



Global Pharmacy Workforce and Migration Report  
a Call for Action







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Written by: Xuan Hao Chan, Tana Wuliji; FIP Project Coordinators

Design by: Inês Figueiredo

Printed by: Visão Gráfica - Portugal

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## FOREWORD

On behalf of the International Pharmaceutical Federation, it is with great importance that we bring to you the official FIP Global Pharmacy Workforce and Migration Report.

Human resources for health has been a significant focus of FIP over the last year in the build up to the 2006 World Health Day of the World Health Organization. This report compiles data on many aspects affecting the constantly changing profile of pharmacy human resources around the world. FIP strongly believes that an expertly skilled and competent - but also motivated and professionally fulfilled - pharmacy workforce is of pinnacle importance in the safe and effective delivery of healthcare. FIP is committed to collaborating with Member Organisations to develop an evidence base for action to strengthen the pharmacy workforce.

With this report, we invite Member Organisations and key stakeholders to examine those issues affecting the pharmacy workforce in their own countries, and to join FIP in celebrating the profession and planning for its future direction.

Jean Parrot  
*President*  
International Pharmaceutical Federation





# INTRODUCTION

All over the world, health care systems are undergoing dramatic changes. As populations age and disease burden increases due to HIV/AIDS and chronic diseases, we see a corresponding growth in demands on health systems and patient needs. The increased pressure on health care systems stretches the health workforce to meet the accelerating demand for health care providers, services and managed care facilities. No examination of these mounting issues is complete without a critical evaluation of global and national human resources. This must be taken into consideration in the development of health, labour and education policies. Data collection is the key initial step to understanding the current health care labour market.

In many countries, pharmacists are the most accessible of all healthcare workers and as such play a key role in the delivery of healthcare services at all levels. In an era of rapidly accelerating change in healthcare delivery, the roles of pharmacists are being constantly redefined. As roles change, competency and training requirements change. Thus it is vital that international data relating to the pharmacy workforce be available to be considered in international and national health care policies and workforce planning.

The International Pharmaceutical Federation developed the Global Pharmacy Workforce and Migration Study with the support of FIP Member Organisations, to build an evidence base on the pharmacy workforce, raise awareness of global trends affecting the workforce and engage partners to develop strategies to address these.

This report for the first time presents global data on the distribution of pharmacists, Continuing Professional Development systems, and migration of pharmacists. This report is one of the major projects of FIP on Human Resources for Health, in the lead up to 2006 World Health Day and the launch of the WHO Ten Year Action Plan for Strengthening the Health Workforce.

The 2006 World Health Day celebrates the healthcare worker on the 7<sup>th</sup> of April with the theme of Human Resources for Health. The 2006 World Health Report will cover issues relating to health professionals such as pharmacists, physicians,

nurses, dentists and allied healthcare workers. This, together with other activities leading up to the day, aim to raise awareness of the need to address issues relating to the distribution, training, competence, capacity, and migration of health professionals.

**“Sufficient investment in the recruitment, training, retention and involvement in health policy of health care professionals is the key to the quality and safety of care”**

Ton Hoek, General Secretary, FIP

FIP participated in the *WHO Human Resources and National Health Systems – Shaping the Agenda for Action Workshop* in 2002<sup>1</sup>. This workshop involved a range of stakeholders including ministries of health and professional organisations to identify the following four priorities for action:

- examine and prepare for the effect of HIV/AIDS on the health workforce and workload;
- advocate for fair incentives and motivation to remunerate and retain health workers;
- address and map imbalances regionally and at a country level;
- and collect evidence and explore the effect of strategies to manage the migration of health workers.

Health workers save lives and are the interface between health systems and the community. Imbalances in human resources for health will only exacerbate imbalances in access to quality health care and compromise patient safety. In 2002, the World Health Professions Alliance partners (FIP, International Council of Nurses and the World Medical Association) called for increased attention to patient safety, a health care challenge that is inextricably linked to human resources for health<sup>2</sup>. The WHPA urged WHO, governments and others to examine ways and means of attracting and retaining appropriately qualified health workers.

The FIP Global Pharmacy Workforce and Migration Report serves as an international starting point to provide a snapshot of the current workforce issues in pharmacy and give direction on required actions to build capacity and strengthen the profession. It is the vision of the Federation to set the international

agenda in addressing pharmacy workforce issues and to provide guidance in the development of solutions.

With this report, FIP urges pharmacy professional and regulatory bodies, policy makers, pharmacy education providers, and pharmacists to document the profession, build an evidence base, and develop national strategies and actions to address workforce issues and strengthen the pharmacy workforce as an integral part of the health care system.

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2. World Health Professions Alliance (WHPA) Press Release. Health Professionals Call for Priority on Patient Safety. Available at: [www.whpa.org/pro7\\_02.htm](http://www.whpa.org/pro7_02.htm)

# FIP GLOBAL PHARMACY WORKFORCE AND MIGRATION STUDY METHODS

The FIP Global Pharmacy Workforce and Migration Study sought to collect global data on the following:

- The distribution of pharmacists according to country, gender and practice area
- Pharmacist shortages and country imbalances in pharmacist workforce distribution
- Continuing Professional Development (CPD) and Continuing Education (CE) programmes for pharmacists
- Regulation, training and certification of pharmacy technicians
- Migration of pharmacists worldwide and registration processes for foreign pharmacists

Surveys and follow up reminders were sent to FIP Member Organisations comprising of pharmacy professional and regulatory bodies. The FIP surveys were developed with the advice of the Human Resources for Health Department of WHO.

Three surveys were developed to focus on:

- Pharmacy workforce
- CPD/CE
- Migration of pharmacists

Literature searches were conducted through PubMed and the internet to find papers and reports on pharmacy workforce studies, CPD/CE systems, and the migration of health professionals.

Population data was taken from the Population Reference Bureau 2005 population statistics ([www.prb.org](http://www.prb.org)). Country economic classifications were sourced from the World Bank. Data from the online surveys were downloaded into Excel. Other data responses were entered into Excel spreadsheet and analysed. All data was checked to ensure accuracy of data input and where necessary, clarified with the data source. Although very few articles have been published related to pharmacy, a number of country reports and background papers from professional associations and health agencies were used.

## PHARMACY WORKFORCE SURVEY

A survey comprised of 32 questions was designed in consultation with WHO to collect the following information from FIP

Member Organisations (see appendix 1):

1. Contact details of personnel responsible for human resources for health
2. Total number of pharmacists
3. Gender distribution of pharmacists
4. Practice distribution of pharmacists
5. Continuous Professional Development programmes and requirements

The survey was available in English, French, Portuguese and Spanish and could be completed either online or in hard copy. A total of 83 member organisations were contacted on the 22<sup>nd</sup> of July 2005 and 34 organisations responded with data by the 20<sup>th</sup> January 2006. All member organisations were actively followed up with reminders sent by facsimile, email and telephone.

## CONTINUING PROFESSIONAL DEVELOPMENT (CPD) / CONTINUING EDUCATION SURVEY (CE)

This survey followed the Pharmacy Workforce Survey and was sent to all FIP Member Organisations that responded. The survey was sent to the respondent contact or contact persons responsible for CPD/CE programmes. The following information was collected (see appendix 2):

- Regulatory bodies organising or providing CPD and CE programmes
- Details on CPD and CE system
- Standards and accreditation of CPD and CE providers and programmes
- Incentives for completing CPD and CE programmes and penalties for failing to undertake CPD and CE

The survey was available in English, French, Portuguese and Spanish and could be completed either online or in hard copy. A total of 34 member organisations were contacted on the 24<sup>th</sup> of November 2005 and 17 organisations responded with data by the 10<sup>th</sup> of February 2006. Respondents to the pharmacy workforce survey also answered on whether CPD was compulsory in their country. All member organisations were actively followed up with reminders sent by facsimile, email and telephone.

## MIGRATION STUDY

Data was collected from ten countries including Australia, Canada, Ghana, Ireland, Kenya, New Zealand, South Africa, Uganda, United Kingdom, and United States of America. These countries were approached along with four other countries (Nigeria, Rwanda, India, and Zimbabwe) who were anecdotally described as having a significant inflow and outflow of pharmacists through migration.

Over 70 pharmacy regulatory boards, professional bodies, Ministries of Health, Pharmacy Faculties, and pharmacists around the world contributed to the collection of data. A survey was sent to professional and regulatory bodies, followed by the Ministry of Health and faculties of pharmacy where additional sources for data were required (see appendix 3). Countries were actively followed up through phone, email, fax and letters. The data was also used to examine imbalances in pharmacist distribution within a country.

Data was collected between the 27<sup>th</sup> of September 2005 and 10<sup>th</sup> February 2006. A literature search was also used to gather data where responses were missing and compile relevant findings. The number of active practicing pharmacists was used as the total number of pharmacists where differentiation was provided in the number of registered pharmacists.

The survey collected data on:

- The total number of registered pharmacists in 2005.
- The total number of foreign registered pharmacists in 2005.
- The number of pharmacists graduating per year from the year 2000 - 2005.
- The number of pharmacists that registered from abroad each year from the year 1995 – 2005.
- The number of pharmacists from abroad that applied for registration from the year 1995 – 2005.
- The countries from which pharmacists were originally registered as a pharmacist prior to application for registration and the corresponding numbers for each country.
- The number of pharmacists migrating to another country each year from 1995 – 2005.
- The application procedure for pharmacists from abroad to register as a pharmacist.

## PHARMACY TECHNICIANS STUDY

A component of the Pharmacy Workforce Study focused on the pharmacy technician workforce.

The following information was collected from FIP Member Organisations:

- Total number of pharmacy technicians
- Education and training programmes of pharmacy technicians
- Certification requirements of pharmacy technicians

The survey was also available in English, French, Portuguese and Spanish and could be completed either online or in hard copy. A total of 83 member organisations were contacted on the 22<sup>nd</sup> of July 2005 and 34 organisations responded with data as of the 20<sup>th</sup> January 2006. All member organisations were actively followed up with reminders sent by facsimile, email and telephone (see appendix 1).

## STUDY LIMITATIONS

The main limitation of this report is the lack of full details from all countries of the number, distribution, demographics, and migration of pharmacists. Whilst full response from countries in this study was not achieved, a significant wealth of information of the human resources issues in pharmacy in many countries was collected. Many countries were not able to account for pharmacists and describe their practice area or status. In this instance, data may be misleading and further information systems development is required at a country level. Numbers may also be misleading as the distribution of pharmacists within a country may be imbalanced between rural and urban areas. Regional data groupings may not be fully representative but give an indication of trends. Further data is required from non-respondent countries on the workforce and greater study is required to understand the extent of pharmacist migration in non-English speaking countries.

With the constraints of time and limitations of existing country level databases, we were not able to collect data on the age distribution of pharmacists.

Data on the total number of pharmacists was reliant on the information provided by national pharmaceutical associations and/or national pharmacy boards. No verification on the practicing status of the pharmacists was done.

The study did not look at the supply and demand of the global pharmacy workforce in all respondent countries. Pharmacy schools should be engaged in future studies on the pharmacy workforce in order to develop a greater understanding of the human resources situation.

# PART I: WORKFORCE DESCRIPTION

Pharmacists represent the third largest healthcare professional group in the world. The majority of pharmacists practice in community pharmacies, hospitals and other medical facilities. Smaller numbers of pharmacists are employed in the pharmaceutical industry.

Although various national initiatives studying the pharmacy workforce have been developed, such as the recent 2005 pharmacy workforce project of the Royal Pharmaceutical Society of Great Britain, little or no published international data exists<sup>1</sup>.

The size of the labour force depends on a number of issues, including the number in the labour market of working age, the participation rate of those who are working, and the availability of those no longer working but who may return to pharmacy employment<sup>2</sup>. It is also important to look at the health and retirement age of pharmacists. Other priorities may include identifying the levels, causes and implications of turnover among different cohorts of pharmacists; research into the adequacy and suitability of undergraduate training; examining the job satisfaction levels and motivations of pharmacists; and ensuring ethical recruitment<sup>3</sup>.

This part describes what is known about the current pharmacy workforce in 34 countries. It also looks at the total number of pharmacists in each country, pharmacist to population ratios, gender distribution, and distribution according to practice area. Further examination of country imbalances are also explored in three countries.

**Table 1.** Respondent countries according to WHO Regions:

Africa (5)	Eastern Mediterranean (2)	Europe (16)	Pan America (4)	Western Pacific (4)	South East Asia (3)
Cameroon Côte d'Ivoire Ghana Kenya Madagascar	Israel Iraq	Austria Czech Republic Denmark Finland France Germany Hungary Iceland Ireland Italy Malta Norway Portugal Switzerland Turkey United Kingdom	Brazil Uruguay Canada United States of America	Australia Japan Singapore Taiwan	India Indonesia Thailand

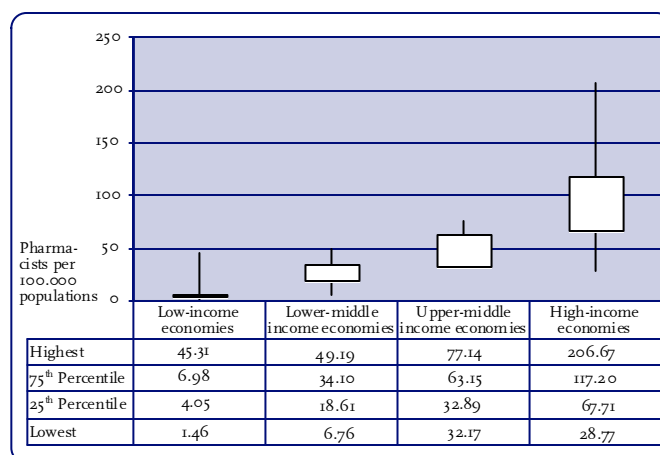
The 34 respondent countries are spread over the six WHO regions with the highest number of countries from the European region.

## I.1 GLOBAL OVERVIEW: PHARMACISTS DENSITY

The data collected revealed that the pharmacist to population ratios vary widely from less than 5 pharmacists per 100,000 population to as high as over 200 the pharmacists per 100,000 population in some countries.

The average ratio in the Western Pacific countries is about 25 times more than that of the countries in the African region and has the highest ratios compared to other regions. The ratio is also related to the economic status of the country as can be seen in figure 1, with the low income countries having the lowest ratio and high income countries having the highest ratio.

