

## Part 4. Pharmacy education

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### Summary

- FIP, WHO and UNESCO have established a global Pharmacy Education Taskforce, an initiative with which to synergise concerted efforts for a systematic analysis and policy planning approach for the global pharmacy workforce.
- The capacity to provide pharmaceutical services in each country is dependent upon having an assured competent workforce and a similarly integrated academic workforce to train sufficient numbers of new pharmacists and other support staff at both basic and enhanced levels.
- There remains variance in the scope and range of pharmacy education quality assurance systems. Work is underway to provide adaptable guidelines and advocacy of systems to improve quality assurance and accreditation of pre-service education.
- Ensuring mechanisms for assured practitioner competence (and ultimately performance) is now a key goal for pharmacy education policy. Systems and Continuing Professional Development (CPD) support should be oriented to enable competence-based lifelong development for all practitioners.

### 4.1 Background

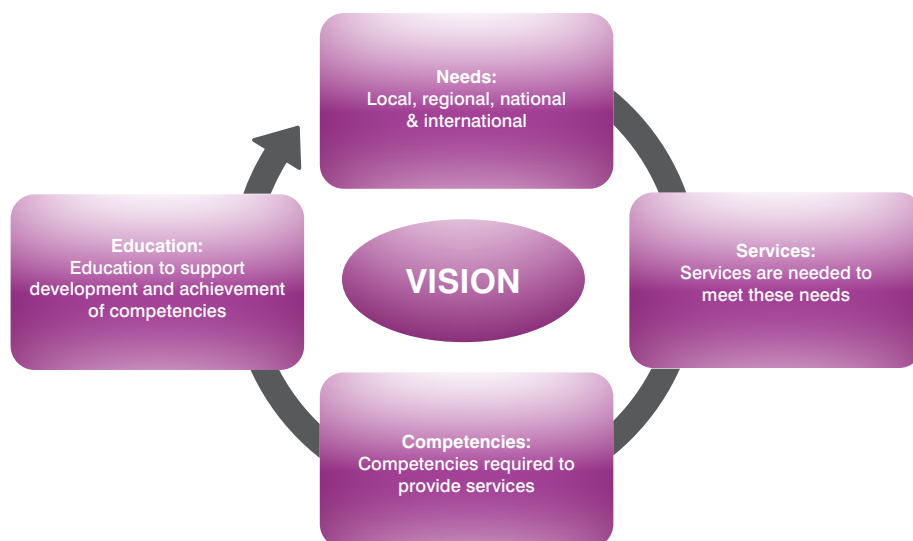
Pharmacists' roles are evolving from that of compounder and dispenser of medicines to that of medicines expert within a multidisciplinary health care team.[1-4] A coordinated and multifaceted effort to advance workforce planning, training and education is needed in order to prepare an adequate number of well-trained pharmacists for such roles.

When using the term pharmacy education, it is to be understood that this refers to the educational design and capacity to develop the workforce for a diversity of settings (e.g. community, hospital, research and development, academia) across varying levels of service provision and competence (e.g. technical support staff, pharmacists and pharmaceutical scientists) and scope of education (e.g. undergraduate, post-graduate, life-long learning). This multi-dimensional conceptualization embodies a systematic approach to education development that enables and supports a sustainable expert healthcare workforce to effectively improve health.

It has been previously argued that the global problems facing the pharmacy workforce are those of capacity, sustainability and the development of modern, needs-based education [5, 6]. In this respect,

pharmacy is no different from other health care professions, such as medicine and nursing. The global workforce needs to be competent, adaptable and oriented to a medicines-centered, patient-focused approach towards education, development and professional practice. Centered on the tenets of needs-based education, FIP convened the Global Pharmacy Education Taskforce in partnership with the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Health Organization (WHO). [5,6]

Figure 1: Pharmacy Education Action Plan 2008-2010



The purpose of the Taskforce is to oversee the implementation of the Global Pharmacy Education Taskforce Action Plan 2008-2010. [7] The Action Plan is oriented towards identifying locally-determined needs and services and using those to facilitate comprehensive education development and achievement of competencies, which are required to meet the local services (See Diagram 1). The Action Plan was developed and refined during two global pharmacy education consultations convened by FIP. [6,8] The domains for action prioritised in the Action Plan relate specifically to developing a pharmacy education vision and framework, preparing the pharmacy workforce, and quality assurance for these efforts. From these domains, three project teams have been created to support the areas of (1) vision and competency, (2) academic and institutional capacity, and (3) quality assurance. The leadership for these project teams comes from the Taskforce, which serves as the coordination, analysis and dissemination hub. It includes both a core of key stakeholders and a dynamic shell of collaborators most attuned to the needs of their regions.

