

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 exists¹.

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 employment². 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 recruitment³.

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).

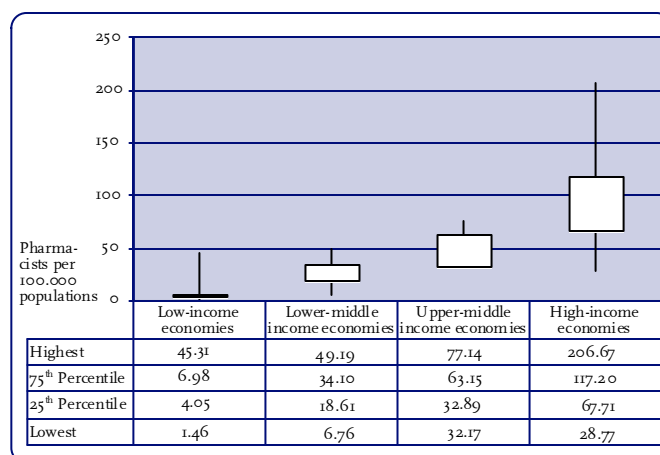


Figure 1. Pharmacist densities by country income economies (World Bank Country Classification).

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.

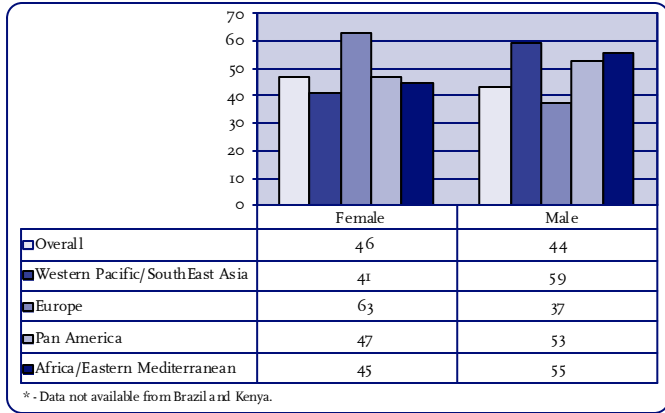


Figure 2. Pharmacist gender distribution by percentage according to region.

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.

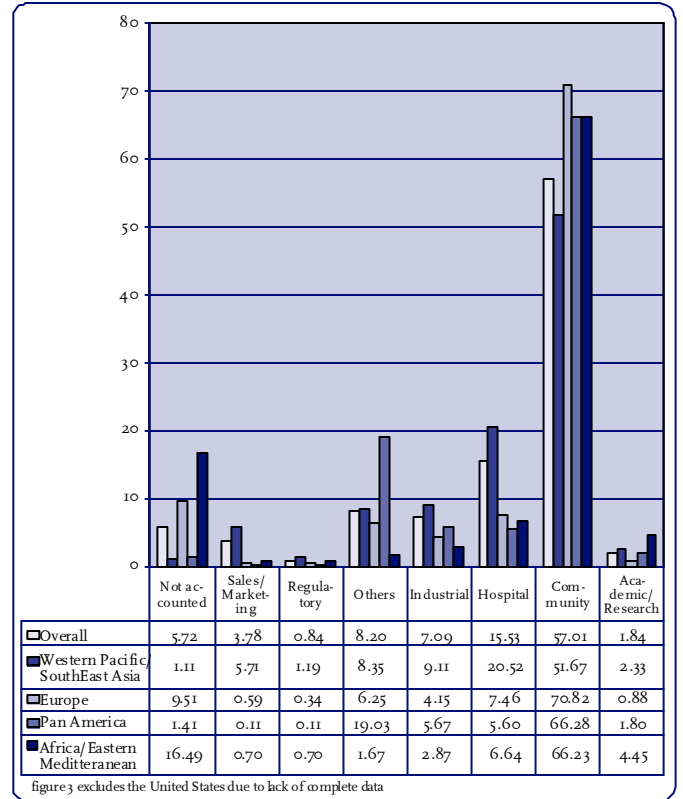


Figure 3. Pharmacist distribution across pharmacy practice fields as percentage of total workforce according to region.