The low availability of pharmacists in many developing countries is exacerbated by geographical distribution disparity between the rural and urban areas (refer to 1.3: Workforce shortages and imbalances).



**Figure 1.** Pharmacist densities by country income economies (World Bank Country Classification).

Refer to appendix 4 for more detailed information on pharmacy densities by income classification and by WHO regions.

## I.2 PHARMACIST GENDER DISTRIBUTION

There is a higher percentage of female pharmacists in the European and Africa/Eastern Mediterranean region. A higher percentage

of male pharmacists appear in the Western Pacific/ South East Asia region, although this is largely due to the high number of male pharmacists in India (300,000 males which accounts for 70% of India’s pharmacist workforce). A higher percentage of male pharmacists is also seen in the Pan American region.

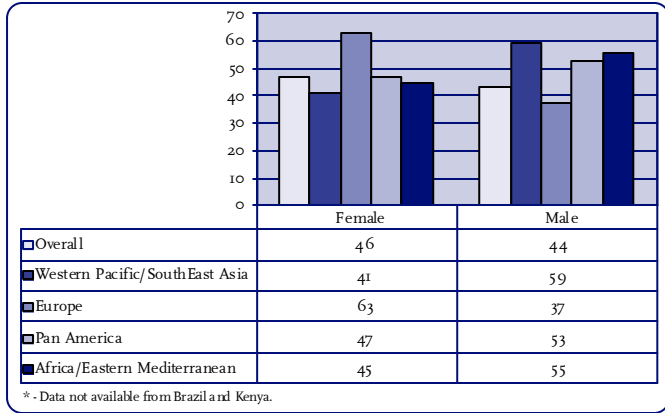


Figure 2. Pharmacist gender distribution by percentage according to region.

### 1.3 REGIONAL OBSERVATIONS

Distinctly, we observe that the majority of pharmacists in the 34 countries practice in the community and hospital setting, about 73% in total. Europe has the highest percentage of pharmacists in the community pharmacy setting, about 71%. There is also a much higher percentage of pharmacists in the Western Pacific and South East Asia countries working in the hospital sector than pharmacists in other regions. (21% compared to an average of 9% in all other regions).

Across the regions, we also see that the percentage of pharmacists in the Western Pacific and South East Asia countries, working in the Sales and Marketing sector is significantly higher (6% compared to less than 1% in all other regions).

About 13 % of pharmacists are not accounted for by the national pharmaceutical boards and pharmacy councils in the African and Eastern Mediterranean countries and almost 19% of the pharmacy workforce in the South American region is practicing in other areas of pharmacy. These missing numbers indicate that data reporting protocols need to be reinforced and more in depth information has to be collected in order to better understand the work patterns of the profession as part of a global workforce strategy.

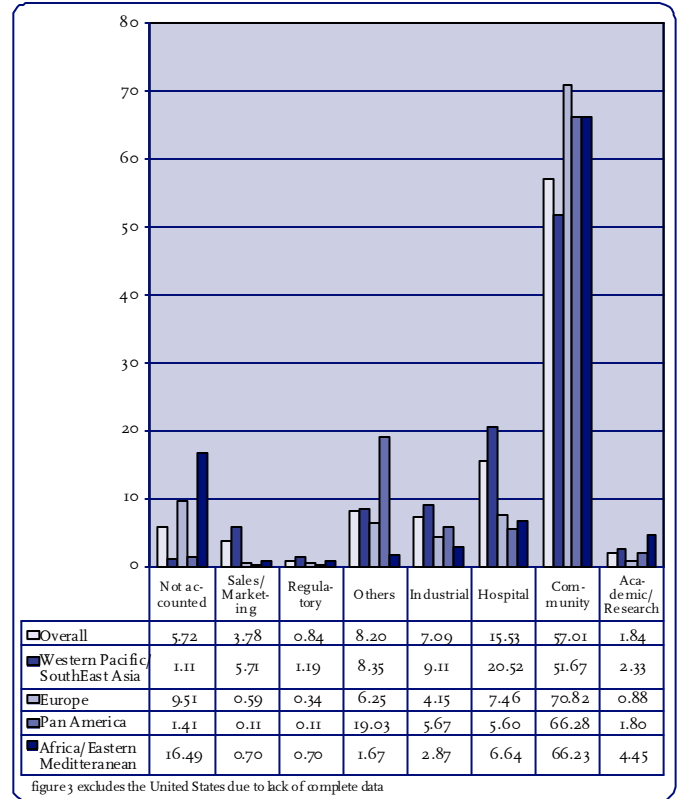


Figure 3. Pharmacist distribution across pharmacy practice fields as percentage of total workforce according to region.

#### South East Asia Region

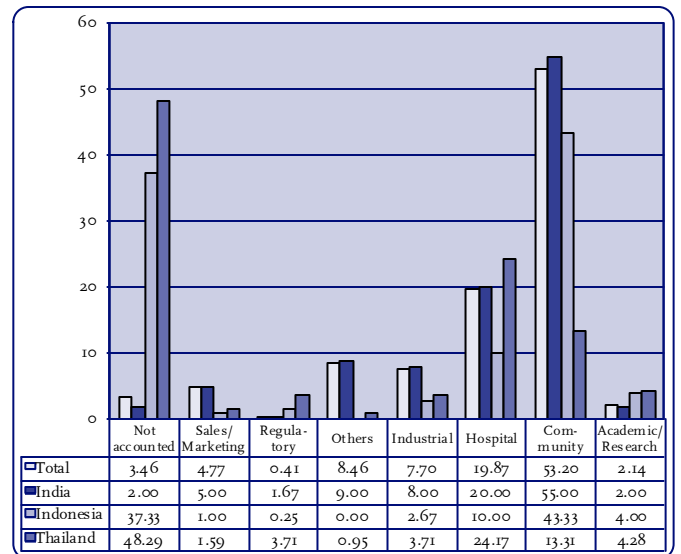


Figure 4. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the South East Asia region.

Nearly 40% of pharmacists in Indonesia and 50% of pharmacists in Thailand are not accounted for in the data records of the national pharmaceutical associations. This could also be due to lack of centralised record keeping at the country level. Similarly, in other WHO regions, some national pharmaceutical associations represent only a particular field of practice and thus, do not have the data for other fields. There is a need to reinforce a system of data collection so as to enable reasonable trend watching on the workforce.

### Western Pacific Region

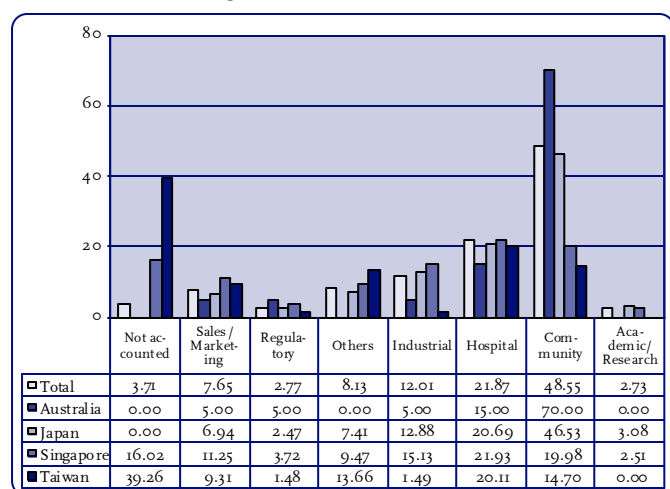


Figure 5. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the Western Pacific region.

The WHO regions represent administrative categories, and some cover a broad range of countries with different characteristics. Thus it is interesting to look at some of the intra-regional differences. Large intra-regional differences can be observed in the Western Pacific region. Seventy percent of the pharmacists in Australia work in the community pharmacy sector while in Singapore and Taiwan, less than 20% of the workforce is in the community sector. This region also reflects some of the higher percentages of pharmacists working in the global sales and marketing sector, 11% (Singapore) and 9% (Taiwan).

### Pan American Region

There are distinct differences in the work patterns of the pharmacy workforce between countries like Brazil and Uruguay even within the same WHO region. Over two thirds of pharmacists work in community pharmacy in Brazil

compared to just a third in Uruguay. A large proportion of pharmacists in Uruguay are unaccounted for.

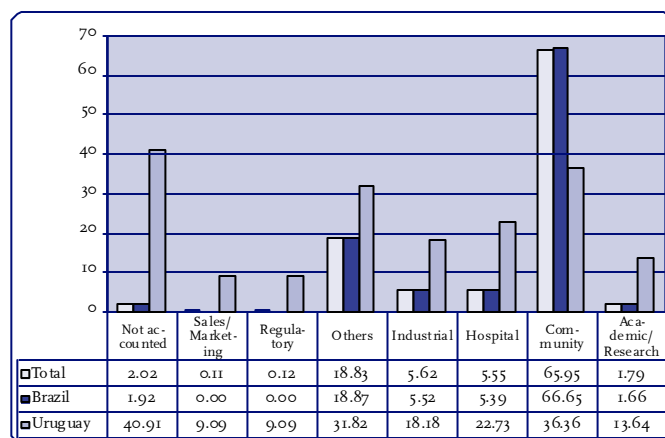


Figure 6. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the Pan American region.

### African and Eastern Mediterranean Region

The work patterns of the African and Eastern Mediterranean region is similar to the European region, with a distinct majority of pharmacists working in the community sector. This region reports the highest percentage of pharmacists not accounted for in their pharmacy workforce. Côte d'Ivoire reported about 24% of pharmacists working in other sectors. This figure included pharmacists working in laboratories, pharmaceutical wholesalers and other private dispensaries.

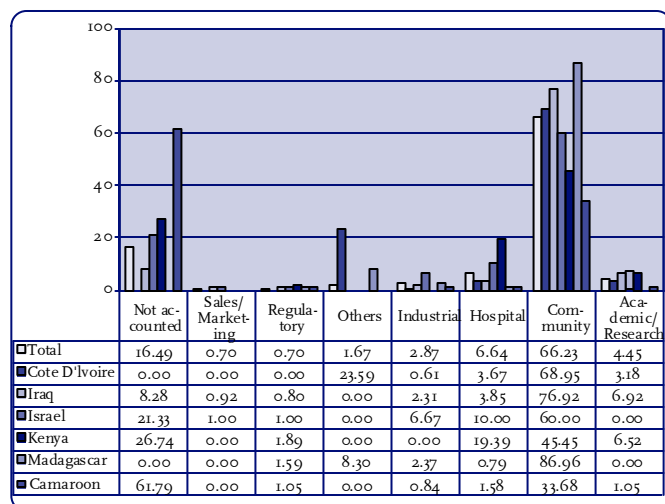


Figure 7. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the African and Eastern Mediterranean region.

### European Region

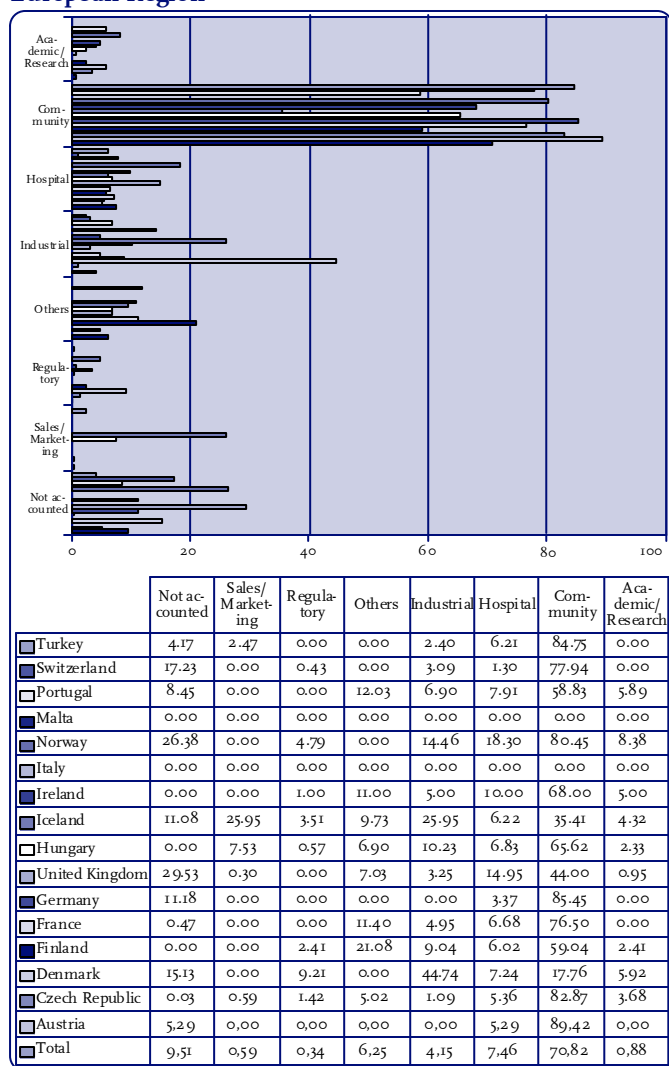


Figure 8. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the European region.

Within the European region, we observe that some countries (Denmark, Norway and Iceland) have a notably higher average of the pharmacists in the industry. Although community pharmacists represent about 70% of the European workforce, only 35% and 58% of the workforce are in community pharmacy in Iceland and Portugal respectively.

## 1.4 WORKFORCE SHORTAGES AND IMBALANCES

The number of pharmacy graduates per year is escalating in many countries worldwide in an effort to provide enough

pharmacists to meet demands and fill vacancies. The number of pharmacy schools worldwide currently stands at 914<sup>5</sup>. The shortage of pharmacists has been attributed to increases in the volume of prescriptions; growth the population over the age of 65; greater administrative requirements for handling third-party payments; the changing role of pharmacists; and the growing proportion of women in the profession who are less likely to work full time<sup>6,7,8,9</sup>. A shortfall of over 150,000 pharmacists by 2020 in the USA was projected in a study in 2002<sup>8</sup>. Similarly, in Australia the demand for pharmacists is projected to increase between the years 2000 to 2010 from 13,000 to 17,200; thus leading to a shortfall of about 3,000 pharmacists by 2010<sup>6</sup>. However, it was noted that a large pool of about 5,000 pharmacists are currently on the register in Australia but not working in pharmacy. In Zimbabwe, only 20% of the approved public sector positions for pharmacists were filled in 1999 with the majority of the 524 registered pharmacists opting to work in the private sector<sup>10</sup>. Shortages in the profession affect all areas of pharmacy practice with some areas such as the public sector finding it more difficult to recruit, especially where there are differences in remuneration and working conditions.