#### 4.2 Pharmacy education capacity and training institution distribution

It is a truism to suggest that countries require appropriately-resourced academic institutions in order to produce appropriately-trained, nascent health care professionals to join the domestic workforce. Further, the capacity to provide pharmaceutical services in each country is dependent upon having an assured competent workforce and a similarly integrated academic workforce to train sufficient numbers of new pharmacists and other support staff at both basic and enhanced levels.

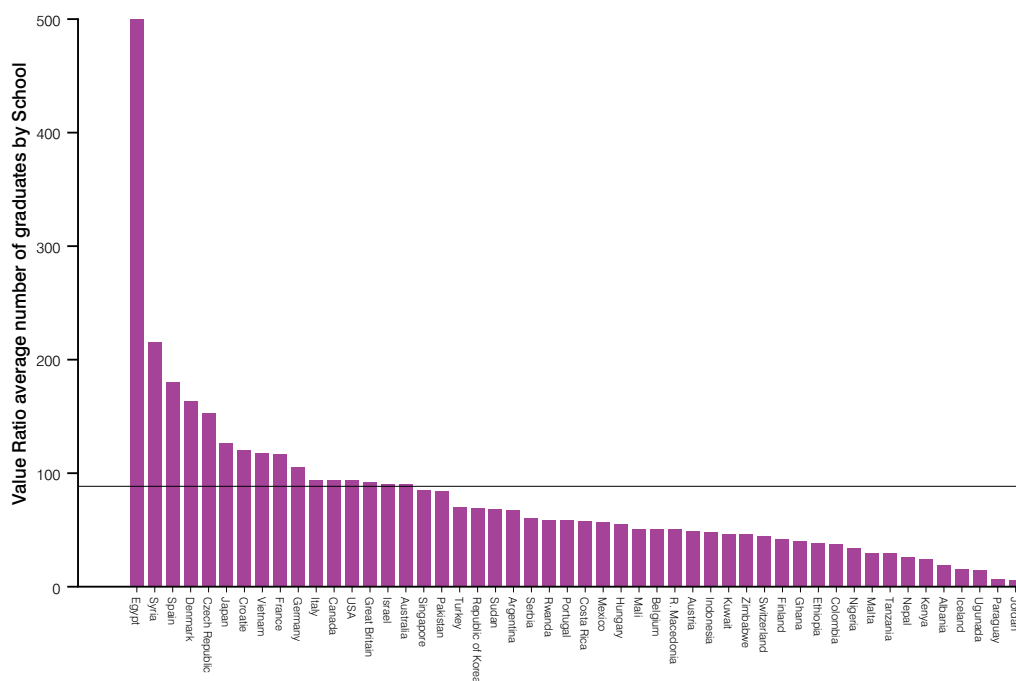
Gathering good quality workforce data on academic/faculty capacity is essential if development strategies to meet local, regional or global needs are to be formulated. Increased research and review of strategies to build academic workforce capacity is warranted; more recently, FIP has conducted Global Pharmacy Workforce Surveys since 2005 (GPWS) as a first step towards making useful capacity data accessible for policy makers and planners.

The education-related data from this survey provides some headline observations. A total of 56 country level responses were obtained; negative correlations were observed with density of pharmacist per capita population and proportion of the workforce in academia ( $r = -0.43$ ,  $p = 0.046$ ). Conversely, positive associations are present with entry into community pharmacy careers ( $r = 0.338$ ,  $p = 0.033$ ). Although this may not be a surprising finding within the 56 countries surveyed, it does highlight the need for academic capacity building strategies to be taken seriously. Those countries with fewer pharmacists per head of population are the ones who are least likely to have pre-service education and training capacity.

Four countries from the survey produced more than 8,000 graduates in total each year (Brazil, Japan, Egypt and USA). Three countries had more than 100 Schools of pharmacy (India >500; Brazil 306; USA 113). Figure 2 shows a ratio plot of graduates (pipeline) to schools of pharmacy, against the sample average.

