008, 42:654–661.

80 Tawilah J. [unpublished data: personal communication], 13 September 2008.

Annexes

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ANNEX 1 Membership of the WHO Study Group on Interprofessional Education and Collaborative Practice

Central Leadership Team

* John HV Gilbert, University of British Columbia, Canada (Co-Chair)
* Jean Yan, Human Resources for Health, World Health Organization (Co-Chair)
* Steven J Hoffman, Human Resources for Health, World Health Organization (Project Manager)

Interprofessional Education Working Group

* Peter G Baker, University of Queensland, Australia (Theme Leader)
* Marilyn Hammick, Centre for the Advancement of Interprofessional Education, the United Kingdom
* Wendy Horne, Auckland University of Technology, New Zealand
* Lesley Hughes, University of Hull, the United Kingdom
* Monica Moran, University of Queensland, Australia
* Sylvia Rodger, University of Queensland, Australia
* Madeline Schmitt, University of Rochester, the United States
* Jill Thistlethwaite, University of Sydney, Australia

Collaborative Practice Working Group

* Yuichi Ishikawa, Kobe University, Japan (Theme Leader)
* Susanne Lindqvist, University of East Anglia, the United Kingdom
* Sharon Mickan, Oxford Brookes University, the United Kingdom
* Ester Mogensen, Karolinska Institutet, Sweden
* Ratie Mpofu, University of the Western Cape, South Africa
* Louise Nasmith, University of British Columbia, Canada

System-level Supportive Structures Working Group

* Debra Humphris, University of Southampton, the United Kingdom (Co-Theme Leader)
* Jill Macleod Clark, University of Southampton, the United Kingdom (Co-Theme Leader)
* Hugh Barr, *Journal of Interprofessional Care*, the United Kingdom
* Vernon Curran, Memorial University of Newfoundland, Canada
* Denise Holmes, Association of Academic Health Centers, the United States
* Lisa Hughes, Department of Health (England), the United Kingdom
* Sandra MacDonald-Rencz, Health Canada, Canada
* Bev Ann Murray, Health Canada, Canada

ANNEX 2 Partnering organizations

Australasian Interprofessional Practice and Education Network (AIPPEN)

AIPPEN is a network of individuals, groups, institutions and organizations committed to researching, delivering, promoting and supporting interprofessional learning, education and practice. The primary aim of the network is to promote better health-care outcomes and to enhance interprofessional practice through interprofessional learning in Australia and New Zealand by developing a network to promote communication and collaboration among members.

AIPPEN aims to:

* promote the development of a network that can link health professional education and care sectors, universities, vocational education and training sector, government, practitioners and service users (patients);
* organize a series of seminars and conferences to share information and experiences;
* influence workforce policy and practice change in Australia and New Zealand;
* encourage research, evaluation and collaboration between different teams that can demonstrate the health-care and economic advantages of interprofessional learning;
* disseminate information on interprofessional learning.

Canadian Interprofessional Health Collaborative (CIHC)

CIHC is a pan-Canadian collaborative of partners advancing the evidence base related to Interprofessional Education for Collaborative Patient-Centred Practice (IECPCP) towards improved health education, improved health services, and improved health for Canadians.

CIHC's focus is on building a representative Collaborative, identifying and sharing best practices in interprofessional education and collaborative practice, and translating this knowledge to people who can use it to transform health-care.

CIHC aims to:

* facilitate knowledge production, exchange and application in interprofessional education and collaborative practice;
* foster strategic and innovative partnerships that enable interprofessional collaboration in education, research and practice;
* promote a coordinated approach to curriculum development and reform;
* articulate, advance, and advocate a research and evaluation agenda for interprofessional education and collaborative practice;
* develop support for leadership in interprofessional education and collaborative practice;
* build the Canadian Interprofessional Health Collaborative and model interprofessional collaborative approaches within and among organizations and sectors.

European Interprofessional Education Network (EIPEN)

EIPEN aims to establish a sustainable inclusive network of people and organizations in partner countries to share and develop effective interprofessional learning and teaching for improving collaborative practice and multi agency working in health-care. EIPEN has two interlinked aims to:

* develop a transnational network of universities and employers in the participating countries;
* promote good practices in interprofessional learning and teaching in health-care.

Higher education and employer partners come from Belgium, Finland, Greece, Hungary, Ireland, Poland, Slovenia, Sweden and the United Kingdom.

Journal of Interprofessional Care

The *Journal of Interprofessional Care* is the vehicle for worldwide dissemination of experience, policy, research evidence and theoretical and value perspectives. The journal informs collaboration in education, practice and research between medicine, nursing, veterinary science, allied health, public health, social care and related professions to improve health status and quality of care for individuals, families and communities.