There is no internationally established minimum recommended pharmacist to population ratio. Many countries have developed their own recommendations based on demand for pharmaceutical services. In France, the l'Ordre National des Pharmaciens submits annual workforce statistics such as the number of practicing pharmacists, foreign pharmacists, and pharmacy students; attrition rate; regional distribution; and demographics to the Ministry of Health. These statistics are then used to determine the number of pharmacy students that may progress onwards from the first year of studies and additional foreign pharmacists that may practice in France each year. The demand for pharmacists and the required ratio to the population is specific to the local needs. These are determined by a range of factors including the population demographics; disease burden; economic status; market forces; pharmacist roles and competencies; legislation relating to medicines dispensing and prescribing; roles of other health workers; health systems and technology.

Workforce shortages are further compounded by imbalances in the distribution of existing pharmacists within countries. Current survey results show that the majority of the USA population live in areas that report at least a moderately high difficulty in filling vacant pharmacy positions<sup>11</sup>.

About 10% of pharmacy positions in Canada were vacant in the year 2000<sup>7</sup>. It was also noted that although the expansion



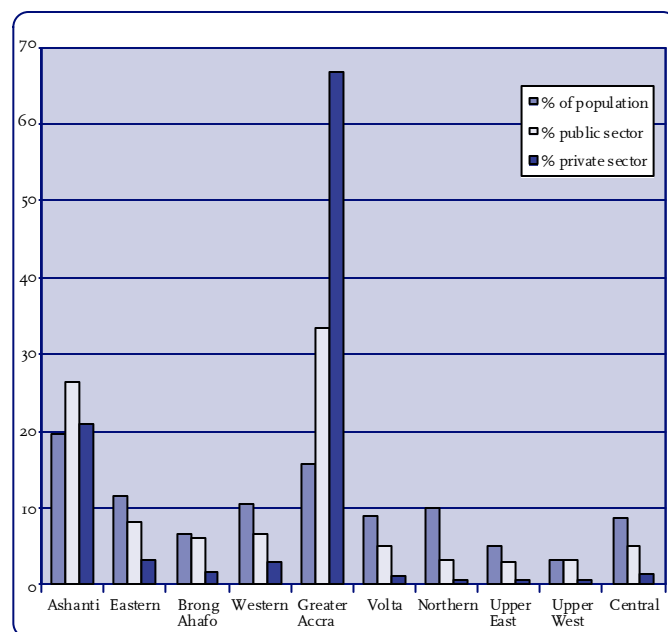
of the roles of pharmacists has increased demand, shortages appear to place limitations on the counselling services provided by pharmacists. Long hours and increasing prescription numbers results in less time being spent counselling patients, a part of the pharmacists' responsibilities that bring the greatest job satisfaction. Reduced staff morale, increased stress and risk of errors have been widely cited as consequences of pharmacist shortages. There are concerns that the excess demand for pharmacists is undermining the slow progress and development of clinical pharmacy.

Australia and Canada do not appear to have regional workforce distribution imbalances, compared to Ghana and Uganda, with the proportion of pharmacists in each region matching the proportion of the population. However, workforce imbalances have been reported within regions in workforce reports between urban and rural areas. Rural areas in Canada, Australia and New Zealand find it difficult to recruit younger pharmacists and are served by pharmacists who are looking to retire in the next ten years<sup>6,7,8</sup>. Migrant workers are recruited in locations that are not easily filled by local workers, especially rural areas. Some countries have programmes in place to encourage pharmacists to work in rural settings and increase exposure to rural pharmacy practice, such as the Pharmacy Guild of Australia's Rural and Remote Pharmacy Workforce Development Program (RRPWDP).

## Ghana

In 2005 the total number of pharmacists registered by the Pharmacy Council in Ghana was 2162. Of these, 1579 were recorded to work as either private or public sector pharmacists. The country of 21 million people is served by a ratio of 10 pharmacists per 100,000 population<sup>12</sup>.

Although 15% of practicing pharmacists work in the public sector in hospital pharmacy, they are disproportionately distributed in the more urban areas of Ashanti and the Greater Accra regions in Ghana. Likewise, 67% of pharmacists working in the private sector are based in the Greater Accra region<sup>12</sup>. Imbalances in regional distribution leave regions other than the Greater Accra and Ashanti with around 2 pharmacists per 100,000. Delegating certain functions in pharmacy assistants has assisted to relieve pharmacists of excess workload.



**Figure 9.** Distribution of pharmacists working in private and public sector vs. population across each region in Ghana in 2005 (June).

Source: Pharmacy Council of Ghana (2005), Ghana Census Study (2000).

Note: Data for Northern, Upper East and Upper West for private sector pharmacists was only available as pooled data and is given as an average value.

The Ghanaian pharmacist workforce has seen an increase of 79% in the number of public sector pharmacists and 56% for the number of private sector pharmacists between 2001 and 2005. The percentage increase is mostly seen to the number of pharmacists working in the Greater Accra region and less so in other regions. This trend may not continue unless the migratory flow of pharmacists from Ghana is reduced. Since 2001, Ghana has trained 700 pharmacists through its only pharmacy school although it is believed that a large proportion of these graduates have migrated abroad (refer to Part 3: Migration of Pharmacists).

## Kenya

Kenya has a population of almost 34 million that is served by 1342 pharmacists registered with the Pharmacy and Poisons Board of Kenya in 2005. The number of graduates each year from the pharmacy school has doubled from 25 in 2000 to 53 in 2005. The Kenyan Pharmacy and Poisons Board estimates that over 190 pharmacists have migrated abroad in the last ten years, a loss that is equivalent to the total number of pharmacists that were trained since 2000.

In 2003, a WHO “3 by 5” emergency mission found that 160 pharmacists or pharmacy technicians were unemployed in Kenya; a readily available workforce that could be utilised to scale up HIV/AIDS medicines access<sup>13</sup>.

## Uganda

Uganda, with a population of almost 27 million, struggles to effectively deploy their limited human resources of 249 pharmacists. There is a ratio of just 1 pharmacist per 100,000 population however nearly 90% of these pharmacists practice in the Central region leaving the other three regions greatly underserved. Up to 25 pharmacists graduate each year, a number that is grossly inadequate to meet needs. Pharmacist availability was estimated to be about 30% of the required number by the Ministry of Health<sup>14</sup>.

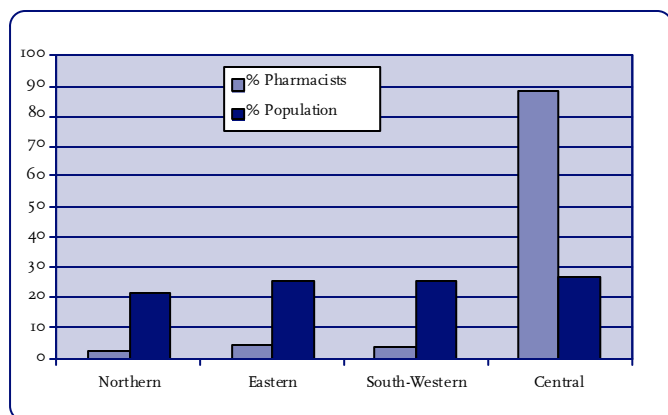


Figure 10. Distribution of pharmacists in Uganda across each region in 2006.

Sources: Pharmaceutical Society of Uganda (2006), Uganda Population and Housing Census (2002)

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## PART 2: CONTINUING PROFESSIONAL DEVELOPMENT AND CONTINUING EDUCATION

As pharmacists assume the increased responsibilities demanded in new roles, they must also make a corresponding commitment to improve their professional competence<sup>1</sup>. Indeed the past four or five decades have seen an explosion of new knowledge relevant to the practice of pharmacy. In addition, particularly in the past decade, there have been vast changes in the practice of pharmacy. Keeping knowledge and skills up to date and addressing new concepts in the delivery of pharmaceutical services have been major challenges for pharmacists.

Healthcare professionals are expected to meet patients' requirements for better and more accessible services, optimising the benefit they gain from their medicines, and reducing drug-related problems, while making the best use of pharmacists' skills and knowledge within a multidisciplinary team.

Competence is the first and most fundamental responsibility of all health care providers and must be reinforced throughout the years of practice. After the degree is conferred, continuing professional education is the only real guarantee of the optimal quality of healthcare providers<sup>1</sup>. Maintaining competence throughout a career during which new and challenging professional responsibilities will be encountered, is an ethical requirement for all health professionals<sup>2</sup>. FIP has recognised this responsibility in its Code of Ethics for pharmacists "to ensure competency in each pharmaceutical service provided by continually updating knowledge and skills"<sup>3</sup>.

The pharmacy degree is not an end point but the attainment of a standard. In the FIP Statement on Good Pharmacy Education, it is stated that continuing professional development must be a lifelong commitment for every practicing pharmacist<sup>4</sup>.

The concept of Continuing Professional Development (CPD) was proposed as a culture of lifelong learning in which learning programmes are used to identify and meet the learning needs of individual health professionals. CPD can be defined as "the responsibility of individual pharmacists for systematic maintenance, development and broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers."<sup>2</sup>

It must be an ongoing and cyclical process of continuous quality improvement by which pharmacists seek to maintain and enhance their competence in both current duties and anticipated future service developments.

It is important to differentiate CPD and Continuing Education (CE). The latter can be defined as structured learning experiences and activities in which pharmacists can engage after they have completed their academic education so as to improve knowledge, skills and competencies. Comparatively, CPD requires pharmacists to take personal responsibility for the identification of their learning and development needs and, importantly, for subsequent evaluation of their success in meeting those needs.

In CPD, CE is just one component of the learning experiences in which pharmacists are being encouraged to engage.

FIP strongly recommends national pharmaceutical organisations to take action to ensure that pharmaceutical education, both pre-university and post-university qualification, is designed to equip pharmacists for the roles they have to undertake in community and hospital practice<sup>5</sup>.

### 2.1 CPD AND CE SURVEY RESPONDENTS

Seventeen countries responded to the CPD/CE survey following up from the Pharmacy Workforce survey. These countries represent all six of the WHO regions. Only three countries specifically identified their systems as being CPD systems (Japan, Portugal and the United Kingdom).

Table 2. Respondent countries according to WHO regions:

Africa (2)	Eastern Mediterranean (3)	Europe (5)	Americas (3)	Western Pacific (3)	South East Asia (1)
Kenya Zambia	Cyprus Iraq Israel	Finland France Malta Portugal United Kingdom	Brazil Canada United States of America	Japan Singapore Taiwan	Nepal

## 2.2 MANDATORY CPD AND CE

A total of 37 countries, from both the Pharmacy Workforce Survey and the CPD/CE survey, responded to the question on whether CPD and/or CE is mandatory for pharmacists. Results showed that CPD and/or CE is mandatory in 9 countries and not mandatory in about 28 countries.

From the responses of the survey, we observe that many countries are in various developmental stages of CPD and CE implementation. The scenario can be unique in certain countries. For example, in Denmark there is no obligation for CPD or CE to renew or maintain pharmacist registration, however, Pharmakon ([www.pharmakon.dk](http://www.pharmakon.dk)) is the central institution for providing CE programmes for pharmacists. Also the Danish University of Pharmaceutical Sciences ([www.dfuni.dk](http://www.dfuni.dk)) also offers a range of learning activities.

Embracing CPD will put pharmacists in a learning mode on a day-to-day basis; they will no longer separate learning from practice. Informal learning must be integrated into structured learning to meet identified specific learning and development needs in the CPD cycle<sup>2</sup>.

There are questions that need to be asked to ensure effective mandatory CPD:

- Does it adequately address the learning needs of pharmacists?
- How can pharmacists access learning?
- Are we promoting learning or gathering hours?
- Are all required competencies for pharmacists addressed?
- How do we show evidence of practice change?
- How can we minimise fraudulent reporting?<sup>6</sup>

Governments (national and sub-national pharmacy boards) were responsible for regulating CPD and CE for pharmacists in 7 of the respondent countries. In countries that had more than one pharmacy regulatory board, respondents were asked to explain the relationships between them. Information collected on the regulatory boards and CPD and CE systems can be referred in appendix 5.

Responses also showed that 7 of the CPD and CE systems were credits-based.

There is a wide variety of CPD and CE providers and most commonly, learning programmes are provided by national

pharmaceutical associations, pharmacy boards, universities, teaching hospitals and pharmaceutical companies. In some countries like Finland, there are specialised pharmaceutical learning centres for training pharmacists like The Palmenia Centre for Continuing Education ([www.helsinki.fi/palmenia/english/](http://www.helsinki.fi/palmenia/english/)).

The establishment of CPD and CE standards and accreditation of providers vary from country to country and here we note some of the unique situations in these countries.

- In Canada, the provincial regulatory authority and/or the Canadian Council for Continuing Education in Pharmacy accredits CE programmes for pharmacists. The former is responsible for provincial programmes while the latter is responsible for national programmes.
- In Finland, each of the CE providers has set their own standards. For example, the Pharmaceutical Learning Centre and the universities provide most of the CE programmes for pharmacists and they follow their own standards.
- In Zambia, a standard for CE providers has yet to be established.
- In Portugal, each CPD activity is subject to a standards-based evaluation of its quality standards by the Portuguese Pharmaceutical Society. These encompass the definition of learning objectives, programme content and educators, applicability and relevance to practice, among others.

The data also indicated that only three countries have mandatory accreditation of their CPD and CE providers.

## 2.3 INCENTIVES

The most common incentive for pharmacists to undergo CPD or CE is the renewal of a license to practice as a pharmacist in the country. In some provinces of Canada, pharmacists require proof of completion of a minimum number of hours of CE to renew their license. In some other provinces, during a quality assurance process, pharmacists may be required to have their learning portfolio reviewed.