South East Asia Region

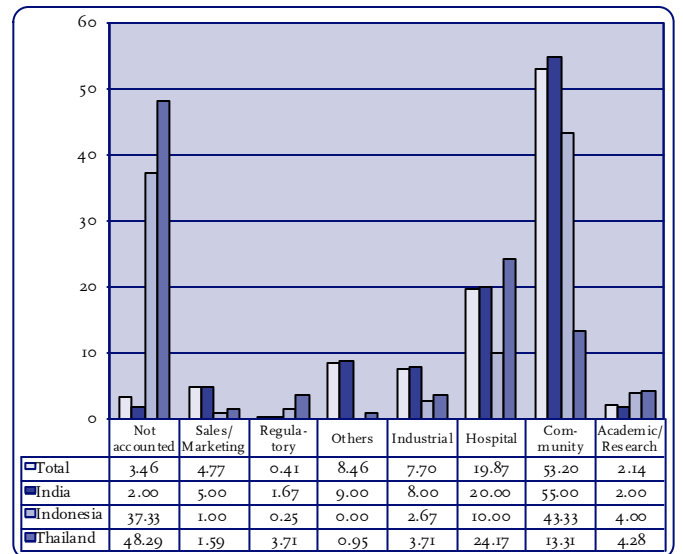


Figure 4. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the South East Asia region.

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

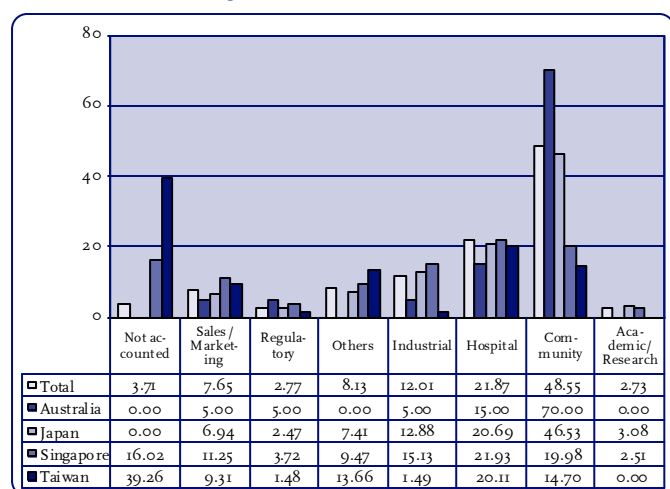


Figure 5. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the Western Pacific region.

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.

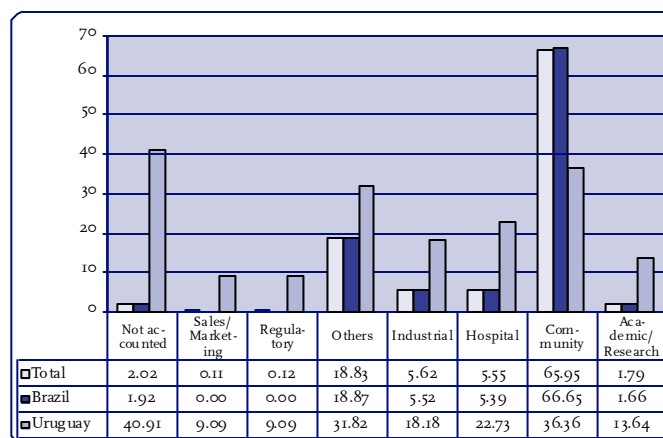


Figure 6. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the Pan American region.

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.

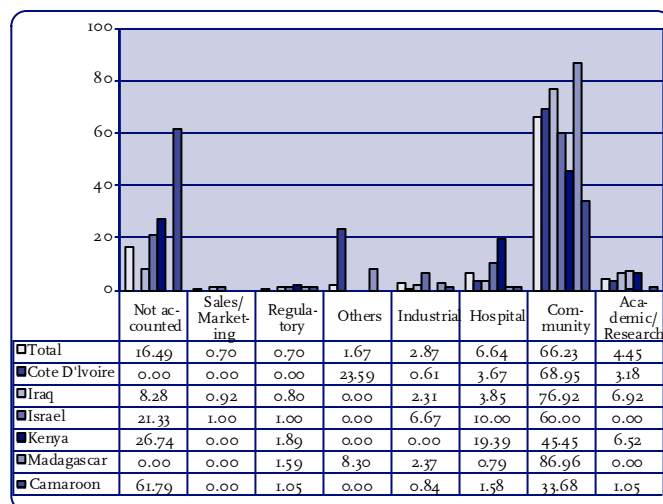


Figure 7. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the African and Eastern Mediterranean region.