The Journal's scope continues to widen in response to calls for closer collaboration by a growing number of national governments in ever more fields of practice, e.g. care for children and for older people, criminal justice, education for special needs, HIV/AIDS, juvenile justice, mental health, palliative care, physical and learning disabilities among others. This is reflected in the range of contributors and readers from different fields, professions and countries.

National Health Sciences Students' Association in Canada (NaHSSA)

Formed in January 2005, the National Health Sciences Students' Association (NaHSSA) is the first ever national interprofessional student association in the world. As a diverse network of university and college-based chapters, NaHSSA seeks to address the unmet need of actively involving Canada's health and human service students in interprofessional education while promoting the attitudes, skills, and behaviours necessary to provide collaborative patient-centred care. NaHSSA has great potential to positively influence the educational and professional development of Canada's next generation of health-care providers and will become a premier pan-Canadian student federation capable of achieving great success in this area. NaHSSA aims to:

* promote interprofessional education for collaborative patient-centred practice;
* facilitate and potentiate opportunities for interprofessional interaction;
* foster student champions to lead interprofessional efforts now and in the future.

NaHSSA is an "association of associations" that is currently composed of health sciences students from 18 university and college-based chapters (Dalhousie University; Memorial University of Newfoundland and Labrador; McGill University; McMaster University; Queen's University; Université de Montréal; Université de Sherbrooke; Université Laval; University of Alberta; University of British Columbia; University of Manitoba; University of New Brunswick at Saint John–New Brunswick Community College–Atlantic Health Sciences Corporation; University of Ottawa; University of Saskatchewan; University of Toronto; University of Waterloo; University of Western Ontario; and York University) and 4 additional schools (George Brown College; University of Calgary; University of Northern British Columbia; and University of Victoria) across Canada, including over 20 different health and human service professions.

The Network: Towards Unity for Health

The Network: TUFH is a global association of institutions for education of health professionals committed to contribute, through education, research and service, to the improvement and sustainability of health in the communities they serve.

The Network: TUFH member institutions seek collaboration with their health systems to adapt to each other the education of health personnel and the operation of the health-services in order to improve the health of the community. The Network: TUFH members also explore innovative educational approaches (e.g. community-based education, problem-based learning) to fulfill this mission. The Network: TUFH emphasizes educational research, research on priority health needs and on the efficacy of the health-services. In these endeavours The Network: TUFH invites the collaboration of like-minded organizations.

Nordic Interprofessional Network (NIPNet)

NIPNet is a learning network to foster interprofessional collaboration in education, practice and research and is primarily for Nordic educators, practitioners and researchers in the fields of health. The network's members represent interprofessional education inititatives in Denmark, Finland, Norway and Sweden.

NIPNet aims to:

* explore theories and evidence bases of interprofessional collaboration;
* develop approaches, methods and evaluations of interprofessional learning and practice;
* stimulate collaboration among Nordic countries and international collaboration in research and development of interprofessional education.

Centre for the Advancement of Interprofessional Education (CAIPE)

CAIPE is an independent charity, founded in 1987. It is a membership body with some 300 members who form a network of mutual support and interest. They include organizations and individuals across the United Kingdom statutory, voluntary and independent sectors, and a growing international membership. It has expanded from its roots in primary care to include individual and organizational members in local government, higher education, professional associations, Royal Colleges, professional regulatory bodies and the voluntary and private sectors. CAIPE is a national and international resource for interprofessional education in both universities and the workplace across health-care.

CAIPE promotes and develops interprofessional education as a way of improving collaboration between practitioners and organizations, engaged in both statutory and non-statutory public services. It supports the integration of health-care in local communities. CAIPE's focus is on ways of enabling professions and occupations in the community, education institutions and the workplace to learn and work together, foster mutual respect, overcome barriers to collaboration and engender joint action. CAIPE promotes interprofessional learning that actively involves service users and local communities as essential partners. Closely associated with the work that has established the evidence base for interprofessional education through systematic review, CAIPE is concerned to ensure the quality of interprofessional education and disseminates findings from relevant research and best practice.

ANNEX 3 Methodology

The World Health Organization Programme on Interprofessional Education and Collaborative Practice was launched in May 2007 to help Member States strengthen their health systems and address the global health workforce challenge. In collaboration with the International Association of Interprofessional Education and Collaborative Practice (InterEd), the WHO Health Professions Networks Team formed a WHO Study Group on Interprofessional Education and Collaborative Practice consisting of 25 leading education, practice and policy experts from around the world who were divided into three working groups: 1) interprofessional education; 2) collaborative practice; and 3) system-level supportive structures. Building on the considerable progress achieved since WHO issued previous reports* related to interprofessional education and collaborative practice, the WHO Study Group was tasked with the following:

* review of the 1988 report of the WHO Study Group on Multiprofessional Education of Health Personnel and evaluate the positive outcomes of this report and the areas in which little or no progress has been made;
* assess the current state of research evidence on interprofessional education and collaborative practice, synthesize it within an international context and identify the gaps that must still be addressed;
* conduct an international environmental scan to determine the current uptake of interprofessional education and collaborative practice, identify examples of successes, barriers, enabling factors and the best practices currently known in this area;
* develop a conceptual framework that would identify the key issues that must be considered and addressed by WHO and its partners when formulating a global operational plan for interprofessional education and collaborative practice;
* identify, evaluate and synthesize evidence on the potential facilitators, incentives and levers for action that could be recommended as part of a global strategy for interprofessional education and collaborative practice;

* 1) World Health Organization. *Continuing education for physicians*. Geneva, World Health Organization, 1973 (WHO Technical Report Series, No. 534); 2) World Health Organization. *Working interrelationships in the provision of community health-care (medicine, nursing and medicosocial work): Report of a Working Group. Florence, 23-26 October 1978*.Copenhagen, World Health Organization Regional Office for Europe, 1978 (ICP/SPM 006); 3) World Health Organization. *Studies on communication and collaboration between health professionals (physicians and nurses: teamwork)*. Copenhagen, World Health Organization Regional Office for Europe, 1978 (ICP/HMD 054); 4) World Health Organization. *Innovative tracks at established institutions for the education of health personnel: An experimental approach to change relevant health*. Geneva, World Health Organization, 1987 (WHO Offset. Publication No. 101); 5) World Health Organization. *Multiprofessional education of health personnel in the European region: Proceedings of a WHO meeting on study for analysing multiprofessional training programmes and defining strategies for team training. Copenhagen, 5-7 March 1986*. Copenhagen, World Health Organization Regional Office for Europe, 1988; 6) World Health Organization. *Learning together to work together for health: Report of a WHO Study Group on Multiprofessional Education for Health Personnel: The team approach*. Geneva, World Health Organization (WHO Technical Report Series, No. 769), 1988.

* evaluate the efforts and contributions of the WHO Study Group.

In order to meet these terms of reference, the WHO Study Group has prepared the *Framework for Action on Interprofessional Education and Collaborative Practice*, which is based on original and available research evidence and the principles of primary health-care. Meetings were held in Geneva, Switzerland, on 11 September 2007 (for the Central Leadership Team and Theme Leaders) and in Stockholm, Sweden, on 1 June 2008 (for the entire WHO Study Group), and were supplemented by several teleconferences for the three working groups. Partnerships were established with the following organizations to enhance the international relevance of the work and to engage as many people as possible throughout the interprofessional and global health communities:

1. Australasian Interprofessional Practice and Education Network
2. Canadian Interprofessional Health Collaborative
3. European Interprofessional Education Network
4. *Journal of Interprofessional Care*
5. Canada's National Health Sciences Students' Association
6. The Network: Towards Unity for Health
7. Nordic Interprofessional Network
8. Centre for the Advancement of Interprofessional Education

In addition to an extensive review of the research literature and consultation process, the WHO Study Group engaged in several activities that further informed this Framework and provided representative examples of innovative initiatives being undertaken throughout the world.

* An international environmental scan of interprofessional education practices was undertaken between February and May 2008. A custom-designed descriptive questionnaire was developed and targeted individuals who worked on the design, delivery or evaluation of interprofessional education at higher education institutions. Respondents were recruited via email using a wide range of distribution lists, including WHO Country Offices, WHO Collaborating Centres and the membership of 15 international professional associations.† Participants represented 42 countries and each of WHO's six regions.
* A targeted call was made throughout WHO's six regions for international case studies of collaborative practice and faculty development for interprofessional education.

† The following international organizations, their associated membership and e-mail distribution lists facilitated contact with prospective participants: Association for Prevention Teaching and Research, the United States; Australasian Interprofessional Practice and Education Network; Canadian Interprofessional Health Collaborative; Centre for the Advancement of Interprofessional Education, the United Kingdom; Council of Deans of Health, the United Kingdom; European Interprofessional Education Network; Higher Education Academy, the United Kingdom; International Association for Interprofessional Education and Collaborative Practice; International Pharmaceutical Federation; *Journal of Interprofessional Care*, Informa Healthcare; Linköping University, Sweden; Nordic Interprofessional Network; Secretariat of the All Together Better Health IV Conference (2–5 June 2008, Karolinska Institutet & Linköping University, Sweden); Secretariat of the North American Interprofessional Education Conference (24–26 October 2007, University of Minnesota, the United States); The Network: Towards Unity for Health.