In Finland, there are long-term professional development programmes for community pharmacists and these programmes aim to upgrade practicing pharmacists in management, busi-

ness and professional skills. In Finland, a license from the National Agency for Medicines is needed in order to own a retail pharmacy and if there are several applicants for a pharmacy ownership license, it shall be granted to the applicant who may be considered the best qualified to operate the pharmacy. When a pharmacist has received a certificate for undertaking professional development programmes, he/she usually has a better chance in owning a pharmacy.

In the United Kingdom, CPD is linked to registration and practising status. Pharmacists must sign a declaration to do CPD annually if they register as practicing pharmacists.

In Israel, certificates are issued. Negotiations are underway for the Managed Care Organisations (MCO) to better remunerate pharmacists who have completed CE courses.

## 2.4 PENALTIES

In most countries with mandatory CPD and/or CE, a failure to complete the requirements for CPD or CE often results in the inability to renew a pharmacy practice license or risk being struck off the pharmacy register.

In Kenya, in the event that a pharmacist does not comply with the CPD requirements, the Pharmacy and Poisons Board (PPB) may impose any or more of the following:

- Requiring the pharmacist to follow a remedial CPD programme.
- Requiring the pharmacist to write an examination.
- Registering the pharmacist in a category that requires supervision.
- De-registering the pharmacist.

Pharmacists who find difficulties in performing CPD may be supported in the United Kingdom with remedial programmes. In Portugal, pharmacists may have to undertake an extensive examination to maintain a license to practice or undergo a disciplinary action and be suspended from practice.

## 2.5 CPD AND CE LEARNING PORTFOLIOS

Only four countries have specialised CPD/CE toolkits or portfolios for pharmacists undergoing CPD.

We recognise three important features of CPD<sup>7</sup>:

- CPD is practitioner-centred and self-directed
- CPD is practice related
- CPD is outcomes orientated

In our literature search we found little evidence relating to the use of portfolios in self-directed learning outside a formal scheme of study. There was a study done in the University of Wales on piloting a toolkit to aid portfolio building. This project was based on qualitative methods using focus groups to explore the experience of 14 pharmacists using a “portfolio development toolkit”; a pack designed to help them start a CPD portfolio. The pack promotes a number of specific approaches to key aspects of the CPD process<sup>8</sup>.

For more detailed information on each country’s CPD and CE system, see appendix 5.

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## PART 3: MIGRATION OF PHARMACISTS

The WHO's Mejia study published in 1978 was the first step of the organisation's response to a mandate calling for a study of health workforce migration<sup>1</sup>. This study provided a statistical report on the stock and flow of physicians and nurses in 137 countries and an analysis of the characteristics of migrants, directions, possible determinants and consequences, and actions to regulate migration.

In 2002, the World Health Assembly asked the secretariat to “accelerate development of an action plan to address the ethical recruitment and distribution of skilled health care personnel, and the need for sound national policies and strategies for the training and management of human resources for health”. In the same year, FIP participated in the *WHO Human Resources and National Health Systems - Shaping the Agenda for Action Workshop*. This workshop involved a range of stakeholders including ministries of health and professional organisations to identify priorities for action and partnership in addressing human resources for health issues.

WHO resolutions passed in May 2004 urged Member States among others to develop and establish mechanisms to mitigate the adverse impact on developing countries of the loss of health personnel through migration, including means for recipient countries to support the strengthening of health systems, in particular human resources development. It also requested the Director General of WHO among others to establish and maintain in collaboration with relevant countries/institutions/organisations, information systems which will enable the appropriate international bodies to monitor independently the movement of human resources for health, as well as conducting research on the international migration of health workers.

Little has been published or is known about the extent of the international migration of pharmacists. Though the migration of pharmacists has been recognised as an issue in reports of the WHO and some papers, concrete data for the most part has been unavailable<sup>2,3,4,5</sup>. There is no data on the migratory flow and itinerary of pharmacists and this was not studied in this report. Such data would be useful to determine patterns in migration, as statistics on the migration of pharmacists from one country to another do not provide the complete picture. Pharmacists may migrate to certain countries as a ‘stepping stone’ to facilitate onwards migration to other countries. The FIP Global Pharmacy and Migration study

targeted selected countries that had been anecdotally described as receiving (recipient countries) and losing (source countries) large volumes of pharmacists.

### 3.1 THE EXTENT OF PHARMACIST MIGRATION

The number of overseas pharmacists registering in recipient countries is the most reliable data however this does not fully capture the extent of migration. Those who have been unsuccessful in registering as pharmacists and/or working as pharmacy technicians after migrating to other countries are often not detected. In many countries, a letter of good standing or confirmation of registration is required from overseas pharmacists to complete their registration application. Source countries are able to track this with some limitation the number migrating abroad. What is detectable may just scratch the surface of the issue. What is also unknown is the pattern of migration of pharmacists. In figure 11 it appears that the majority of foreign pharmacist registrations are from high income countries (World Bank Country Classification). Although the proportion of lower-middle and low income countries may appear to be less, this still represents a significant effect on the source countries.

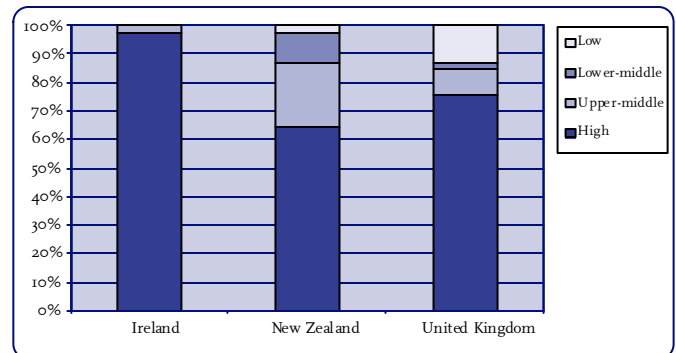


Figure 11. Foreign pharmacists registering in Ireland, New Zealand and United Kingdom according to origin economic country classification.

Source: Irish Pharmaceutical Society (foreign pharmacists registered with known origin country in 2005), Pharmacy Council of New Zealand (total foreign pharmacists registered in 2005), Royal Pharmaceutical Society of Great Britain (foreign pharmacists registering between 2001-2005). World Bank Country Classification.

The limitations of registration numbers demonstrating the extent of migration can be seen in the case of South Africa,

where only 18 foreign pharmacists have registered with the Pharmacy Council since 2003. Overseas pharmacists seeking to register as a pharmacist must first apply to join the South African Ministry of Health's Foreign Workforce Management Programme. Contrary the few that have registered, 184 pharmacists have applied to the Ministry's Programme since 2003. The staff coordinating the Programme at the Ministry of Health stated that they were becoming increasingly overloaded with the growing number of inquiries from foreign health professionals, indicating an increasing trend for receiving health professionals from other countries. Many pharmacists migrating to South Africa do not successfully complete the registration requirements which includes one year of mandatory community public service. In 2001 about 1000 pharmacy students graduated from South Africa; in the same year 600 pharmacists emigrated abroad<sup>6</sup>.

Many regulatory and professional bodies were not able to give accurate figures for the number of pharmacists migrating abroad or registering from abroad each year. This data is not routinely collected from pharmacists and difficulties exist in tracking this information. In large countries such as India, Canada, Australia and the USA, sub-national boards of pharmacy regulate the profession and individually collect information for each state/province, hence the level of detail of data collected is often inconsistent. Separate bodies may also be responsible for training or examining foreign pharmacists at a national or sub-national level. Lack of coordination and systematic reporting at a national level leads to difficulties in collating and interpreting detailed information about the workforce. Only 16 of 52 state boards of pharmacy responded in the USA, with just 5 states keeping records on the number of foreign trained pharmacists registered in their state. Data for the USA on foreign pharmacists is largely incomplete and requires further study before being reported. Foreign pharmacists employed in academia, industry and administration positions are not required to be registered so registration numbers may underestimate true figures.

The extent of data and information management is inconsistent in large countries with many sub-national unable to provide the required data relating to the number of foreign pharmacists, registrations per year, migrating pharmacists and pharmacy graduates. Figure 12 demonstrates the proportion of registered pharmacists that are foreign, however this is likely to be an underestimate as data is incomplete for large parts of Canada and Australia.

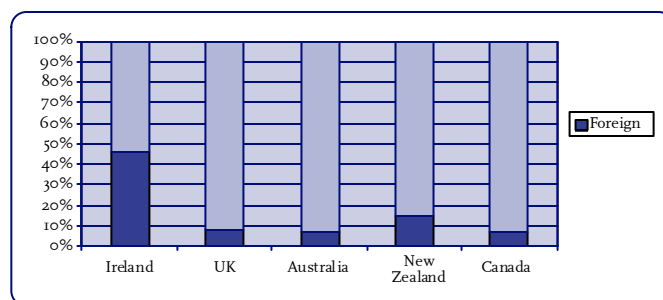


Figure 12. Proportion of registered pharmacists that are foreign (2005).

Source: Pharmaceutical Society of Ireland, Royal Pharmaceutical Society of Great Britain, Australian State Boards of Pharmacy, Pharmacy Council of New Zealand, Canadian Provincial Boards of Pharmacy (2005).

Data can also be variable between reports from the same sources and difficult to validate. Although the migration of pharmacists is not touted by the Pharmaceutical Society of Uganda to be an issue with just one pharmacist migrating abroad on average per year to their knowledge, Matowe et al published in 2004 that a third of registered pharmacists were working and residing outside of Uganda<sup>7</sup>.

The factors encouraging pharmacists to leave their country (*push factors*) or move to a country (*pull factors*) have not been studied. Studies examining reasons for migration in physicians and nurses have found factors such as income, job satisfaction, career opportunity, working conditions, management and governance and social and family<sup>5</sup>. Individuals may also choose to train in health as a means to facilitate migration.

Despite these limitations, the data collected in the FIP Global Pharmacy Workforce and Migration Study has identified a growing trend of international migration of pharmacists, an issue that not only affects developing countries but also developed countries.

### 3.2 AUSTRALIA

Since 1995, over 1100 foreign pharmacists have registered in Australia in five of the eight states where data was available. The supply of pharmacists from overseas has increased since the mid 1980's<sup>8</sup>. The Department Immigration and Multicultural Affairs found an increase of over 40% in the number of individuals with pharmacy qualifications permanently migrating to Australia between 1993-1994 and 1997-1998. Foreign pharmacists account for over a quarter of registered pharmacists in Western Australia with most pharmacists



originating from the United Kingdom and South Africa. Only two state boards kept data on the country of origin of foreign pharmacists and three on the total number of foreign pharmacists currently registered. The proportion of pharmacists that are foreign is under 10% though it may be higher given that no data is available for five state boards.

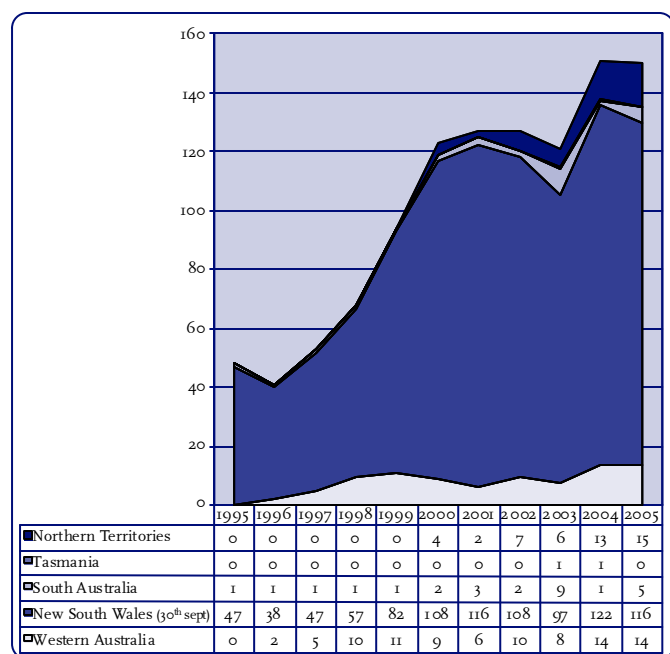
**Table 3.** Total number of pharmacists registered in each state of Australia (2005).

State	Total Registered Pharmacists	Total Foreign Registered Pharmacists
Western Australia	1930	516
Victoria	5301	Not available
New South Wales	7668	1016
South Australia	1399	28
Queensland	3980	Not available
ACT	401	Not available
Tasmania	550	Not available
Northern Territories	205	Not available
Total	21,434	1,560

Source: State boards of pharmacy

The number of foreign pharmacists registering in Australia appears to have steadily increased since 1995 with the vast majority of foreign pharmacists registering in New South Wales. Statistics relating to Australian pharmacists migrating abroad was only tracked by the Pharmacy Board of Tasmania.

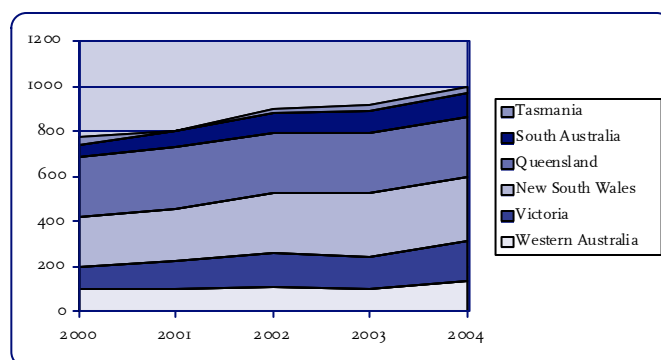
### Australian pharmacy graduates



**Figure 13.** Number of foreign pharmacists registering in Australia in each state from 1995 - 2005.

Source: Pharmacy Boards of Northern Territories, Tasmania, South Australia,

New South Wales, and Western Australia (2005). Note that data prior to 2003 and 1999 was not available for Tasmania and the Northern Territories. Data was also unavailable from Victoria, Queensland and ACT.



**Figure 14.** Number of graduates in Australia per state from 2000 - 2004.

Source: State boards of pharmacy, Charles Sturt University, University of Sydney, University of Canberra

The number of pharmacy graduates per year has been steadily increasing since 1985 to meet demand<sup>8</sup>. One thousand pharmacy students graduated in Australia in the year 2004 with more expected in the near future. Two new schools of pharmacy have opened in the state of New South Wales with their graduates expected in 2006. The University of Sydney graduated its first students through the Master of Pharmacy programme in 2004 in addition to graduates of the standard programme. The Master of Pharmacy programme is a graduate entry course that can be completed in two years by applicants with a Bachelor degree.