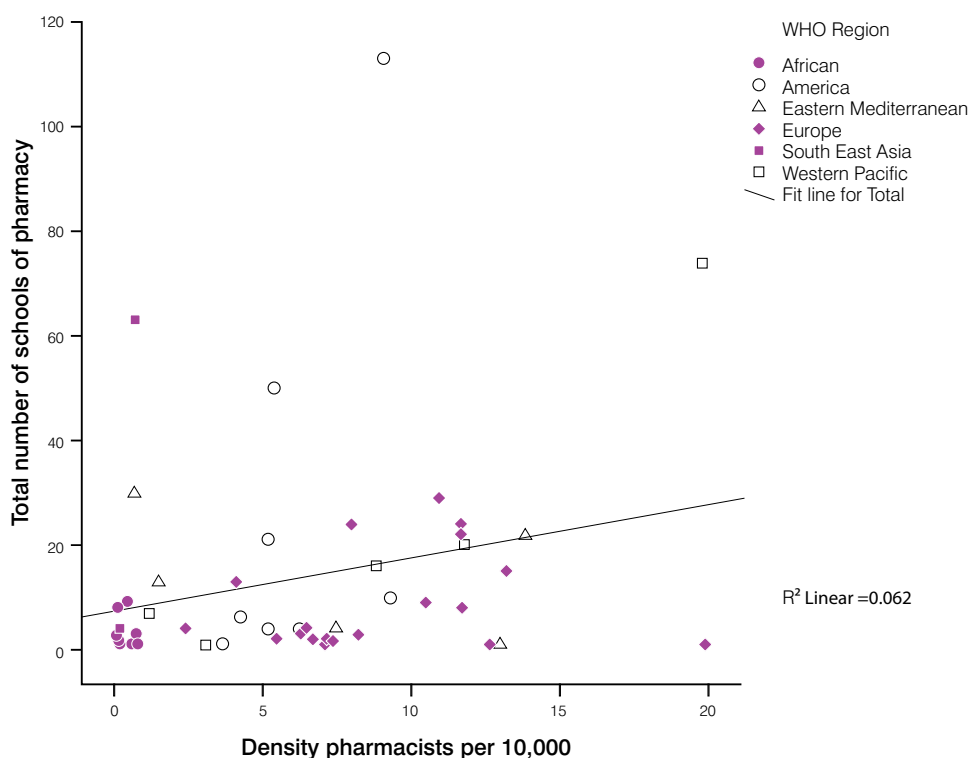
When accounting for outliers, there is a weak but significant association with the number of schools and pharmacist density in countries ( $R^2 = 0.062$ ,  $p = 0.008$ ; Figure 3). In Figure 3, note that most African countries are at the extreme left and below the regression line. The majority of European countries are also below the regression line.

Figure 2. Ratio of graduates to schools of pharmacy (average per country)



The reference line is the sample mean (88 graduates per School of Pharmacy);  $n = 50$  cases.

Figure 3. Schools of pharmacy and pharmacist density



Country level analysis removing outliers Indonesia, Brazil, USA, India; n=40 complete cases.

One key barrier to academic faculty workforce retention and quality needs-based education, particularly in developing countries, is poor physical institutional infrastructure where basic facilities as well as learning and teaching resources may be insufficient or non-existent. The Taskforce will lead the development of recommendations for academic workforce capacity and institutional infrastructure development and investigate via country case studies.

### 4.3 Quality assurance

While virtually all countries have established systems for oversight and quality assurance (QA) of education in general, fewer countries have QA systems specific to pharmacy education that are well-developed. In some countries, such systems are emerging; in others, they are non-existent or, at best, rely on internal (institutional) QA processes. Data from the GPWS suggests that 6 countries (13% of sample) did not have any schools accredited, around 22% have less than half of their pharmacy schools accredited, and 64% have their full national complement under a national accreditation system. Ideally, countries should have their own national QA system and standards for pharmacy education that reflect contemporary and emerging pharmacy practice and education, and meet the specific needs of the country.

In September 2008, Version 1.0 of the Global Framework for Quality Assurance of Pharmacy Education was finalised, formally adopted by FIP, and officially launched at the Third Global Pharmacy Education Consultation in Basel, Switzerland.[9] The framework is posted on Taskforce's website at [www.fip.org/education](http://www.fip.org/education). The framework provides the context for QA of pharmacy education; presents a framework for a national QA system, primarily in terms of structure and process; and offers quality criteria for pharmacy education.

The framework is intended to be a foundation that can be adapted and built upon to suit national needs, systems, and conditions; it focuses more on the elements that need to be included and how these elements are applied in principle rather than being too specific or prescriptive. The framework does not advocate for any one overall model or QA system but comments on different approaches that exist and outlines some emerging trends.

