Assessing equity in the geographical distribution of community pharmacies in South Africa in preparation for a national health insurance scheme

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Objective To investigate equity in the geographical distribution of community pharmacies in South Africa and assess whether regulatory reforms have furthered such equity.

Methods Data on community pharmacies from the national department of health and the South African pharmacy council were used to analyse the change in community pharmacy ownership and density (number per 10 000 residents) between 1994 and 2012 in all nine provinces and 15 selected districts. In addition, the density of public clinics, alone and with community pharmacies, was calculated and compared with a national benchmark of one clinic per 10 000 residents. Interviews were conducted with nine national experts from the pharmacy sector.

Findings Community pharmacies increased in number by 13% between 1994 and 2012 – less than the 25% population growth. In 2012, community pharmacy density was higher in urban provinces and was eight times higher in the least deprived districts than in the most deprived ones. Maldistribution persisted despite the growth of corporate community pharmacies. In 2012, only two provinces met the 1 per 10 000 benchmark, although all provinces achieved it when community pharmacies and clinics were combined. Experts expressed concerns that a lack of rural incentives, inappropriate licensing criteria and a shortage of pharmacy workers could undermine access to pharmaceutical services, especially in rural areas.

Conclusion To reduce inequity in the distribution of pharmaceutical services, new policies and legislation are needed to increase the staffing and presence of pharmacies.

Introduction

Inequities in health and health-care are well documented in South Africa. The well-funded private sector attracts the majority of the country’s health professionals and there is a shortage and maldistribution of key health-care workers, including pharmacists, across rural–urban and public–private sector divides. South Africa’s government is developing a national health insurance scheme with two objectives: to protect the poor from financial risks and to increase private sector participation.

Until 1994, South Africa’s private and public pharmaceutical services had been concentrated in urban metropolitan areas, where the majority of the country’s middle- and upper-income citizens lived. Post-apartheid national drug policy and regulatory interventions were designed to improve equity in access to medicines. Although more than 80% of South Africans have access to free primary health care services and medicines from public sector clinics and community health centres (hereafter combined and referred to as “public clinics”), some prefer to use private community pharmacies (community pharmacies), where waiting times are shorter and services are more accessible. The green paper for the national health insurance scheme has identified private community pharmacies as potential access points for medicines, in combination with public clinics.

Community pharmacies represent two thirds of all pharmacies registered with the South African pharmacy council (SAPC); the remaining third comprises public institutional, manufacturing, wholesale, private institutional and consultant pharmacies. Community pharmacies are classified as either corporate or independently owned. Corporate community pharmacies are owned by large public or private companies, such as supermarket chains with in-store dispensaries and chains with a pharmacy-only business. Corporate community pharmacies also own wholesale distribution companies and many are acquiring courier pharmacies. Independent community pharmacies are generally owned and managed by one or more pharmacists. Most independent and corporate community pharmacies in both urban and rural areas deliver primary care services, such as chronic disease management, health education and promotion, maternal and child health care and immunization. Some corporate community pharmacies are in partnership with provincial health departments to offer free family planning and childhood vaccination services.

To operate in South Africa, a pharmacy must obtain a licence from the national department of health. The department of health issues one-off licences and enforces regulations that restrict the entry of community pharmacies, depending on need. The criteria are primarily distance from other dispensing services (not within 500 metres, with exceptions) and density (at most 2 community pharmacies per 10 000 residents, with exceptions for shopping malls and rural towns). Community pharmacies must be registered with the SAPC and comply with good pharmacy practice standards. Registration is renewed annually.