## 3.3 CANADA

Foreign pharmacists registered in Canada originated, in descending order, from Egypt, USA, India, Pakistan, Philippines, Pakistan, United Kingdom, South Africa, Yugoslavia, and Korea. Information relating to the number of Canadian pharmacists migrating abroad was not collected by any provincial board of pharmacy. The number of registrations of foreign pharmacists has steadily increased over the last ten years as seen in figure 15 with the majority of registrations in Ontario. Due to lack of data from Quebec prior to 2005 and three other provinces it is difficult to interpret the rate of increase.

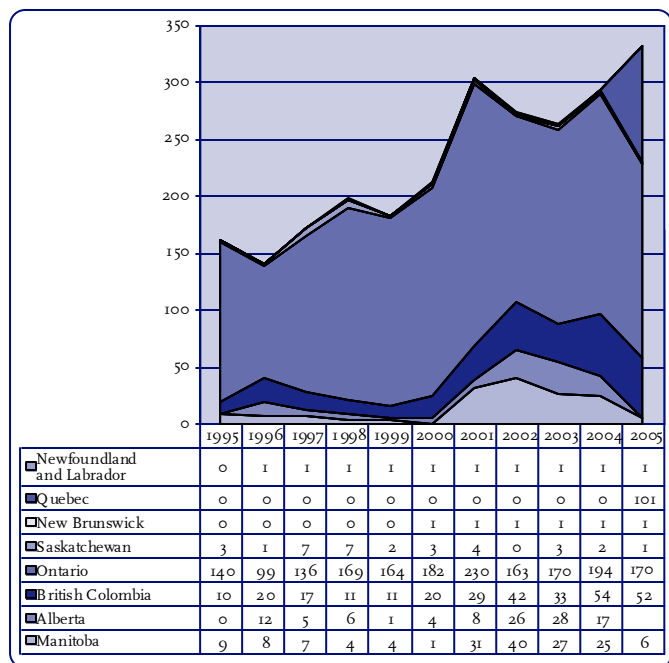


Figure 15. Foreign Pharmacist registrations in Canada in each province from 1995 - 2005.

Source: Pharmacy Boards of Newfoundland and Labrador, Quebec, New Brunswick, Saskatchewan, Ontario, British Columbia, Alberta (2005). Data unavailable for Quebec prior to 2005 and three Boards of Pharmacy for the entire period.

### 3.4 GHANA

With an existing workforce of 10 pharmacists per 10,000 population, the migration of nearly two thirds of its 140 graduates in 2003 and continued upward trend has significant effects.

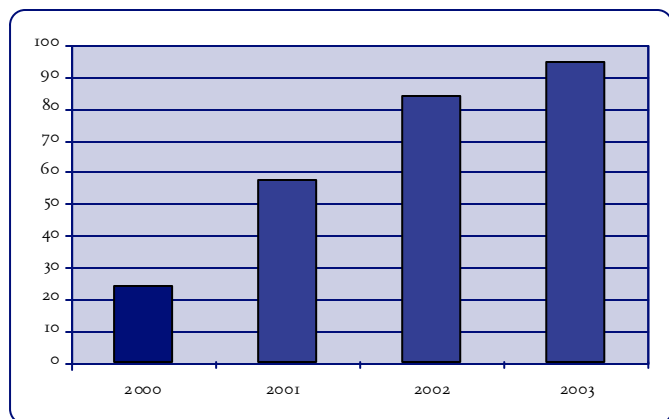


Figure 16. Number of letters of good standing requested in Ghana by Pharmacists.

Source: Pharmacy Council and Ministry of Health, Ghana (2005).

### 3.5 IRELAND

The number of foreign pharmacists registering in Ireland has almost doubled since 2001. Foreign pharmacists constitute almost half of the number of registered pharmacists in the country. A new pharmacy school was opened in 2006 to supply more trained pharmacists. Pharmacists from the United Kingdom (276) made up half of the foreign pharmacists whose country of origin was recorded by the Society. Pharmacists trained in Spain, Australia and New Zealand were the other most common. Ireland loses a significant proportion of its workforce to migration each year. Between 2001 and October 2005, 113 Irish pharmacists registered in the United Kingdom alone, over a third of the number graduating in the same period (source: Royal Pharmaceutical Society of Great Britain, 2005).

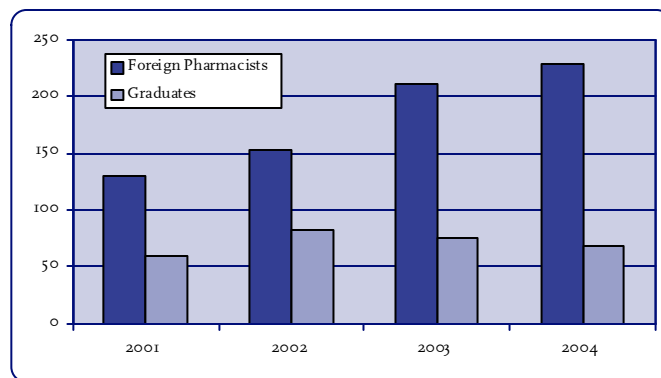


Figure 17. Number of pharmacists entering the workforce in Ireland from 2001 - 2004.

Source: Pharmaceutical Society of Ireland (2005).

### 3.6 KENYA

The Kenyan Pharmacy and Poisons Board estimates that over 190 pharmacists have migrated abroad in the last ten years, a loss that is equivalent to the total number of pharmacists that were trained since 2000. Kenya receives around 30 applications from foreign pharmacists to register a year, half of these are successful. This can equate to half the number of pharmacists graduating. Most of the foreign pharmacists are from India or Kenyan pharmacists who have trained in India.

### 3.7 NEW ZEALAND

The number of pharmacists migrating abroad from New

Zealand between 2000 and 2004 has been consistently greater than the number graduating. The migration abroad may be mostly temporary but it is not clear and the consequent impact on the pharmacy workforce in New Zealand is difficult to ascertain.

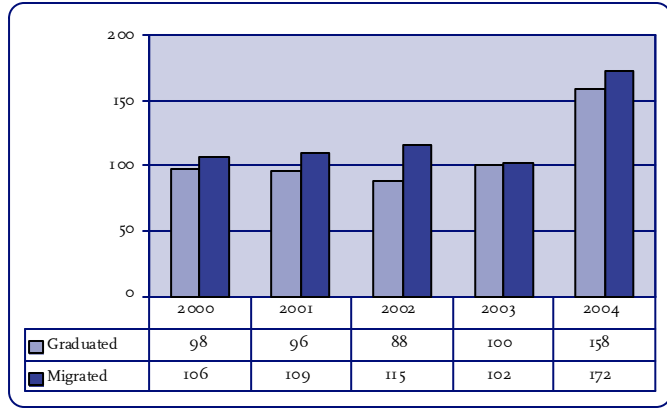


Figure 18. Number of pharmacists graduating vs. migrating abroad from New Zealand.

Source: Pharmacy Council of New Zealand (2005).

Eight pharmacists were registered from Africa, Middle East or Asia between 1980 and 1989<sup>7</sup>. This has increased to 113 between 1990 and 1999. Most of the foreign pharmacists that currently practise in New Zealand are from the United Kingdom, followed by South Africa and Australia. There are as many foreign pharmacists registered in New Zealand as there are registered pharmacists listing overseas addresses.

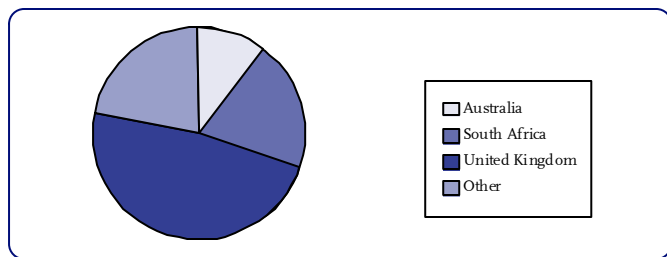


Figure 19. Country of origin of registered foreign pharmacists in New Zealand.

Source: Pharmacy Council of New Zealand (2005)

### 3.8 UNITED KINGDOM

The number of pharmacists migrating to the United Kingdom has increased since 2000. Although foreign pharmacists account for less than 10% of the pharmacist workforce, this is still a large number of pharmacists compared to other countries,

especially source countries. Pharmacists who listed an address outside of the United Kingdom represented just over 10% of pharmacists on the register in 2002<sup>9</sup>. Over three quarters of these are pharmacists who graduated from the UK. The United States of America was the most common destination country with 14% of overseas pharmacists, half of which are working in industry or academia where registration is not required. The number of pharmacists registering in the United Kingdom from Zimbabwe and New Zealand accounts for the majority of the number of pharmacists produced in those countries over 2001-2004 (figure 20). What is unknown is whether the migration is temporary or permanent. For most pharmacists registering in the United Kingdom from New Zealand and Australia, it is suspected to be temporary. The effect on these source countries may not be as great compared with countries where migration is more likely to be permanent, such as Zimbabwe.

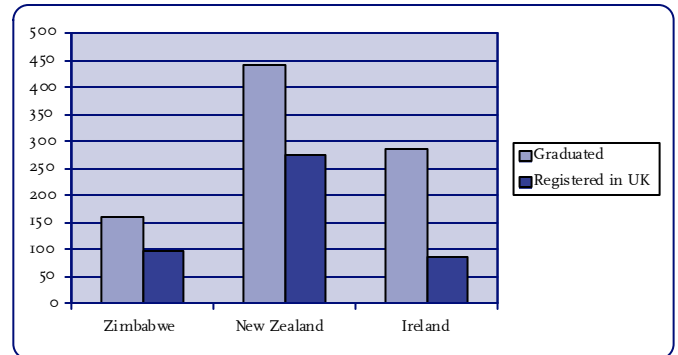


Figure 20. Number of pharmacists registering in the United Kingdom vs. graduating from source countries between 2001 - 2004.

Source: Royal Pharmaceutical Society of Great Britain, Pharmacy Council of New Zealand, Pharmaceutical Society of Great Britain

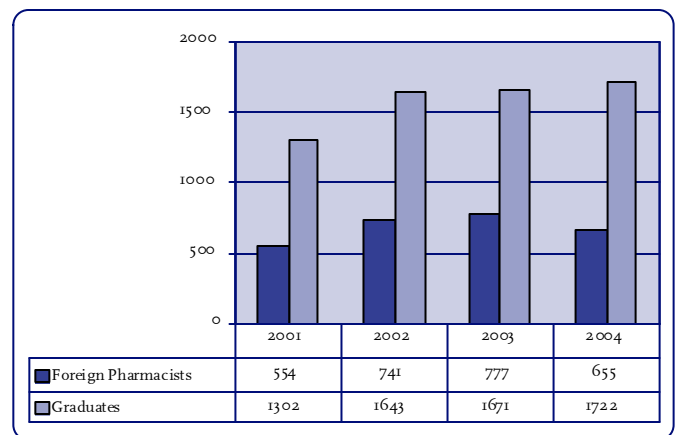


Figure 21. Pharmacists entering the workforce per year in the United Kingdom (2001-2004).

Source: Royal Pharmaceutical Society of Great Britain

The numbers of pharmacy schools in the United Kingdom has increased to 20 schools with more graduates each year. Four new schools of pharmacy have yet to produce any graduates.

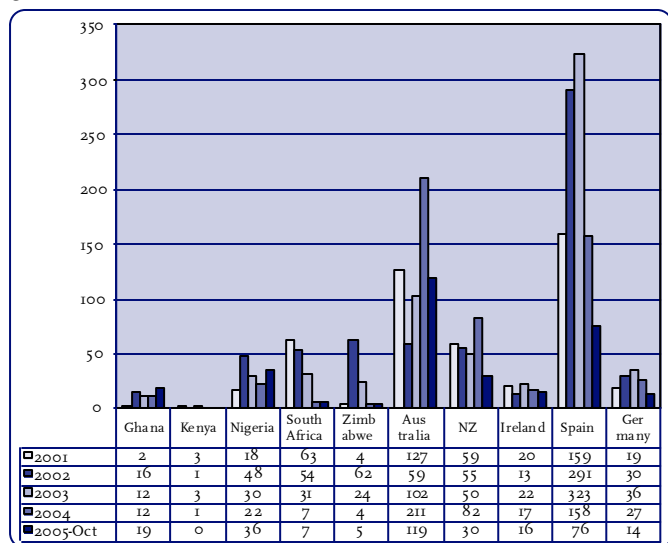


Figure 22. Number of pharmacists registering each year in the United Kingdom according to Source countries (2001-2005 Oct).

Figure 22 demonstrates the trend over 2001-2005 of the total number of pharmacists registering in the United Kingdom from selected countries. Data for 2005 is incomplete for the calendar year. Most notably pharmacists from Spain and Australia are registering in the United Kingdom in great numbers.

### 3.9 REGISTRATION OF FOREIGN PHARMACISTS

The registration requirements of foreign pharmacists varies greatly between countries though common elements exist. Pharmacists from countries that have reciprocal arrangements or special recognition of their own nationals who have trained abroad have less requirements for registration. Greater movement from pharmacists of these countries can be seen where such arrangements are present. Many countries require foreign pharmacists to undertake pre-registration practice training in a pharmacy setting and successful completion of examinations and language requirements. Refer to appendix 6 for full information.

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## PART 4: PHARMACY TECHNICIANS

Pharmacy technicians are defined as individuals working in a pharmacy, who under the supervision of a licensed pharmacist, assist in pharmacy activities not requiring the professional judgment of a pharmacist<sup>1</sup>. In a United States paper on pharmacy technicians in 2002, it is stated that although pharmacy technicians are employed in all pharmacy practice settings, their qualifications, knowledge and responsibilities are markedly diverse<sup>2</sup>. There are many issues regarding the development of the potential of pharmacy technicians in playing a role in health-care delivery. These issues may include the education and training of skilled dispensing support staff, accreditation of training institutes and certification.

There is a legal requirement for the certification of pharmacy technicians in 13 respondent countries and most of the countries do have some form of structured training and curricula in place. These learning programmes usually consist of a period of vocational training with some aspects of continuing education in a higher institution like a training college/hospital or university. Formal technician training programmes differ in many aspects, especially in duration.