* Relevant international policy documents, government publications and global health reports were comprehensively collected and reviewed.
* The wider interprofessional community of practice was engaged through several announcements, teleconferences and meetings, including a workshop and plenary presentation at the All Together Better Health IV Conference, held in Stockholm, Sweden, in June 2008.
* Definitions were developed using an iterative process involving research literature, input from members of the WHO Study Group and other key informants. For example, the definition of "collaborative practice" was based on a review of key publications, adaptations from an existing definition from the Ontario Interprofessional Care Steering Committee[‡] and the inclusion of new elements through extensive discussion which ensured the representation of global perspectives. As a result, the term "health worker" was used to reflect internationally-accepted terminology, the importance of families, carers and communities in health-care delivery was recognized, and the reality that care is delivered across settings was incorporated. This working definition was presented to the wider interprofessional community during a plenary presentation at the All Together Better Health IV Conference, in Stockholm, Sweden, in June 2008, and was further refined by the Collaborative Practice Working Group. Similarly, the definition of "interprofessional education" was adapted from that of the Centre for the Advancement of Interprofessional Education in the United Kingdom[§] and Lesley Bainbridge's work[¶] to better reflect the global health context.
* Several scoping literature reviews were conducted on key issues, such as staff development for interprofessional education and learning outcomes.

While this Framework addresses many of the major policy-relevant issues related to interprofessional education and collaborative practice, it is by no means exhaustive or all-encompassing. It is the hope of the World Health Organization Study Group on Interprofessional Education and Collaborative Practice that the work outlined in the Framework will be the beginning of lasting change and provide a catalyst for health systems around the world to begin implementing interprofessional education and collaborative practice within their local context.

‡ Ontario Interprofessional Care Steering Committee. *Interprofessional care: a blueprint for action in Ontario.* Toronto, HealthForceOntario, 2007 (http://www.healthforceontario.ca/upload/en/whatishfo/ipc%20blueprint%20final.pdf, accessed 11 August 2008).

§ Centre for the Advancement of Interprofessional Education and Collaborative Practice, the United Kingdom, 2002.

¶ Bainbridge L. *The power of prepositions: learning with, from, and about in the context of interprofessional health education* [doctoral dissertation]. Vancouver, Canada, University of British Columbia, 2008.

ANNEX 4 Public announcement on the creation of the WHO Study Group on Interprofessional Education and Collaborative Practice**

World Health Organization Study Group on Interprofessional Education and Collaborative Practice

JEAN YAN, RN, PHD[1], JOHN H. V. GILBERT, PHD[2], & STEVEN J. HOFFMAN, BHSC[3]

[1]*Co-Chair, WHO Study Group on Interprofessional Education and Collaborative Practice and Chief Scientist for Nursing & Midwifery, Department of Human Resources for Health, World Health Organization, Geneva, Switzerland,* [2]*Co-Chair, WHO Study Group on Interprofessional Education and Collaborative Practice; Principal and Professor Emeritus, College of Health Disciplines, University of British Columbia, Vancouver, Canada; Project Lead, Canadian Interprofessional Health Collaborative,* [3]*Project Manager, WHO Study Group on Interprofessional Education and Collaborative Practice, Department of Human Resources for Health, World Health Organization, Geneva, Switzerland*

The urgency for action to enhance human resources for health internationally was recently highlighted by the *World Health Report 2006: Working Together for Health* which revealed an estimated worldwide shortage of almost 4.3 million doctors, midwives, nurses and support workers.[1] The 59th World Health Assembly recognized this crisis and adopted a resolution in 2006 calling for a rapid scaling-up of health workforce production through various strategies including the use of ''innovative approaches to teaching in industrialized and developing countries''.[2]

As one innovative strategy to help tackle the global health workforce challenge, we are pleased to announce the launch of the World Health Organization (WHO) Study Group on Interprofessional Education and Collaborative Practice. Working in collaboration with the International Association for Interprofessional Education and Collaborative Practice (InterEd), this initiative builds upon the considerable progress that has been achieved in this area since WHO first identified interprofessional education as an important component of primary health care in 1978[3] and issued its technical report on this subject in 1988.[4] Not only will the WHO Study Group conduct a much-needed international environment scan and an assessment of the current state of research in this area, but it will also identify, evaluate and synthesize the evidence on potential facilitators, incentives and levers for action that could be adopted as part of a global strategy for interprofessional education and collaborative practice (Exhibit 1). This work will form the basis for follow-up efforts and ensure that future activities are rooted in the best evidence possible.

The WHO Study Group consists of 25 top education, practice and policy experts from across every region of the world; members have formed three separate teams on

** Yan J, Gilbert JHV, Hoffman SJ. World Health Organization Study Group on Interprofessional Education and Collaborative Practice. *Journal of Interprofessional Care*, 2007, 21:588–589.

Exhibit 1. Tasks of the WHO Study Group on Interprofessional Education and Collaborative Practice.