An initial stage of the country case studies were launched in August 2008 with a mission in the Republic of Ghana supported by WHO. A major focus of this initial stage was an examination of the potential relevance of the framework for advancing quality assurance of pharmacy education in Ghana through detailed stakeholder analysis. Content validity of the framework was evaluated by the Department of Pharmacy at the University of Zambia, and the Faculty of Pharmacy at the Kwame Nkrumah University of Science and Technology in Ghana. In summary, there was an overwhelming acceptance of the concept by policy makers, regulators, educators and practitioners who emphasized the need for broader stakeholder involvement in developing QA systems.

Validation of the Global Framework commenced in June 2009; the process involved an assessment of the various components and quality criteria set out in the Framework. Four stakeholders from 24 participating countries – representing the perspectives of pharmacy practice, academia, pharmacy practice regulation and quality assurance or accreditation of pharmacy education – participated in a survey to examine the validity and applicability of each component of the Framework. The sections of the survey instrument included areas such as: the philosophy and purpose of quality assurance; the structure, policies and procedures of a national quality assurance system; and quality criteria for the outcomes, structure and processes of a pharmacy school and its professional degree program. Results from the validation process are to be presented at the FIP Congress in September 2009 and will be used to inform further revision of the framework.

The Quality Assurance domain is also collaborating with WHO to develop an instrument that institutions can use for self-assessment and quality improvement of their academic program in pharmacy. The self-assessment instrument uses the quality criteria of Global Framework and will be tested and validated in several countries prior to final adoption.

#### **4.4 Competency development**

There is no question that health care systems and patients require practitioners to possess relevant and contemporary skills and expertise. Workforce regulation should be aimed at maintaining the competence of health care professionals. Coupled with pragmatic Continuing Professional Development (CPD) policies, the importance of periodic performance appraisals is a powerful reinforcement of accountability for pharmaceutical care provision. These drivers for competence, together with an increasingly well-informed and sceptical public opinion, make clear the need for an educational strategy that will develop individuals who are 'fit for purpose'.

Competence can be defined as an ability based on work or job outputs.[10] A 'competency' pertains to an underlying characteristic of an individual and, for a health care professional, should be related in some way to effective performance. Statements can be derived that describe the behaviours that would be observed when the individual demonstrates competency. A 'competency framework' is the term given to the complete compilation of clusters, competencies (with or without levels) and behavioural indicators. The competency cluster is a collection of closely related competencies, showing the highest elements

and behavioural indicators as the most detailed elements, and it remains a common layout for a competency framework.[11] If the objective is to provide a developmental, or educational support for the practitioner, then these frameworks may also be described as developmental frameworks. The purposes of competency frameworks are diverse. Some look for descriptions of a hierarchy based on diverse competency thresholds, whereas others are more determining in nature and aim to promote competencies over time.[12]

**Table 1. Competence, competency, performance, effectiveness [13]**

<b>Competency</b>	Single item of knowledge, skill or professional value
<b>Competence</b>	Full repertoire of competencies
<b>Performance</b>	Reference to observable behaviour. What an individual actually does, as opposed to what they can do
<b>Effectiveness</b>	Effect of performance on a recipient

The vision and competency project team is charged with developing an “educational roadmap” to guide efforts in and mechanisms for pharmacy education. Countries, particularly those marginalised by the human resources for health crisis, can use this evidence to develop their workforce and to track the results of their efforts. This domain of work will examine the existing competency frameworks and use of these before initiating a consultative and evidence-based process to develop a broad competency framework for the pharmacy workforce. As part of this process, the relationship between culture of competency (and any perceptions therein) will be explored.

Clearly, no one particular competency model will meet the needs of all parties, but identifying the core tenets that support all pharmaceutical services along the continuum from research to public health allows for a grounded foundation and framework with flexibility for adaptation according to context.

In recent years, a large number of European countries have established ways of pharmaceutical competence through indirect assurance by legal frameworks of compulsory CPD: for example, Portugal (in 2001), France (in 2002) and UK (in 2009). Table 2 shows the extent that practice frameworks have been introduced – although these are not necessarily developmental or performance related competencies; a greater proportion comprise functional task lists or task expectations, rather than competencies per se.