In Europe, we observe that there are 11 countries (out of 16) that have formal education for pharmacy technicians. In the Western Pacific and Southeast Asia region, education is often informal and competency requirements are based on training. Training involves learning through specialised instruction, repetition and practice of a series of tasks until proficiency is achieved. Education, on the other hand, involves a deeper understanding of a subject, based on explanation and reasoning, through systematic instruction and training. A distinction between modes of training and learning needs to be made to best prepare for the future development of pharmacy technicians<sup>2</sup>.

Without a formal education and professional regulatory systems in place, it is challenging to define the size of the workforce.

FIP is proactive in recognising the need to understand the status and development of the pharmacy technician workforce today. A new survey has been initiated to investigate the

certification requirements and numbers of pharmacy technicians to further explore the issues highlighted in this report.

A summary of findings is provided in appendix 7.

### REFERENCES

1. Washington DC: Pharmacy Technician Certification Board 1995:15
2. White paper on pharmacy technicians 2002, American Journal of Health-System Pharmacists, Jan 2003; 60.



## PART 5: ACTIONS AND DIRECTIONS

Pharmacists play a vital role in health care systems and despite variances in practices worldwide, common workforce issues have been reported. These common workforce issues fall under four broad themes:

1. Workforce regulation and description
2. Workforce shortage
3. Distribution imbalance
4. CPD and practice development

FIP recognises that there is a need for global concerted action to evaluate, regulate, document and develop the pharmacy workforce. In order to meet this need, knowledge gaps about pharmacists, pharmacy technicians and other support staff must be identified and filled. Without an accurate picture and adequate monitoring or documentation systems, it is difficult to prepare the workforce for future developments and implement policies to correct imbalances and shortages.

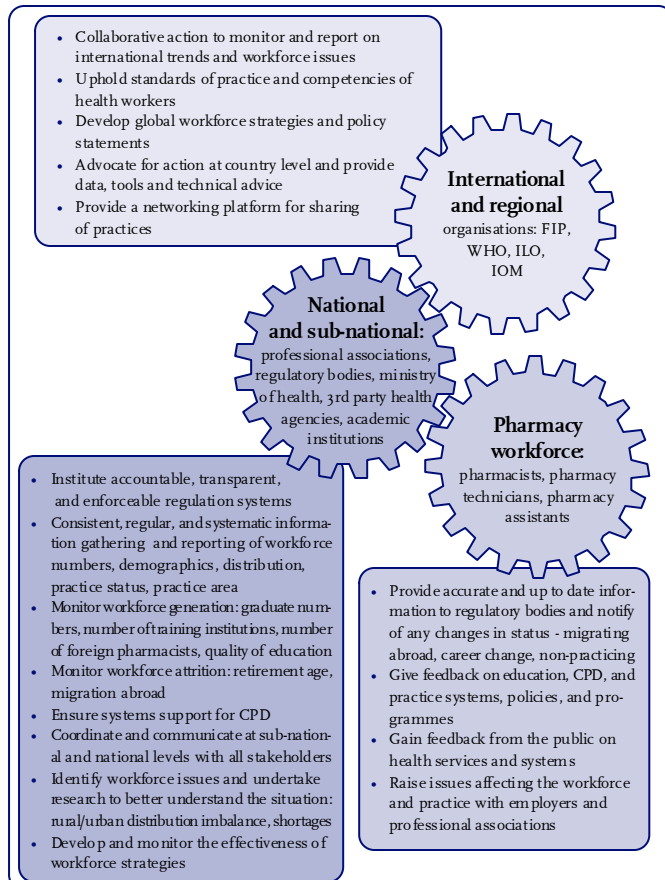


Figure 23. Actions and directions: strengthening the pharmacy workforce.

Action is required at all levels and stakeholders must collaborate with a range of partners including policy makers and training institutes to strengthen the workforce.

This is the first report to provide an international snapshot of the pharmacy workforce to indicate trends and issues. With this report, FIP calls for further discussion, research, and action at a national, regional and international level on human resources in pharmacy.

### 5.1 WORKFORCE REGULATION AND DESCRIPTION

The pharmacy workforce should be regularly documented at a sub-national and national level and reported to stakeholders and policy makers. Pharmacy professional and regulatory bodies have an important role to play to monitor the pharmacy workforce and develop strategies to address issues such as shortages, skill mix and imbalances. The practice area, practice status (practicing or non-practicing) and demographics of pharmacists should also be recorded. Many sub-national regulatory boards did not track data on foreign pharmacists such as the number registering per year or the country from which they originated. This data is useful to monitor trends in migration and understand the extent of it. The same is also the case for pharmacists migrating abroad, although this is more difficult to track. Data collected on registered pharmacists by regulatory bodies should have basic consistencies and be collated at a national level on a regular basis if there is more than one in a country. This information is crucial to identify issues, project future trends and prepare the workforce at a national level, especially if there is considerable movement between regions in a country.

The WHO Global Atlas of the Health Workforce serves as a useful tool to examine the distribution of health professionals<sup>1</sup>. As of October 2004, data on the number of pharmacists was not available from 54 countries on the Global Atlas, with half of the missing figures from countries in the Pan American Region. Many reports have also cited that data was not presented or discussed on the pharmacy workforce due to

lack of information. Despite the data that has been collected from Ministries of Health in 2004, the comparison to the number of pharmacists collected by FIP in the Global Pharmacy Workforce and Migration Study shows an average variance of 30% between figures leaving the accuracy of the information available in question. Sub-national and national regulatory bodies are in a unique position to inform their Ministry of Health of workforce statistics. This has the downstream effect of inclusion in international workforce strategy and planning reports. Documentation and recognition of the whole pharmacy workforce is required, including technicians and assistants.

## 5.2 WORKFORCE SHORTAGE

The shortage of pharmacists is said to be due to an aging population and increased disease burden, as well as pharmacy specific issues such as role diversification, increasing proportion of female pharmacists that are likely to work less hours and greater time requirements of administrative work related to managing third party payments. In many countries around the world the number of pharmacists graduating from training institutes are not enough to meet the rising vacancies. The number of pharmacy schools and graduates has increased steadily in recent years and with further schools opening, the number of pharmacists entering the workforce will grow. For some countries, especially those affected by high rates of migration abroad, the loss of health professionals cannot be abated by increasing the number of graduates due to resource and capacity limitations. Training institutions are also facing shortages in academic staff and are limited in their capacity to train the required number of pharmacists but maintain an adequate quality of education. In some countries it has been shown that a considerable section of the workforce is not working in pharmacy. Root causes to attrition must be identified and trends analysed. Without workforce retention the investment in workforce generation is lost.

## 5.3 DISTRIBUTION IMBALANCE

Should trends in the imbalanced distribution and shortage of pharmacists within countries continue; patient safety may be compromised through the increased risk of unsafe and

stretched practices; job satisfaction reduced due to an exacerbation of difficult working conditions; and increases in attrition rate may be seen due to pharmacists leaving the country workforce through migration abroad and career changes. Although the workforce is growing in urban areas to meet demand within countries, this is not necessarily matched by increases in the rural areas. Regional and rural imbalances require greater investigation to better understand what needs to be addressed to encourage pharmacists to work in such areas.

## 5.4 CPD AND PRACTICE DEVELOPMENT

Pharmacy practice in all sectors and settings should be based on competencies and maintained through CPD. CPD systems should be flexible and focused on needs based learning to ensure practicability and valid incentives. Such systems should be designed to facilitate career development and are also important to sustain and retain pharmacists, and increase job satisfaction and specialisation in areas of need. It is also important to distinguish between CPD and CE. Support for CPD such as learning portfolios and toolkits may be useful to manage and direct learning.

### REFERENCES:

1. World Health Organization. Global Atlas of the Health Workforce. Available at: [www.who.int/globalatlas/default.asp](http://www.who.int/globalatlas/default.asp). Accessed 21 February 2006.



# APPENDIX

Appendix 1: Global Pharmacy Workforce Survey

Appendix 2: Continuing Professional Development (CPD) /Continuing Education (CE) Survey

Appendix 3: Migration Study Survey

Appendix 4a: Pharmacist densities per 100,000 population by income classification

Appendix 4b: Pharmacist densities per 100,000 population by WHO regions

Appendix 5: Summary of CPD and CE systems by country

Appendix 6: Registration of foreign pharmacists

Appendix 7: Summary of data on pharmacy technicians

Appendix 8: Acknowledgements



# APPENDIX I: GLOBAL PHARMACY WORKFORCE SURVEY

## INTRODUCTION

In preparation for the WHO World Health Report 2006, FIP intends to collect data from all its Member Organisations for a global description of pharmacists. This questionnaire serves to find out the international distribution of pharmacists by country, gender and skills. FIP also aims to explore the various models of continuing professional development (CPD) for pharmacists.

Human resources for health are becoming important assets for governments around the world. Recognising this, FIP wishes to establish a global network of contact persons who are responsible for human resources issues for pharmacists in the national associations of our member countries. Please provide information of the personnel responsible for human resources for health in your national organisation.

For these reasons, FIP requests you to give as much information as you can and feel free to send the survey to others who are able to provide more information.

If you prefer, you may print this survey and send it via postal service to the FIP secretariat. Please mail the completed survey to:

International Pharmaceutical Federation,  
FIP World Pharmacists Count Survey,  
Andries Bickerweg 5,  
Postbus 84200, 2508 AE  
The Hague, The Netherlands

If you experience technical problems with submitting the survey, please contact Xuanhao Chan via email: [xuanhao@fip.org](mailto:xuanhao@fip.org) or via telephone: +31703021988.

## SECTION I: COUNTRY INFORMATION

- 1) Name of Country .....
- 2) Name of your organisation .....
- 3) Name of personnel responsible for human resources for health .....
- 4) Email address .....
- 5) Telephone number(s) .....

## SECTION 2: PHARMACISTS

A pharmacist is a person licensed to practice pharmacy in your country.

Questions 7 to 9 require you to provide data on pharmacists in 2004 by total numbers and numbers by gender.

FIP requires data from 2004. If you do not have data from 2004, please state the year in which your data was from.

- 6) Year of data .....
- 7) In 2004, how many pharmacists were there in your country? .....
- 8) Out of the total number of pharmacists, how many of them were FEMALE? .....
- 9) Out of the total number of pharmacists, how many of them were MALE? .....
- 10) Addition comments  
.....  
.....  
.....

## SECTION 3: PHARMACY TECHNICIANS

Pharmacy technicians assist and support licensed pharmacists in the delivery of pharmaceutical care and medications to patients.

They may work in various settings such as the hospital, community, or long-term care facilities.

FIP requires data from 2004. If you do not have data from 2004, please state the year in which your data is from.

- 11) Year of data .....
- 12) Is there a legal requirement for pharmacy technicians to be certified in your country?  
Yes ..... No.....
- 13) What is the training programme/ certification necessary to be a certified pharmacy technician in your country?  
.....
- 14) In 2004, how many pharmacy technicians were certified in your country? .....
- 15) Additional comments  
.....  
.....  
.....  
.....

## SECTION 4: PHARMACY PRACTICE DISTRIBUTION

Questions 17 to 23 require you to fill in the number of pharmacists in various pharmacy practice settings, where applicable.

FIP requires data from 2004. If you do not have data from 2004, please state the year in which your data was from

- 16) Year of data .....
- 17) Academic and Research .....
- 18) Community .....
- 19) Hospital .....
- 20) Industrial .....
- 21) Regulatory .....
- 22) Pharmaceutical Sales and Marketing .....
- 23) Others .....
- 24) Additional comments
- .....
- .....
- .....

## SECTION 5: CONTINUING PROFESSIONAL DEVELOPMENT (CPD)

The concept of Continuing Professional Development (CPD) can be defined as “the responsibility of individual pharmacists for systematic maintenance, development and broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers.”

25) Does your country have Continuing Professional Development (CPD) programmes for pharmacists?

Yes ..... No.....

26) If you have answered YES in question 25, are these CPD programmes mandatory for a pharmacist licensure?

Yes ..... No.....

If you have answered YES in question 25, FIP would like to find out more about the CPD model(s) in your country. Please provide us with details of the person(s) whom FIP should contact for more information. (Questions 29 and 30)

A pharmacy regulatory body is the organisation responsible for the registration/ licensing of pharmacists whereby the pharmacists are entitled to practice their profession, and for the oversight of the pharmacists' professional conduct. The pharmacy regulatory body could be public, non- governmental or a mix of both.

27) Name of the national pharmacy regulatory body in your country .....

28) If there are more than one pharmacy regulatory bodies in your country, could you please describe the relationships between these regulatory bodies? .....

29) Name of person to contact for more information on the CPD model( s) in your country .....

30) Email address .....

31) Additional comments .....

.....

.....

## SECTION 6: GENERAL COMMENTS

32) We welcome you to provide any additional information or feedback to this survey.

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# APPENDIX 2: CONTINUING PROFESSIONAL DEVELOPMENT / CONTINUING EDUCATION SURVEY

This survey is focused on collecting information about the various Continuing Professional Development (CPD) / Continuing Education (CE) programmes for pharmacists in different countries.

## SECTION 1: RESPONDENT INFORMATION

1. Respondent Name: .....
2. Respondent Title and Occupation: .....
3. Email address.....
4. Telephone/Fax.....
5. Name of pharmacy body (Ministry, National Institution, Professional Association, etc) .....

## SECTION 2: PHARMACY REGULATORY BODY DESCRIPTION

1. How many pharmacy regulatory bodies for pharmacists (at both the national and sub-national level) exist in your country?
  - a. National .....
  - b. Sub-National .....
2. Please provide details of your regulatory body.....
  - a. Full postal address .....
  - b. Phone number.....
  - c. Email address .....
  - d. URL of website (if any).....
  - e. Date when established.....

Additional information and comments (Optional)

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.....

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### SECTION 3: CONTINUING PROFESSIONAL DEVELOPMENT (CPD) / CONTINUING EDUCATION (CE)

The concept of Continuing Professional Development (CPD) can be defined as "the responsibility of individual pharmacists for systematic maintenance, development and broadening of knowledge, skills and attitudes, to ensure continuing competence as a professional, throughout their careers." In some countries, this is also referred as Continuing Education (CE).