- Review the 1988 report of the WHO Study Group on Multiprofessional Education of Health Personnel (WHO, 1988)[4] and evaluate the positive outcomes of this report as well as the areas in which little or no progress has been made;
- Assess the current state of research evidence on interprofessional education and collaborative practice, synthesize it within an international context, and identify the gaps that must still be addressed;
- Conduct an international environmental scan to determine the current uptake of interprofessional education and collaborative practice, discover examples that illuminate successes, barriers, and enabling factors, and identify the best practices currently known in this area;
- Develop a conceptual framework that would identify the key issues that must be considered and addressed by WHO and its partners when formulating a global operational plan for interprofessional education and collaborative practice;
- Identify, evaluate and synthesize evidence on the potential facilitators, incentives and levers for action that could be recommended as part of a global strategy for interprofessional education and collaborative practice; and
- Evaluate the efforts and contributions of this WHO Study Group.

Exhibit 2. Partnering organizations.

1. Australasian Inter Professional Practice and Education Network (AIPPEN);
2. Canadian Interprofessional Health Collaboration (CIHC);
3. European Interprofessional Education Network (EIPEN);
4. *Journal of Interprofessional Care* (JIC);
5. National Health Sciences Students' Association in Canada (NaHSSA);
6. The Network: Towards Unity for Health;
7. Nordic Interprofessional Network (NIPNET); and
8. UK Centre for the Advancement of Interprofessional Education (CAIPE)

interprofessional education, collaborative practice, and system-level supportive structures that are led by Prof Peter G. Baker (University of Queensland, Australia), Prof Yuichi Ishikawa (Kobe University, Japan) and Prof Dame Jill Macleod Clark (University of Southampton, UK) respectively. The WHO Study Group has also established partnerships with several existing communities of experts and enthusiasts (Exhibit 2) to further engage the wider community in this historic initiative while maximizing the specialized knowledge and local experiences of individuals worldwide.

It is clear that now is an exciting time of progress for interprofessional education and collaborative practice. Working together for better health is more important than ever, and we look forward to updating you as the WHO Study Group and its partners move towards a greater understanding of this important issue.

References

[1] World Health Organization. *World Health Report 2006: Working Together for Health.* Geneva: World Health Organization; 2006.

[2] World Health Organization. WHA59.23: Rapid Scaling Up of Health Workforce Production. *Fifty-Ninth World Health Assembly. A59/23, 37–38.* Geneva: World Health Organization; 2006.

[3] World Health Organization (1978). Alma-Ata 1978: Primary Health Care. *Report of the International Conference on Primary Health Care.* 6–12 September 1978. Alma-Ata, USSR. Geneva: World Health Organization.

[4] World Health Organization (1988). Learning Together to Work Together for Health. Report of a WHO Study Group on Multiprofessional Education for Health Personnel: The Team Approach. *Technical Report Series 769:1–72.* Geneva: World Health Organization.

ANNEX 5 Key recommendations from the 1988 WHO Study Group on Multiprofessional Education for Health Personnel technical report

The following are the draft recommendations put forward in the technical report prepared by the WHO Study Group on Multiprofessional Education of Health Personnel in 1988.††

8. Promoting the concept of multiprofessional education

These draft recommendations refer to action at different levels and on the part of various bodies: institutional (universities and other schools for health personnel, other education institutions, organizations of health professionals, etc.), inter-institutional (joint action by different educational institutions), and national (ministries of health and education).

8.1 Institutional level

* Formal and informal links should be established between neighbouring institutions responsible for the education of different member of the health team, and between these and the non-health sectors that may have a substantial impact on health and are already involved in community development activities.
* The roles and responsibilities of each member of the health team should be redefined (service, training, administration, community relations, etc.).
* Communication between health professionals at all levels should be encouraged and improved.
* Continuous joint in-service training should be provided for all member of the health team with a view to strengthening the team approach in the field.
* Ways of reducing any staff overload should be investigated, in order to allow better team functioning.
* Groups should be formed in educational institutions to review:
  - systems for selecting students and staff;
  - curricula and learning resources, laboratories, etc.;
  - systems for evaluating performance of students and teachers;
  - physical arrangements, office needs and use, field facilities, transport, etc.;
  - integration of programmes;
  - Iindividual staff roles and responsibilities.
* Workshops on the team approach should be organized for all teaching and administrative staff in educational institutions.
* It is important to recognize the particular organizational and logistic difficulties that arise in establishing and maintaining cooperative educational activities between different faculties or departments and to make

†† World Health Organization. *Learning together to work together for health: report of a WHO Study Group on Multiprofessional Education for Health Personnel: the team approach*. Geneva, World Health Organization (WHO Technical Report Series, No. 769), 1988.

allowance for them in funding arrangements.