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Abstracts in Arabic, Chinese, French, Russian and Spanish at the end of each article.
Several regulatory changes have been made to the Medicines and Related Substances Control Act, 1965, and to the Pharmacy Act, 1974, to promote the equitable distribution of pharmaceutical services and enhanced access to medicines. Section 22 A (15) authorizes pharmacists working in rural community pharmacies who have the necessary training, to diagnose ailments and prescribe medicines beyond their traditional scope of practice. The granting of such permits was suspended in 1998. In addition, dispensing licence regulations authorize doctors and nurses to deliver pharmaceutical services in areas where need can be demonstrated. In 2003, the restrictions on pharmacy ownership with respect to the number of pharmacies owned and the qualifications of the owner were lifted and corporate community pharmacies were allowed to enter the market. Furthermore, licensing restrictions were introduced to control the geographical location of new community pharmacies. The price of medicines in the private sector became strictly regulated.

To monitor equity in access to health services, the World Health Organization (WHO) has recommended a model for assessing health service availability. In this model, the number of health care facilities, both public and private, per 10 000 residents is one of the prime indicators. WHO advocates monitoring this indicator down to the district level for a more accurate assessment of rural–urban clinic distribution. Diminishing gaps between the most and least advantaged populations resulting from policy changes suggests that progress towards equitable distribution is being made.

South Africa’s district health barometer monitors equity in primary health care provision – e.g. primary health care expenditure per capita, vaccine coverage, length of a stay in hospital, etc. – in 52 districts according to deprivation indices, a measure of poverty that includes assets, employment, education and living environment. The index ranges from 0 to 5, with the least deprived districts represented by < 1 and the most deprived by 5. However, the health barometer does not provide statistics on the densities of public clinics or any private facilities.

The primary aim of this study was to examine changes in the ownership and geographical distribution of community pharmacies between 1994 and 2012 by using routine national data. We looked at the numbers of community pharmacies per 10 000 residents at the provincial level and in selected districts and interviewed national pharmacy experts about their perceptions of the extent to which current regulations improve the geographical distribution of community pharmacies. We summed community pharmacies and public clinics to assess their combined provincial distribution patterns against a South African benchmark of one clinic per 10 000 residents.

**Methods**

**Geographical distribution**

**Data source**

Community pharmacy licence applications were obtained from the licensing unit of the department of health and community pharmacy registrations were acquired from the SAPC from November to December 2012, while community pharmacy registrations for 1994 were retrieved from published reports. We found internal discrepancies in the data from the department of health licence database (May 2003 to December 2012) and identified fewer licences approved by the department of health than new community pharmacy registrations with the SAPC. Although SAPC data were deemed more reliable, they do not classify community pharmacies by ownership. Furthermore, their registers are routinely updated and exclude deregistered community pharmacies. For these reasons, for ownership trends we relied on a limited department of health application data set for 2008 to 2011; to assess new and existing registrations for 2012 we relied on the current SAPC register.

Data on public clinics were obtained from the national audit of health facilities. Population mid-year estimates were sourced from the country’s national statistical service.

**Data analysis**

Facility density (i.e. number of facilities per 10 000 residents) at the provincial level was calculated from data on community pharmacy registrations and public clinics and from population data for the corresponding geographical areas. These were assessed for rural–urban disparities and against a benchmark of one clinic per 10 000 residents. Community pharmacies were physically mapped and counted at the district level using district population data before computing community pharmacy densities. For mapping purposes, community pharmacy searches in the national SAPC register (as on 21 November 2012) were run against compiled lists of cities, towns and suburbs in 15 districts (i.e. five districts each from the lowest, highest and middle quintile deprivation indices). The mapping for each district was done independently by separate researchers and the findings were cross-checked for anomalies.

**Pharmacy expert interview**

We purposively selected nine national experts on pharmacy regulations and invited them to be interviewed for approximately two hours at their respective workplaces between March 2012 and August 2013. The interviews were unstructured and participants were asked to talk about their views on the impact of the regulatory reform on access to medicines and equity in such access. We piloted the interview with three practising community pharmacists and estimated empirically that eight participants would achieve data saturation. Consent to participate was given by all selected stakeholders. These were two rural pharmacists with section 22 A (15) permits who also represented pharmacies at the provincial and national levels; two directors of professional services for major supermarket pharmacy chains; four representatives of the Pharmaceutical Society of South Africa; and the chairperson of the Independent Community Pharmacy Association of South Africa. Ethical approval was obtained from the University of the Western Cape and the Director-General of Health at the national department of health.