European Region

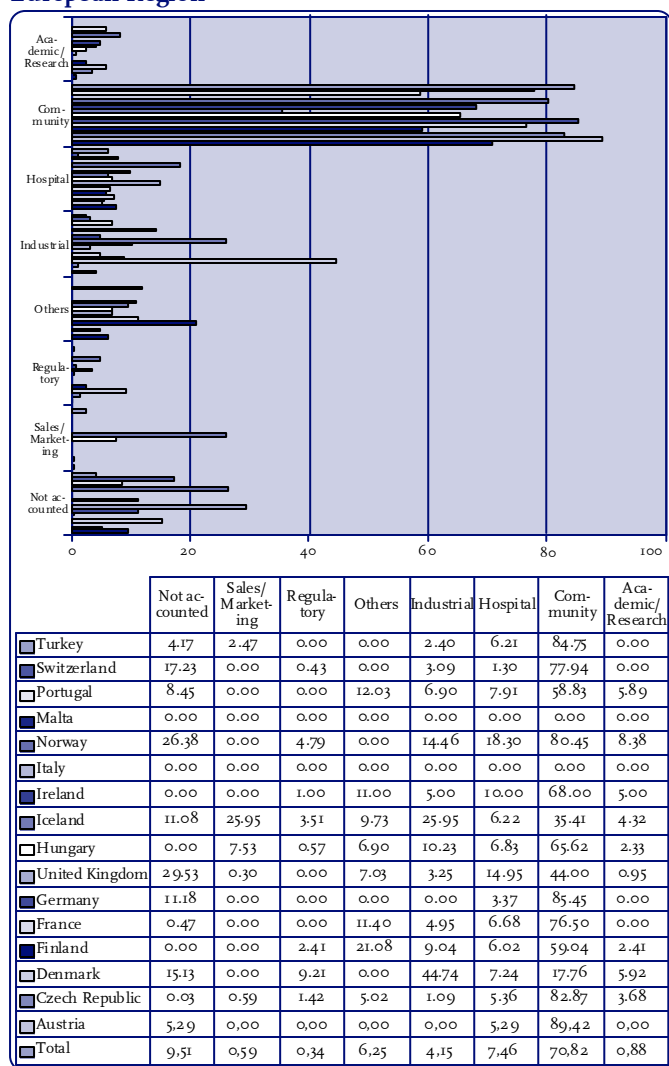


Figure 8. Pharmacist distribution across pharmacy practice fields as percentage of total workforce in the European region.

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 914⁵. 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^{6,7,8,9}. A shortfall of over 150,000 pharmacists by 2020 in the USA was projected in a study in 2002⁸. 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 2010⁶. 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 sector¹⁰. 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 positions¹¹.

About 10% of pharmacy positions in Canada were vacant in the year 2000⁷. 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^{6,7,8}. 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 population¹².

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 region¹². 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.

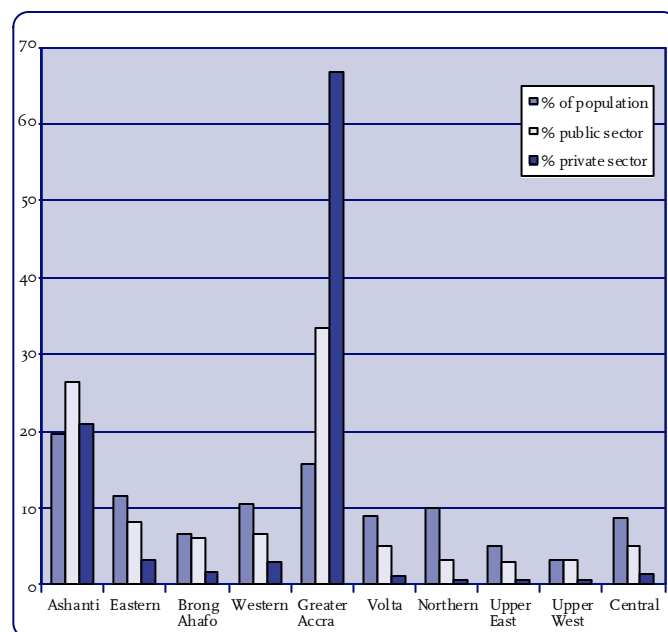


Figure 9. Distribution of pharmacists working in private and public sector vs. population across each region in Ghana in 2005 (June).

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 access¹³.

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 Health¹⁴.

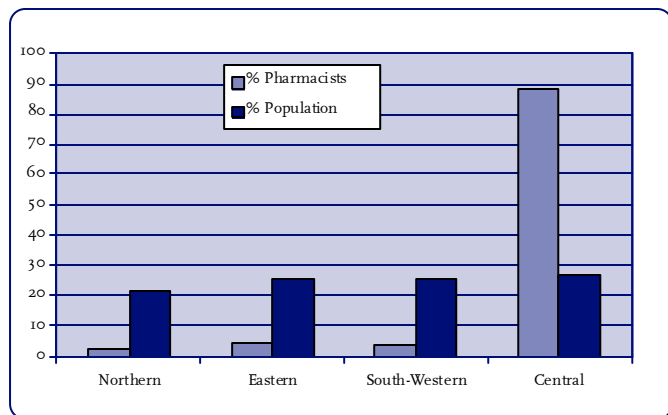


Figure 10. Distribution of pharmacists in Uganda across each region in 2006.

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

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