* Integration of the community development services with the education sector should be strengthened.
* An incentive system to encourage the team approach should be introduced.
* The involvement of the community should be promoted.
* Research on the health-team approach by educational institutions and health-services should be launched or strengthened.
* Multiprofessional committees should be set up to follow up the utilization of the team approach.
* An international directory of multiprofessional education programmes would be useful for promoting the dissemination of information about multiprofessional education.

8.2 National (or provincial) level

* It is important to have a strong and enduring commitment to the team concept on the part of the ministries and educational institutions concerned.
* The resources of the ministries concerned should be developed and strengthened to enable them to put the health team concept into effect.
* The organizational structure of the health system should be reviewed with the object of making wider use of the primary health-care approach and applying the health team concept.
* Health manpower needs should be determined and the role of the educational institutions for health sciences in meeting those needs should be defined.
* The system for evaluation and supervision of all categories of health workers should be reviewed in the light of its suitability for a team approach.
* Job descriptions for all team members should be distributed to all health centres, and efforts made to develop a scheme for modifying job descriptions as necessary.
* It would be useful to publish descriptions of the role of each of the occupations represented in the health team. The descriptions should indicate how the skills and knowledge pertaining to each discipline can enhance team functioning. They should be made widely available throughout the health sector and the educational institutions.

ANNEX 6 Summary chart of research evidence from systematic reviews on Interprofessional Education (IPE)

SYSTEMATIC REVIEW	STUDY OBJECTIVE(S)	STUDIES	RESULTS	AUTHOR'S CONCLUSIONS
Reeves S et al. Interprofessional education: effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews*, 2008, Issue 1.	To assess the effectiveness of IPE interventions compared to education interventions in which the same health-care professionals learn separately from one another; and to assess the effectiveness of IPE interventions compared to no education intervention.	Six included (four RCTs and two CBA studies)	Four studies indicated that IPE produced positive outcomes in areas such as emergency department culture and patient satisfaction; collaborative team behaviour; and management of care delivered to domestic violence victims. Two studies reported mixed outcomes and two of the six studies reported that IPE had no impact on professional practice or patient care.	Although the studies reported some positive outcomes, it was not possible to draw general inferences about IPE and its effectiveness (due to small number of studies, heterogeneity of interventions and methodological limitations).
Hammick M et al. A best evidence systematic review of interprofessional education. *Medical Teacher*, 2007, 29:735–751.	To identify and review the strongest evaluations of IPE; to classify the outcomes of IPE and note the influence of context on particular outcomes; to develop a narrative about the mechanisms that underpin and inform positive and negative outcomes of IPE.	21 included	Staff development is a key influence on the effectiveness of IPE for learners who all have unique values about themselves and others. Authenticity and customization of IPE are important mechanisms for positive outcomes of IPE. Interprofessional education is generally well received, enabling knowledge and skills necessary for collaborative working to be learnt; it is less able to positively influence attitudes and perceptions towards others in the service-delivery team. In the context of quality improvement initiatives interprofessional education is frequently used as a mechanism to enhance the development of practice and improvement of services.	Measuring outcomes of IPE, and thus enabling informed judgements to be made about the impact of the many different IPE initiatives delivered internationally, continues to evolve towards a robust science. This review shows that such work leads to evidence informed interprofessional education, practice and policy-making, and thus learner satisfaction and ultimately enhanced patient/client care and care service delivery.
Barr H et al. *Effective interprofessional education: assumption, argument and evidence*. Oxford, Blackwell Publishing, 2005.	To review conventional wisdom about IPE in the light of evidence from more rigorous and better-presented evaluations.	884 identified, 353 reviewed, 107 high quality	Well planned pre-registration IPE can meet intermediate objectives (i.e. establish common knowledge bases and modify reciprocal attitudes). Well planned employment-led, post-registration IPE can meet ultimate objectives (i.e. improving services and patient experiences).	Improvements in evaluative rigour need to be sustained within both qualitative and quantitative paradigms. IPE needs to be developed as a continuum with progressive objectives.
Cooper H et al. Developing an evidence base for interdisciplinary learning: A systematic review. *Journal of Advanced Nursing*, 2001, 35:228–237.	To explore the feasibility of introducing interdisciplinary education within undergraduate health professional programmes. This paper reports on the first stage of the study in which a systematic review was conducted to summarize the evidence for interdisciplinary education of undergraduate health professional students.	141 identified, 30 included	Student health professionals were found to benefit from interdisciplinary education with outcome effects primarily relating to changes in knowledge, skills, attitudes and beliefs.	Effects upon professional practice were not discernible and educational and psychological theories were rarely used to guide the development of the educational interventions.
Reeves S. A systematic review of the effects of interprofessional education on staff involved in the care of adults with mental health problems. *Journal of Psychiatric Mental Health Nursing*, 2001, 8:533–542.	To assess the extent and quality of published evidence in relation to staff who care for adults with mental health problems.	173 identified, 67 reviewed, 19 included	All 19 papers report positive outcomes from the use of IPE with staff involved in the care of adults with mental health problems. However, after assessing these studies, it was found that they generally contained a number of shortfalls, including: lack of information relating to the methods employed and their associated limitations; little account of how IPE impacted on user care; uncertainty whether initial effects of IPE remained or diminished over time; poor descriptions of the evaluated IPE programmes; limited applicability due to cultural influences.	Although this study offers an initial effort at collecting and assessing the published evidence of IPE, further work would usefully extend and strengthen this study: further searching of other health-care databases; contacting experts in the field to search for grey literature; and scanning the reference sections of these papers to identify other potentially useful studies.
Barr H et al. *Evaluations of interprofessional education: a United Kingdom review for health and social care*. London, BERA/CAIPE, 2000.	To identify where and how IPE had been evaluated in the United Kingdom. To assist others in replicating and developing methods found.	40 reviewed, 19 included	Reviews reported that IPE was enjoyed and valued by learners with positive modification of reciprocal attitudes. Work-based IPE is capable of modifying practice and patient care. Most evaluations were conducted by the teachers themselves.	This small-scale qualitative review revealed the methodologies employed in IPE evaluations and confirmed classifications of types of IPE and learning methods.