Each interview was led by the principal investigator in the presence of one of the co-researchers. Interviews were transcribed from audio recordings and subsequently checked for accuracy against field notes and/or the original audio recording. Personal identifiers were removed from transcripts to ensure anonymity. The data were coded in a qualitative data analysis software MAXQDA (VERBI GmBH, Berlin, Germany), and themes were identified from the data by the research team.
Results
Geographical distribution

Between 2008 and 2011, 1132 new community pharmacy licence applications, categorized by ownership, were recorded by the department of health. Fewer than 5% of them were rejected. Corporate community pharmacy applications increased from 94 in 2008 to a peak of 223 in 2010, and then dropped to 48 in 2011 (Fig. 1). Independent community pharmacy applications increased from 148 in 2008 to a peak of 197 in 2009 and dropped to 26 in 2011 (Fig. 1).

The total number of community pharmacies registered with the SAPC increased by 13% between 1994 and 2012 in the country as a whole and increased in all provinces except two (Table 1). However, the growth in community pharmacies did not keep pace with the 25% increase in population over the same period. Therefore, community pharmacy density fell in all but two rural provinces and one urban province. The differences in community pharmacy density between the most rural and least rural provinces decreased from 1.3 per 10 000 residents to 0.72 per 10 000 residents between 1994 and 2012. However, in 2012 community pharmacy density was still higher in Gauteng and Western Cape, the two most urban provinces.

When community pharmacy density rates were compared against the deprivation index, we found a negative correlation and noted an eightfold difference between the most and the least deprived districts (OR Tambo and Cape Metropole, respectively) (Fig. 2). There were variations within provinces; OR Tambo, one of the most deprived districts of the Eastern Cape province, has 0.11 community pharmacies per 10 000 residents, while the average density of community pharmacies in the province is 0.34 (Table 1 and Fig. 2). The data also show large differences in community pharmacy density between districts with similar deprivation indices (Fig. 2).

In 2012 there were large variations in the density of public clinics and community pharmacies between provinces (Fig. 3). The benchmark of at least one clinic per 10 000 residents was only met in two provinces, but after pooling public and private facilities (on the premise that all community pharmacies could offer a defined package of primary health care services), all provinces met the benchmark at the provincial level. Pooling community pharmacies and public clinics also resulted in lower inequity in facility distribution between rural and urban provinces.

Table 1. Changes in provincial community pharmacies and population between 1994 and 2012, South Africa

<table>
<thead>
<tr>
<th>Province (ranked from most to least rural)*</th>
<th>No. of registered community pharmacies*</th>
<th>Community pharmacy growth (%), 1994–2012</th>
<th>Population growth (%), 1994–2012</th>
<th>Community pharmacy density*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limpopo</td>
<td>76</td>
<td>143</td>
<td>1</td>
<td>0.15</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>267</td>
<td>228</td>
<td>4</td>
<td>0.42</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>149</td>
<td>227</td>
<td>26</td>
<td>0.51</td>
</tr>
<tr>
<td>North West</td>
<td>153</td>
<td>204</td>
<td>6</td>
<td>0.62</td>
</tr>
<tr>
<td>KwaZulu-Natal</td>
<td>453</td>
<td>522</td>
<td>25</td>
<td>0.53</td>
</tr>
<tr>
<td>Free State</td>
<td>167</td>
<td>148</td>
<td>7</td>
<td>0.61</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>46</td>
<td>59</td>
<td>58</td>
<td>0.46</td>
</tr>
<tr>
<td>Western Cape</td>
<td>444</td>
<td>479</td>
<td>55</td>
<td>1.22</td>
</tr>
<tr>
<td>Gauteng</td>
<td>1005</td>
<td>1099</td>
<td>61</td>
<td>1.45</td>
</tr>
<tr>
<td>National</td>
<td>2760</td>
<td>3110*</td>
<td>25</td>
<td>0.68</td>
</tr>
</tbody>
</table>