- 1. Is CPD/CE mandatory for pharmacists to maintain their pharmacy license to practice?
  - a. Yes.....
  - b. No.....
  
- 2. What is/are the responsible organisation(s) for regulating CPD/CE for pharmacists? Please select as applicable.
  - a. Pharmacy profession (National/Sub-National pharmaceutical association).....
  - b. Government (National/Sub-National Pharmacy board).....
  - c. Others.....

If there are more than one pharmacy regulatory bodies in your country, please describe the relationships between these regulatory bodies.

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Additional information and comments (Optional)

- 3. Is the model of CPD/CE system credits-based?  
(For example, a pharmacist is required to accumulate a minimum number of credits per year)
  - a. Yes.....
  - b. No.....

- 4. Please describe the CPD/CE system.  
(For example, in terms of the minimum requirements for CPD/CE, the value of 1 credit, the process of CPD/CE - if self-evaluation and recording is necessary and any other useful information.)

.....

.....

.....



5. Who are the providers of CPD/CE programme?

.....  
.....

6. Is an accreditation of the CPD providers mandatory?

- a. Yes.....
- b. No.....

7. Is the accreditation of the CPD providers based on established standards for pharmacy education?

- a. Yes.....
- b. No.....

8. If YES, which standards are followed? .....

.....

9. Describe the incentives for pharmacists to undergo CPD/CE?

(For example, pharmacists who complete the CPD programme will receive a certificate or a license to practice in the country)

.....  
.....

10. Describe the penalties for pharmacists who do not undergo CPD/CE?

(For example, the right to practice removed)

.....  
.....

11. Does your association have a toolkit/package for pharmacists who undergo the CPD/CE programme?

- a. Yes.....
- b. No.....

If Yes, FIP would like to request you to send a CPD toolkit/package to the below address by the 9 January 2006:

To: FIP Global Pharmacy Workforce and Migration Study  
International Pharmaceutical Federation (FIP)  
Andries Bickerweg 5  
2517 JP The Hague  
The Netherlands

## SECTION 4: GENERAL COMMENTS

We welcome you to provide any additional information or feedback to this questionnaire.

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## APPENDIX 3: MIGRATION OF PHARMACIST SURVEY

To Whom It May Concern:

The International Pharmaceutical Federation (FIP) is currently collecting data on the migration of pharmacists worldwide with the intention to publish an international report. It is anticipated that this data will be included in the 2006 WHO World Health Report focusing on the theme of *Human Resources for Health* alongside data relating to the global description, professional development, and training of pharmacists.

The issue surrounding the migration of highly skilled professionals in the health care fields has been widely discussed in the literature and international forums. Available data on this phenomenon has focused mainly on physicians and nurses with little published or brought to the international agenda on the migration trends of pharmacists. Your assistance to provide data is greatly appreciated and will contribute significantly to this research as well as to highlight the migration of pharmacists as an important issue on an international level.

Specifically FIP is seeking data on the following:

1. The total number of registered pharmacists in your country in 2005.
2. The total number of migrant registered pharmacists in your country in 2005.
3. The number of pharmacists with an overseas forwarding address on your register.
4. The number of pharmacists graduating per year from your country from the year 2000 - 2005.
5. The number of pharmacists that registered from abroad each year in your country from the year 1995 – 2005.
6. The number of pharmacists from abroad that applied for registration from the year 1995 – 2005.
7. The countries from which pharmacists were originally registered as a pharmacist prior to application for registration and the corresponding numbers for each country.
8. The number of pharmacists migrating from your country to another country each year from 1995 – 2005.
9. The application procedure for pharmacists from abroad to register as a pharmacist in your country.

If you have any statistics, background papers, reports or contacts that may be useful, I would be most pleased to receive them. Please let me know by the 3<sup>rd</sup> of October if you are able to contribute data to the research. All sources will be acknowledged in the final report. Data will be required by the 17<sup>th</sup> of October.

Thank you kindly for your assistance and consideration.

International Pharmaceutical Federation (FIP)  
 PO Box 84200  
 2508AE Den Haag  
 The Netherlands

# APPENDIX 4A: PHARMACIST DENSITIES PER 100,000 POPULATION BY WORLD BANK INCOME CLASSIFICATION

Top-income economies

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Australia	20,331,000	27,952	13.62
Austria	8,051,000	4,460	5.53
Canada	32,225,000	28,532	8.85
Denmark	5,416,000	3,600	6.64
Finland	5,246,000	8,300	15.82
France	60,742,000	70,578	11.61
Germany	82,490,000	53,879	65.28
Italy	295,000	370	12.52
Japan	127,000,000	3508	2.76
Israel	7,000,000	3,000	42.85
Italy	56,772,000	69,500	12.23
Japan	127,000,000	229,774	18.07
Malta	405,000	837	206.67
Norway	4,020,000	2,005	49.87
Portugal	10,516,000	9,247	87.93
Singapore	4,290,000	1,2302	28.67
Switzerland	7,446,000	3,608	48.45
United Kingdom	60,308,000	4,007	6.64
United States	296,783,000	227,000	76.50

Population data source: Population by Country, Age, Sex, 2005. Available at: www.prb.org  
 Accessed 05/29/2009 1:06  
 All data unless otherwise stated

1. 2007 data
2. 2003 data
3. 2005 data

Low-income economies

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Chad	6,300,000	950	15.08
Central Africa	18,154,000	818	4.51
Ghana	22,095,000	624	2.82
India	103,596,000	3,000	2.90
Kenya	33,832,000	1,200	3.55
Madagascar	17,318,000	253	1.46

Lower-middle-income economies

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Indonesia	22,932,700	1500	6.54
Brazil	164,164,000	90,500	55.10
Iran	28,157,000	6300	22.38
Indonesia	65,072,000	18,000	27.66

Upper-middle-income economies

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Czech Republic	10,212,000	5972	58.49
France	10,000,000	7,700	77.00
Turkey	72,900,000	24,000	32.91
Uruguay	3,419,000	1,100	32.17

# APPENDIX 4B: PHARMACISTS DENSITIES PER 100,000 POPULATION BY WHO REGION CLASSIFICATION

## Europe

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Austria	8,451,000	4746	56.23
Czech Republic	10,222,000	5973	58.49
Denmark	5,215,000	3600	71.14
Finland	5,246,000	8300	158.22
France	60,722,000	70500	116.08
Germany	82,490,000	53,549	65.26
United Kingdom	60,068,000	47017	78.26
Hungary	10,086,000	7780	77.14
Iceland	295,000	370	125.42
Ireland	4,125,000	3508	85.04
Italy	58,742,000	69500	118.31
Norway	4,620,000	2000	43.40
Malta	405,000	837	206.67
Portugal	10,576,000	9247	87.43
Switzerland	7,440,000	5368	72.09
Luxembourg	72,907,000	2450	33.12

## Southeast Asia

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
India	11,359,600	30000	45.31
Indonesia	221,932,000	15200	6.76
Thailand	65,002,000	18493	29.07

Population data source: The United Nations World Population Prospects 2005, Rev. 2008 at [www.un.org](http://www.un.org).  
 See table 3.1 for more data.  
 See table 3.2 for more data.

## Western Pacific

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Australia	20,350,000	2,405	119.62
Japan	127,280,000	220,44	47.88
Singapore	4,206,000	236	26.77
Taiwan	22,731,000	20694	130.31

## Africa/Eastern Mediterranean

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Cameroon	16,580,000	950	5.80
China/Taiwan	18,734,000	878	4.37
China	22,819,000	1,024	7.36
Egypt	81,807,000	6300	22.56
Israel	7,200,000	3000	41.67
Kenya	33,830,000	1300	3.90
Madagascar	17,388,000	253	1.46

## Pan America

Country	Population at mid 2005	Total number of pharmacist	Pharmacists density per 100,000 pop
Brazil	184,484,000	90598	49.19
Canada	32,225,000	28,337	88.56
United States	296,485,000	227000	76.56
Uruguay	3,419,000	1100	32.17

1. 2002 data
2. 2003 data
3. 2005 data

# APPENDIX 5: SUMMARY OF CPD AND CE SYSTEMS BY COUNTRY

Country	Continuing Professional Development / Continuing Education				CPD Regulators	CPD Programmes		
	Mandatory	Intervenes	Penalties	Description		Providers	Accredited	Standards
Portugal National Board of the Portuguese Pharmaceutical Society	Yes	Mandatory licence	In order to take an exercise, pharmacist is expected to attend a minimum of 5 hours of CPD activities based on the acquisition of a minimum of 5 CPD Credits.	Professional practice is evaluated every five years. After this period the Pharmaceutical Society will decide upon the revalidation of the pharmacist based on the acquisition of a minimum of 5 CPD Credits.	Pharmacy board and Government	Professional pharmacy schools and other universities and colleges.	Providers are not accredited however CPD credits are earned by activities have been implemented by PPS and approved according to quality standards.	Evaluation of each activity will be subject to review as per the PPS in order to evaluate as quality standards.  Standards established by the Portuguese Pharmaceutical Society include definition of learning objectives, objectives, applicability and relevance to practice amongst others.
Canada Canadian Pharmacists Association	Yes (licensing prerequisites)	Mandatory licence (variable)	Refused to renew licence (variable)	Most provinces have some form of mandatory CE credits. Ontario has a mandatory 30 month period with no mandatory CE credit level. Other provinces have a mix of mandatory CE credits and self-directed activities.	Provincial pharmacy boards	Pharmacy associations, universities, pharmacies, etc. industry.	CE programmes are accredited by province regulatory authority. If presented in only one province, it is by CCCCPE. If in multiple provinces, CCCCPE is in the process of putting a programme to accreditation. Some providers are providers and programmes of CE must be accredited.	No standards set.
Germany Federal Union of German Associations of Pharmacists	No	Certification	N/A	CE credit = 45 min unit. Total min is 40 min. 30 points in 3 years. By passing a test after CE is completed successfully, an extra 1 point is added.	N/A	Chambers of pharmacists, pharmaceutical societies and associations, pharmaceutical industry, commercial providers, pharmaceutical journals, chambers.	Accreditation of providers and programmes are based on the principles for CE, Qualitätszertifikat für CE. The application of these principles is pre-condition for accreditation.	These principles for the CE of pharmacists define requirements for CE. These include matters of CE, qualification of references, independence of CE. The application of these principles is pre-condition for accreditation.
Singapore Pharmaceutical Society of Singapore	No	Certificate and minimum number of practice licence	N/A	N/A	N/A	Pharmaceutical Society of Singapore, National University of Singapore.	Providers of CPD must be accredited.	No standards set.
Malta Pharmacy Council Vplp	No	N/A	N/A	Malta does not have CPD programmes. Pharmacists are not obliged to do CPD. This may change in the future but at present there is no official structure.	N/A	N/A	N/A	N/A

Country	Continuing Professional Development / Continuing Education				CPD Regulators	CPD Programmes		
	Mandatory	Incentives	Penalties	Description		Providers	Accredited	Standards
USA American Council on Pharmacy Education	Yes	Maintain practice licence.	The state board could refuse to re-issue the licence if a pharmacist does not complete the required hours and the state board would not re-issuance the licence.	The system now total 30 credits. It that pharmacists must renew their license every 2 number of years. The most common periods is every two years. CPD of the pharmacists for renewal consists of the completion of a specified number of hours of approved/accredited CE. The most common requirement is 30 hours every two year re-licensing period or 15 hours per year. Some states have more specific requirements in terms of the function (e.g. it could be minimum number of hours must be 'live' (local) and/or state (off). In HIV/AIDS, etc.). Some states rely on the history of pharmacists license as a decision in the fact that the CE hours been complete and others require pharmacists to submit their statements of CE credit. Many states do require credits as pharmacists received CE participation.	State Boards of Pharmacy.	There are over 400 ACE-accredited providers of continuing pharmacy education, as well as other non-ACE-accredited providers. Some providers offer CE programs to pharmacists only or accredited by other agencies, such as the Accreditation Agency for Continuing Medical Education.	All states accept CE provided by ACE-accredited providers, but in some states the approved CE approved by ACE-accredited providers. Some providers offer ACE-accredited providers. ACE-accredited providers only or accredited by other agencies, such as the Accreditation Agency for Continuing Medical Education. It is not mandatory for all providers to be accredited.	ACE is the most commonly adopted standards for accreditation. As recognized by some states also, there are other forms of accreditation. ACE for continuing medical education.
Brazil Conselho Federal de Farmácia	No	N/A	N/A	N/A	N/A	N/A	N/A	
Cyprus Medical Regulatory Services Course for Continuing Education Institute, RES COLLEGE	No	N/A	N/A	The National Pharmacy board is currently developing a CPD system	National pharmacy board and a sub-regulatory board.	N/A	N/A	
France Ordre National des Pharmaciens	Yes	Creditation	N/A	To be included by the General National Order of Continuing Pharmacological Education (CNEPEC) which will be implemented.	Many organisations are involved in the pharmacological regulation. The main one is the Ordre national des Pharmaciens, but for some aspects, the regional and local offices of the Society of Pharmacy.	Schools of pharmacy, Associations of pharmacists for example, UTP (http://www.utp.fr), private continuing education companies, the pharmaceutical companies, etc.	Yes	No
United Kingdom Royal Pharmaceutical Society of Great Britain	Yes	Maintain practice licence	May be removed from the pharmacy register	Pharmacists are required to record their CPD and its application to practice. CPD can be recorded through a spreadsheet as well as formal programmes. The Society provides a framework and pharmacists must use this as an approved alternative. CPD is not mandatory. It is however, CPD records will be reviewed by the Society against professional good practice criteria.	Pharmacy professionals (National/sub-national professional association)	The Society provides the CPD framework and support. Creditation is provided by some providers	No	N/A