ANNEX 7 Summary chart of research evidence from select systematic reviews related to collaborative practice

SYSTEMATIC REVIEW	STUDY OBJECTIVE(S)	STUDIES	RESULTS	AUTHOR'S CONCLUSIONS
Malone D et al. Community mental health teams (CMHTs) for people with severe mental illnesses and disordered personality. *Cochrane Database of Systematic Reviews*, 2007, Issue 2 (Art. No.: CD000270. DOI: 10.1002/14651858. CD000270.pub2).	To evaluate the effects of community mental health team (CMHT) treatment for anyone with serious mental illness compared with standard non-team management.	80 identified, three included	CMHT management did not reveal any statistically significant difference in death by suicide although overall, fewer deaths occurred in the CMHT group. Significantly fewer people in the CMHT group were not satisfied with services compared with those receiving standard care. Also, hospital admission rates were significantly lower in the CMHT group compared with standard care. Admittance to accident and emergency services, contact with primary care, and contact with social services did not reveal any statistical difference between comparison groups.	Community mental-health team management is not inferior to non-team standard care in any important respects and is superior in promoting greater acceptance of treatment. It may also be superior in reducing hospital admission and avoiding death by suicide. The evidence for CMHT-based care is insubstantial considering the massive impact the drive toward community care has on patients, carers, clinicians and the community at large.
Holland R et al. Systematic review of multidisciplinary interventions in heart failure. *Heart*, 2005, 91:899–906.	To determine the impact of multidisciplinary interventions on hospital admission and mortality in heart failure.	74 identified, 30 included	Multidisciplinary interventions reduced all-cause admission, all-cause mortality and heart failure admission. These results varied little with sensitivity analyses.	Multidisciplinary interventions for heart failure reduce both hospital admission and all-cause mortality. The most effective interventions were delivered at least partly in the home.
McAlister FA et al. Multidisciplinary strategies for the management of heart failure patients at high risk for admission. *Journal of the American College of Cardiology*, 2004, 44:810–819.	To determine whether multidisciplinary strategies improve outcomes for heart failure patients.	29 identified but were not pooled, because of considerable heterogeneity. A priori, the interventions were divided into homogeneous groups that were suitable for pooling.	Strategies that incorporated follow-up by a specialized multidisciplinary team (either in a clinic or a non-clinic setting) reduced mortality, heart failure hospitalizations and all-cause hospitalizations. In 15 of 18 trials that evaluated costs, multidisciplinary strategies were cost saving.	Multidisciplinary strategies for the management of patients with heart failure reduce heart failure hospitalizations. Those programmes that involve specialized follow-up by a multidisciplinary team also reduce mortality and all-cause hospitalizations.
Naylor CJ, Griffiths RD, Fernandez RS. Does a multidisciplinary total parenteral nutrition team improve outcomes? A systematic review. *Journal of Parenteral and Enteral Nutrition*, 2004, 28:251–258	To critically analyze the literature and present the best available evidence that investigated the effectiveness of multidisciplinary total parenteral nutrition (TPN) teams in the provision of TPN to adult hospitalized patients.	11 included	Results of the studies indicate that the incidence of total mechanical complications is reduced in patients managed by the TPN team. However, the benefit of the TPN team in the reduction of catheter-related sepsis remains inconclusive. Although only two studies (n=356) investigated total costs associated with management of patients by the TPN teams, there was evidence that a team approach is a cost-effective strategy.	Overall, the general effectiveness of the TPN team has not been conclusively demonstrated. There is evidence that patients managed by TPN teams have a reduced incidence of total mechanical complications. Furthermore, the available evidence, although limited, suggests financial benefits from the introduction of multidisciplinary TPN teams in the hospital setting.
Simmonds S et al. Community mental health team management in severe mental illness: a systematic review. *The British Journal of Psychiatry*, 2001, 178:497–502.	To assess the benefits of community mental health team management in severe mental illness.	1200 identified, 65 reviewed, five included	Community mental health team management is associated with fewer deaths by suicide and in suspicious circumstances, less dissatisfaction with care and fewer drop-outs. Duration of in-patient psychiatric treatment is shorter with community team management and costs of care are less, but there are no gains in clinical symptomatology or social functioning.	Community mental health team management is superior to standard care in promoting greater acceptance of treatment, and may also reduce hospital admission and avoid deaths by suicide. This model of care is effective and deserves encouragement.
Zwarenstein M, Bryant W. Interventions to promote collaboration between nurses and doctors. *Cochrane Database of Systematic Reviews*, 2000, Issue 1.	To assess the effects of interventions designed to improve nurse-doctor collaboration.	Five identified, two included	First trial noted shortened average length of stay and reduced hospital charges, with no statistically significant differences in mortality rates. Second trial noted no significant differences between the intervention and control wards in terms of total average length of stay for patient. No significant difference in mortality rates.	Increasing collaboration improved outcomes of importance to patients and to health-care managers. These gains were moderate and affected health-care processes rather than outcomes. Further research is needed to confirm these findings. Interventions other than nurse-doctor ward rounds and team meetings should also be tested.