* Based on the rural percentage for each province reported by Statistics South Africa, 2001 census.15
* Number of community pharmacies per 10 000 residents.
* Excluding three community pharmacies not assigned to a province in the register.
Seven of the nine key informants felt that regulatory reform through lay ownership and licensing regulations has not reversed the inequitable distribution of community pharmacies. Six of the respondents criticized the government’s failure to improve rural pharmaceutical services, evidenced by a lack of incentives to open community pharmacies, especially independent pharmacies, in these areas. One interviewee suggested that the government could easily provide incentives, such as minimal rent in a government building or to contract services to private community pharmacies – guaranteeing a certain income and with priority for contract renewal. Another respondent mentioned that “years back pharmacies opened in rural areas because the incentive was that they would get all district surgeons’ prescriptions. That was a government policy but it was taken away just like that, without any consideration for these pharmacies and how they would survive. Most of these pharmacies then applied for a section 22 A (15) permit to survive in these areas […] and they play a massive role in providing these services.”

According to a representative from a leading corporation, a problem for the company’s future expansion into townships and rural areas is the conflict between profitability and the provision of pharmaceutical care.

Respondents held strong opinions about the apparent lack of enforcement of regulations on entry to the market. More than 50% (5/9) of interviewees were convinced that licences can be acquired through illegal means and a few questioned the authenticity of the department of health’s licensing records. The majority of stakeholders criticized the licensing criteria for opening a new community pharmacy in shopping malls (i.e. a maximum of one community pharmacy per 50 000 visitors to the mall per month and not within a 500 m radius of an existing community pharmacy). One respondent expressed the view that “licensing has become a barrier … The Department of Health is not applying it like it should. Pharmacies should be sited, taking into account the health care needs, income groups, size of population and what is required to make a pharmacy viable.”

Most respondents felt that pricing regulations have given companies (corporate and courier pharmacies) a competitive advantage over independent community pharmacies, many of which have closed down as a result. In addition, corporate businesses are able to have pharmacies within stores, which make it possible for pharmacy dispensaries to survive even if they make no profits. Five of the nine respondents identified the inability to finance an independent pharmacy as an important barrier to the growth and expansion of the pharmacy sector. One interviewee...
Districts have the highest community pharmacy densities. This shows that the health-care system has become more market oriented, with the result that areas with lesser need as a function of population size have greater access to medical care, a phenomenon known as Hart’s inverse care law. What this ultimately demonstrates is the failure of South Africa’s neo-liberal policies to reverse inequities by expanding the private community pharmacy sector, despite legal restrictions for entering the market based on population size. A European report based predominantly on qualitative data showed similar urban clustering following deregulation of the community pharmacy sector in countries such as England, Ireland and Norway. However, country-specific approaches, such as clauses or agreements with companies guaranteeing continued services in rural areas, improved access to community pharmacies. In England, the implementation of market entry regulations reduced inequities in the geographical distribution of community pharmacies.

The decline of new independently-owned community pharmacies is worrisome from the perspective of access to community pharmacies, particularly since these pharmacies are more likely to be established close to poor communities than corporate businesses. Corporate community pharmacies have gained a competitive edge over independent community pharmacies by reducing their operational costs and improving efficiencies in their supply chain through vertical integration. This allows them to sell medicines well below the maximum price stipulated in pricing regulations. As such, they rely on a low price, high-volume business model and increased profits from other product lines in their stores to compensate for low profit margins from the dispensary. Contracting with the national health insurance could provide a lifeline for the independent community pharmacy industry.