Country	Continuing Professional Development / Continuing Education				CPD Regulators	CPD Programmes		Standards
	Mandatory	Incentives	Penalties	Description		Providers	Accredited	
Iran Syndicate of Iranian Pharmacists	No	Care points	N/A	It is necessary to obtain a minimum of 100 care points per year.	Pharmacy professor (National/Sub-national) Pharmacies (local, institutional)	Yes	N/A	N/A
Israel Israel Pharmaceutical Association	No	Care points with assigned. Non-credits are awarded for the MGSs. Only care points for pharmacists who have completed courses	N/A	There is a voluntary activity. They do not put it as a compulsory activity. In collaboration with the Association, there is a special learning programme by the universities	Government	No	Pharmaceutical associations, Universities, pharmaceutical companies, collaborative with Ministry of Health and the Association	No
Japan Japan Pharmaceutical Association	No	Care points	N/A	Credit-based activities are organized by C.D. Participants of the activities pharmacists is voluntary.	The Ministry of Health, Labour and Welfare (MHLW) and the Ministry of Education, Culture, Sports, Science and Technology (MEXT), MHLW regulates licensed pharmacists with a MEXI regulates and a full-time pharmacist licence.	Yes	Regional pharmacists associations, Universities (pharmacy schools), Pharmaceutical manufacturers and other providers.	Standards established by Council of Pharmacists Guilds
Kenya Pharmacy and Nurses Board	Yes	Renewable Annual Practice Licence (APL)	Repeal of licence and re-issuance of licence is required.	Based on a Portfolio of Points	Government	Yes	Pharmaceutical Society of Kenya	Standards established by the Pharmacy and Nurses Board
Nepal Kathmandu University	No	N/A	N/A	Currently CPD is being introduced and yet to be fully implemented	Nepal Pharmacy Council	N/A	N/A	N/A
Taiwan Taiwan Pharmacy System Taiwan Pharmaceutical Society	No	Maximum practice hours and also part of the license of National Health Insurance system	Refusal to renew license	The Bureau of National Health Insurance regulates a minimum of 25 hours (credits) every two years in order to dispense prescriptions from the NHI. Each credit equals 50 minutes. CPD is planned to be mandatory by the year 2016.	Pharmacy professor	No	Teaching hospital, pharmacy schools, and drug companies	No
Zambia Pharmaceutical Society of Zambia	Yes	Renewable practice licence	Refusal to renew licence	Evidence of having achieved (credits) or equivalent (5 pts) a professional programme during the year. A total of 100 pts is required	Pharmacy professor	Yes	The Pharmaceutical Society	No

**Additional Notes:**

- CPD credits should not be responsible used at any continuing education training if not for the professional development activities. CPD credit hours equals hours of participation organized according to category/experience under responsible, qualified literature and instruction.
- CCCEP: Canadian Council for Continuing Education in Pharmacy (CCCEP).
- The allocation of points is based on the following principles and is applicable to all categories:
  - Every credits must be accumulated per CPD year
  - No merit claim for 6 of the points may be accumulated in any one category per CPD year
  - A maximum of 5 points will be awarded as a PSK and other professional association member
  - All activities are accredited for a period of one year.
  - Minimum number of hours that will be accredited for a specific day is 6 hours e.g. (6 points) & for 10 hrs per year



# APPENDIX 6: REGISTRATION REQUIREMENTS FOR FOREIGN PHARMACISTS

Country	Registering authority	Country/institution agreement			Registration requirements for all other countries:				
		Country or institution	Requirements	Fees	Language	Examinations	Fees	Supervised practice	
Australia	State Pharmacy Boards (6)	Including New Zealand, United Kingdom	APFC Assessment Variable, may include: - 4 weeks supervised practice - 10 trials assessment - Interview - Final oral certificate - 12 months work as pharmacist in country of origin	APFC Assessment - 340 AUSD State registration application fee (variable) - 30 - 450 AUSD	English, DE or IELTS	APFC Stage I Exam - basic sciences APFC Stage II Exam - competency assessment + 5 x 12-hour requirements	APFC Assessment - 340 AUSD Stage I Exam - 121 AUSD Stage II Exam - 1740 AUSD + State registration / application fee	2000 hours	
Canada	Provincial Pharmacy Boards (10)	N/A	Pharmacy degree (in some cases, awarded from an approved accredited program)	English, French (1 previous), English or French (2 previous)	PEBC Evaluating Exam PEBC Qualifying Exam - Evaluation Parts I and II ACP Accredited Program Law Examination	PEBC Regulatory Exam - 400 CAD PEBC Qualifying Exam - 650 CAD + Provincial requirements (variable) including: - Internship fee - 700 CAD - Practical assessment fee - 300 CAD - Law Examination: 65 - 230 CAD - Provincial registration and license fee - 400 CAD	Variable depending on province: 36 weeks hours (including 2 yrs) may also include: 16 weeks of studentship at University.		
Chile	Pharmacy Council	N/A	Pharmacy degree enables applicant to be eligible as pharmacist in the country with qualification abroad	English	Classical Pharmacy Professional Qualifying Examination	Professional Pharmacist 650 New Qualifier 600	Professional Pharmacist: 480 hours (2 weeks) New Qualifier: 500 hours (40 weeks)		
Kenya	Pharmacy and Poisons Board (PPB)	52 weeks supervised practice period Stage II Examination - Pharmacy practice and law	Pharmacy degree - 2 years - 2000 KShs - Non-Kenyan: 2000 KShs	English and Kiswahili	Stage I Examination - pharmaceutical sciences Stage II Examination - pharmacy practice and law	Stage I Examination: 5000 KShs Stage II Examination: -Kenyan: 2000 KShs -Non-Kenyan: 2000 KShs	7 years to 6 months full pharmacy + 3 months community pharmacy - 3 months pharmaceutical industry		

Country	Registering authority	Country/Institution agreement				Registration requirements for all other countries			
		Country or institution	Requirements	Fees	Prerequisite requirements	Language	Examinations	Fees	Supervised practice
Ireland	Pharmaceutical Society	ITL/ETA Australia New Zealand	Pharmacy qualified individual with supervised practice (Australia in Hong Kong New Zealand) Pharmaceutical Experience Council of Pharmaceutical Security approval of institution.	N/A	None	English OET L IELTS	PSNZ Licence Professional Practice and Assessment Test and Certificate Law exam	Application = 675 NZD Application Assessment = 155 NZD Interview = 175 NZD Application and certificate = 295 NZD Professional registration programme and assessment = 2475 NZD Law exam = 695 NZD	>26 weeks (Pre-Registration programme)
New Zealand	Pharmacy Council	Australia Ireland New Zealand	4 weeks supervised practice Interview	Application fee = 33750 NZD Paper testing Centre fee = 360 NZD	Original qualification document Equivalent to New Zealand program qualification	English OET L IELTS	PSNZ Licence Professional Practice and Assessment Test and Certificate Law exam	Application = 675 NZD Application Assessment = 155 NZD Interview = 175 NZD Application and certificate = 295 NZD Professional registration programme and assessment = 2475 NZD Law exam = 695 NZD	>26 weeks (Pre-Registration programme)
South Africa	Pharmacy Council	Great Britain Ireland (degree < 9.5) Nigeria Ireland Zimbabwe (degree < 98%) South Africans trained by Germany (2 schools) USA (6 schools)	1 year pharmaceutical community service in public sector Law Examination	Law Examination fee = 7200 Rand	Approval from individual Country of SA Pharmacy Council Pharmacy qualification 12 months practical training prior to registration as pharmacist.	None inter-Union	Professional Examination – pharmaceutical sciences and pharmacy practice Pre-registration pharmacist registration – 1400 tax	Professional Examination = 2800 Rand Pre-registration Examination = 116 Rand	1 year public sector pharmacy community service
Uganda	The Council of the Pharmaceutical Society of Uganda	Uganda	Completion of pharmacy degree and pre-registration training in the country of study. Registration approval subject to Council's decision	500 USD	Pharmacy degree and pre-registration training in country of study. Preliminary certificate of pharmacy academic transcript and exams up to 1st year.	Interview to assess English	Several topics, but topics and practical aspects. Interview. Registration examination.	Examination fee: 500 USD Pre-registration fee: 500 USD Registration fee: 200 USD	12 months (pre-registration training)





Country	Year of Data	Legal requirement for certification	Number certified	Training programme/certification
Italy	2004	No	NA	Pharmacy technicians do not exist in Italy. We only have pharmacists with a bachelor (5yr course) or a Master degree (5yrs course). Pharmacists with a bachelor cannot assist in a pharmacy or in a hospital.
Japan	2004	No	NA	NA
Kenya	2005	Yes	1303	Diploma in pharmaceutical technology. Legislation has been put in place in 2002.
Mexico	2004	No	NA	
Moldova	2004	Yes	407	NA
Norway	2004	No	3861	3 years of general education with specialisation the last year. There is no legal requirement to be certified to work as a pharmacy technician, but you need a specific qualification to be able to do so (or working experience to use the specific title for state of use, as is the title pharmacist)
Poland	2003	No	3/26	
Singapore	2004	No	33	Certified Pharmacy Technician Course
Switzerland	2004	No	400	NA
Taiwan	2004	Yes	77	A certificate qualification is required. There are no pharmacy technicians, however, there are assistant pharmacist who work in hospital and community pharmacy settings. Most of the requirements were completed by the graduate that worked and for their own use (e.g. the Ministry of Public Health by Pharmaceutical Education Institute, Health Workforce Development has been providing pharmacy technicians under the Certificate in Public Health Program (Pharmacy technician) with credits curriculum to support their hospital setting. Other programs by other institutions are not reviewed. Again, they are created by various professional organizations.
Thailand	2004	No	235	There are many training programmes provided by private and public sectors for the production of pharmacy technicians needed in hospitals and community pharmacy settings. Most of the programmes were completed by the graduate that worked and for their own use (e.g. the Ministry of Public Health by Pharmaceutical Education Institute, Health Workforce Development has been providing pharmacy technicians under the Certificate in Public Health Program (Pharmacy technician) with credits curriculum to support their hospital setting. Other programs by other institutions are not reviewed. Again, they are created by various professional organizations.
Turkey	2005	No	551	Under a EU project currently
United Kingdom	2005	No	1703	Regis as are as pharmacy technician – JTCPT/NA/MTTC – Equal work experience and further recognition qualifications level III. Awarded voluntary registration in 2005
United States	2004	No	About 20000	None are required. Voluntary Certified Pharmacy Technician (CPT) through the Pharmacy Technician Certification Board (PTCB). Some states have a requirement that all technicians be P-CJ certified. Some have requirements that only some technicians need to be certified if they perform certain duties. Some states have a requirement using a variety of ways to become certified. Some states have no requirements in any kind.
Uruguay	2004	Yes	3000-4000	Specialty education (before university) + training course to become either a pharmacy assistant or a specialised pharmacy technical assistant. The training courses for pharmacy assistants must be supervised by the Ministry of Education and Culture and the Ministry of Public Health and are provided by several institutions.

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### Canada

Neila Auld, Registrar; Prince Edward Island Pharmacy Board  
Neetika Bains, Administrative Assistant; British Columbia College of Pharmacists  
Dr David Collins, Dean; Faculty of Pharmacy, University of Manitoba  
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Bente Frokjaer, FIP Vice-President

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Emma Pierce, Registration Administrator; John Byan; Pharmaceutical Society of Ireland

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### **Japan**

Japan Pharmaceutical Association

### **Kenya**

Dr Larry Kimani, Pharmaceutical Society of Kenya

Dr Ahmed Ibrahim Mohamed, Pharmacy and Poisons Board

Tom Mwangi, Hospital Pharmacist

### **Kuwait**

Dr Douglas Ball, Associate Professor; Faculty of Pharmacy, Kuwait University

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Stella Tan, Assistant Admin Manager; Ms Ang Hui Gek, Chief Pharmacist; Pharmaceutical Society of Singapore

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Dr.Fourie, Registrar; Marie Japp; Rhodes University

Isobel Lemmer, Secretary, Pharmacy faculty, Nelson Mandela Metropolitan University, Port Elizabeth

Thereisa Mathai, Secretary, Pharmacy School, Tshwane University of Technology

S Smith; Aboobakhar Mohamed Alli; Department of Health

Nadien Tromp; Trisha Maharaj; Debbie Scott; Dorcas Magagula; South African Pharmacy Council



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**United State of America**

Michael Burlison, Executive Director; Kentucky Board of Pharmacy

David Dryden, Executive Secretary; Delaware Board of Pharmacy

Michael Roy Hunt, Licensing Representative; Oregon Board of Pharmacy

Chandra Loyd, Programme manager; Foreign Pharmacy Graduate Examination Committee

Daisy King, Regulatory Supervisor; Florida state pharmacy board

Lucinda Maine, Executive Vice President; American Association of Colleges of Pharmacy

Diane Miller, Commissioners Office; Pennsylvania Board of Pharmacy

Ellen Mitchell, Licensing Coordinator; Idaho State Board of Pharmacy

Lawrence Mokhiber, Executive Secretary; New York State Board of Pharmacy

Michael Rouse, Assistant Executive Director; Accreditation Council for Pharmacy Education

Elizabeth (Scotti) Russel, Virginia State Pharmacy Board

April Shaughnessy; Gwen Norheim, Knowledge management specialist; American Pharmacists Association

Cathy Stella, Director of Administrative Services; Texas Board of Pharmacy

Laura Sturick, Administrative Assistant; Georgia Board of Pharmacy/Nursing

Lee Ann Teshima, Executive Officer; Board of Pharmacy, State of Hawaii

Mary Ann Terral, Oklahoma Pharmacy Board

Johnnie Teutschman, Arizona Board of Pharmacy

Susan Warren, Colorado Board of Pharmacy

Albert Wertheimer, President; FIP Administrative Pharmacy Section

Therese Witkowski, Executive Officer; Iowa Board of Pharmacy Examiners

David R Work, Executive Director; North Carolina Pharmacy Board

Charles Young, Executive Director; Massachusetts Board of Pharmacy

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### **World Health Organization**

Dr Mario Dal Poz, Coordinator; Hugo Mercer, Scientist; Department of Human Resources for Health, Evidence and Information for Policy





**FIP**  
**Fédération Internationale Pharmaceutique**  
**International Pharmaceutical Federation**

*Street Address:*  
Andries Bickerweg 5  
2517 JP The Hague  
The Netherlands

*Mailing address:*  
P.O. Box 84200  
2508 AE The Hague  
The Netherlands

Tel.: +31-70-3021970 Fax: +31-70-3021999  
E-mail: [fip@fip.org](mailto:fip@fip.org) Website: [www.fip.org](http://www.fip.org)