ANNEX 8 Summary chart of select international collaborative practice case studies

COUNTRY	PRACTICE SETTING	WHO IS INVOLVED?	WHAT ARE THE CHALLENGES AND FACILITATORS?
Canada	A family practice teaching clinic located in an urban setting	Complex patients living with chronic and mental illnesses Family physicians, mental health workers, nurses, nurse practitioners, nutritionists, pharmacists, public health nurses, receptionists and social workers	Challenges: lack of an electronic health record; interpersonal conflicts; lack of structured protocols Facilitators: remuneration models; a governance model that shares responsibility between professionals; interprofessional rounds; committed leadership
Denmark	General practice clinics in Denmark, each serving between 1600 and 2500 patients, in urban and rural areas	All types of patients General practitioners, administrative staff, nurses and laboratory technicians	Challenges: unsuitable office and administrative space for all tasks; unclear division of responsibility and competency between different staff groups Facilitators: self registration of patients; joint discussion of patients by general practitioners and staff
India	A psychiatric hospital located in a semi-urban setting	Patients living with mental illnesses (children, adolescents and adults) Nurses, occupational therapists, psychiatrists, psychologists, social workers, special education teachers and supportive staff	Challenges: miscommunication Facilitators: open communication; approachability and adaptability of team members
Japan	All types of health-services located in an urban setting	Pregnant women and young children Clinical psychologists, dental hygienists, nutritionists, paediatricians, public health nurses and social workers	Challenges: none identified Facilitators: supportive legislation; structured protocols; team conferences
Nepal	A hospital and an educational institution located in an urban setting	Mothers and their newborn babies Nurses and physicians	Challenges: time constraints; traditional care delivery models Facilitators: evidence; government policies
Oman	Four community health centres located in urban areas	All types of patients Doctors, nurses, assistant pharmacists, laboratory technicians, X-ray technicians, dieticians, health educators and medical orderlies	Challenges: managing difficult personalities; staff turnover Facilitators: commitment from high-level policy-makers; ongoing staff training, including communication skills training; clear guidelines; meetings between health workers and system planners; spirit of teamwork
Slovenia	A community health centre	All types of patients Dentists, nurses, physicians, physiotherapists and social workers	Challenges: new members being introduced into teams Facilitators: supportive health legislation; same payment scheme for all professions; professional development programmes that focus on teamwork
Sweden	Four major hospitals located in an urban setting	All types of patients Medical, nursing, occupational therapy and physiotherapy students	Challenges: professional prejudices and attitudes Facilitators: standard protocols
Thailand	A community clinic located in a rural setting	All types of patients Nurses and physicians	Challenges: lack of time and resources Facilitators: supportive policies from universities, agencies and government; common goals; regulatory bodies; financial support; trusting relationships
United Kingdom	An outpatient clinic located in an urban setting	Patients living with incontinence Nurses, occupational therapists and physiotherapists	Challenges: discord between teams; time constraints; lack of managerial support Facilitators: regular face-to-face meetings; respect for other professions

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Health Professions Networks
Nursing and Midwifery
Human Resources for Health

World Health Organization
Department of Human Resources for Health
20, avenue Appia
1211 Geneva 27
Switzerland

www.who.int/hrh/nursing_midwifery/en/