In light of post-apartheid urbanization and of the failure of community pharmacy and clinic density to keep pace with population growth, the most expedient and short-term approach to improving the geographical distribution of pharmaceutical services may be to combine these facilities. However, this will not necessarily improve service availability because services might still be insufficient, especially in the public sector. A recent nationwide audit of public sector primary health care facilities revealed poor capacity and medicine availability in many rural areas.27 Attention to such deficits is needed in plans to revitalize the country’s primary health care.2 Besides expertise and efficiencies in drug supply management, community pharmacies offer an opportunity to deliver expanded primary health care services through the reinstatement of section 22 A (15) permits and support for the proposed authorized pharmacist prescriber qualification, which allows pharmacists to diagnose and prescribe from the primary health care essential medicines list and the standard treatment guidelines.28 Both are currently being reviewed by the department of health. The key informants of this study corroborated the findings from 1998 that in rural areas holding section 22 A (15) licences, community pharmacy utilization rates were high, especially among the poor.12 With legislative support, this model could be adopted by all community pharmacies contracting under the national health insurance scheme to improve access not only to pharmaceutical services, but also to a defined package of primary health care services in urban and rural areas. The model could be piloted in one or more of the rural pilot districts where existing permit holders practise. This is in line with recommendations from countries with a policy of universal health coverage to pilot and plan interventions in underserved areas first.29

Discussion

Our study shows that monitoring trends in the distribution of community pharmacies is feasible and can be accomplished by combining key variables from the department of health licensing and SAPC registration databases, despite concerns about the quality of the data from these sources. The increase in the number of community pharmacies has not kept pace with population growth and there are differences between urban and rural provinces and between the most and least deprived districts. Although corporations have seen substantial growth, this has not resulted in improved density ratios or equity in distribution. Our empirical data are supported by the perceptions of key members of the pharmacy sector.

Ten years after deregulation opened the market to corporate businesses, community pharmacies in South Africa continue to be concentrated in urban provinces.1 Our study is the first to demonstrate that even larger differences exist among districts than among provinces and that the least deprived districts have the highest community pharmacy densities. This shows that the health-care system has become more market oriented, with the result that areas with lesser need as a function of population size have greater access to medical care, a phenomenon known as Hart’s inverse care law. What this ultimately demonstrates is the failure of South Africa’s neo-liberal policies to reverse inequities by expanding the private community pharmacy sector, despite legal restrictions for entering the market based on population size. A European report based predominantly on qualitative data showed similar urban clustering following deregulation of the community pharmacy sector in countries such as England, Ireland and Norway. However, country-specific approaches, such as clauses or agreements with companies guaranteeing continued services in rural areas, improved access to community pharmacies. In England, the implementation of market entry regulations reduced inequities in the geographical distribution of community pharmacies.

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Distribution of pharmacies in South Africa

Kim Ward et al.

Malfunction of distribution in the urban African pharmacies: Study for pharmacy distribution in South Africa for the preparation of a national pharmaceutical insurance system

The objective of this paper is to assess the adequacy of the pharmacy distribution in South Africa. The study was conducted using data from the National Health Department and the Pharmacy Council. The results showed that the pharmacy distribution was uneven, with a higher density in urban areas and a lower density in rural areas. The study also highlighted the need for new policies and regulations to improve the pharmacy distribution in South Africa.

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La mauvaise distribution a persisté malgré la croissance des groupes de pharmacies communautaires. En 2012, seules 2 provinces ont atteint le taux de référence de 1 pour 10 000 habitants, bien que toutes les provinces aient réalisé cet objectif lorsque les pharmacies et les cliniques ont été combinées. Les experts craignent que l’absence d’incitations rurales, les critères inappropriés d’octroi de licence et une pénurie de personnel qualifié dans les pharmacies puissent nuire à l’accès à des services pharmaceutiques, en particulier dans les zones rurales.

Conclusion Pour réduire les inéquitions dans la distribution des services pharmaceutiques, de nouvelles politiques et législations sont nécessaires pour augmenter les effectifs et la présence des pharmacies.
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