**Table 2: Sample response (n=52): Does your country have a competency framework for pharmacists?**

<b>Sample Response</b>	<b>Number of countries</b>
No	19
Yes	20
In development	13

**Table 3: Description of “competency” framework in countries with frameworks**

<b>Description</b>	<b>Frequency</b>	<b>Country examples</b>
Professional development design or functional task list	5	Kenya; Vietnam; Australia; Canada; France
Academic, developmental or educational design	5	Nigeria; Israel; USA; Korea; Egypt
Regulatory intention only	7	Switzerland; Brazil; India; Argentina; Italy; Spain; Austria
Framework in development	5	UK; Zimbabwe; Pakistan; Serbia; Costa Rica

Some countries have taken greater steps towards recognizable competency frameworks, including robust methods for revalidation such as maintaining a learning portfolio, self reporting of evidence and different ways of CPD. Australia, British Columbia in Canada and New Zealand (Pharmaceutical Society of Australia 2003; College of Pharmacists of British Columbia 2006 and Pharmacy Council of New Zealand 2006) use self assessment against defined competence standards linked with revalidation and re-licensing. In the UK, Australia, Singapore and Croatia pharmacists in acute and chronic care settings are using evidence-based developmental tools (see [www.codeg.org](http://www.codeg.org)). There is a growing body of evidence to suggest that frameworks that use a competency approach are being used by pharmacists as a way of operationalising otherwise vague concepts of CPD and CPD policy.[14-16]. To our knowledge, the only developmental framework for pharmacy technicians is located in the UK (see [www.codeg.org](http://www.codeg.org)).

International initiatives indicate a need for clearly defined standards of practice if useful continuing pharmacy education and training is to assure competence. However, the real challenge lies in the assessment of performance when completing tasks, that is, competence in practice.

To achieve a high quality global infrastructure for pharmacy, the educational system should be mapped to the required competencies of pharmacists to provide the relevant pharmaceutical services for meeting the health needs in any given country context. While no one national model may be appropriate for all systems, there are significant global health, labour and market drivers which suggest that a competency-based approach is sensible and sustainable for workforce development. There is a need to develop approaches to learning which explicitly specify the outcome in terms of competencies that can be taught, learned and assessed.[17-21]

A session organised by the Taskforce at the 15th International Social Pharmacy Workshop (ISPW) held in Queenstown, New Zealand, in July 2008, explored the feasibility and cultural and professional barriers in adopting a common global competency framework. The outcomes indicated a growing interest in competency development across different settings. Seeking a global generic common framework adaptable to the needs of the countries was positively identified as a way forward. The need for a global competency framework was recognised among the participants but questions remained about how this should be achieved. Reviewing existing frameworks (internal and external to pharmacy) and developing a broad, simple framework with functional areas that could be adapted to local situations were suggested as next steps.

#### 4.5 Linking workforce development into workforce planning

Measuring the performance at various levels from general through to advanced should be the cornerstone of workforce regulation. But this cannot happen without recognising that competence is part of the developmental roadmap towards assuring safe and high quality performance in individuals. There is an emergent need to clarify career paths and to define educational goals through competency-based educational approaches. The time for a global approach to competence has arrived.

A needs-based education strategy is called for which would provide opportunity for education systems to best assess the needs of its community and then develop (or adapt) the supporting educational system in order to produce a workforce relevant to needs. Healthcare demands are diverse and complex, often varying widely within and between regions. Although broad and general frameworks may be beneficial at the macro level, a 'one-size-fits-all' system does not offer the authenticity needed for buy-in and sustainability at the domestic level.

#### 4.6 Recommendations and next steps

One strategic approach that has been adopted by the Taskforce has been to form a partnership with UNESCO, with the aim of using the available experience of a global agency and coupling this directly to the pharmacy higher education sector across regions. The designated Global Pharmacy Education Development Network UNITWIN platform will act as a conduit for developing consensus and facilitating the spread of best practice and educational development world-wide.

The UNITWIN Network will establish a resource base and collaborative forum for exchange, research and capacity building dedicated to tackling challenges of academic capacity, quality assurance of educational systems and workforce competency. This is the first time that a formal global network has been established for pharmacy education under the stewardship of the professional body and UN agencies.

- The Taskforce should focus on efforts to advocate and facilitate design and support tools for pharmacy education that are needs-based in their approach. This should importantly include post-registration education in addition to pre-service.
- Education strategies need to be flexible for the pre-existing and future needs of the community in order to optimise effectiveness. This further supports the importance of the adoption of a vision and action plan for global pharmacy that is founded in local, regional, national and international needs for health care.
- The Taskforce recommends, and will work towards, establishing a global forum for policy makers and educational planners in order to provide a mechanism for global reform and development.
- The Taskforce will establish a global network for education, under the advocacy of the FIP-WHO-UNESCO partnership that will facilitate action and advancement of education as a needs-based commitment to improving pharmaceutical health care.

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