

Re-engineering of South Africa's primary health care system: where is the pharmacist?

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South Africa's transition towards a district-based health system (DHS) aims to offer health promotion and prevention services at community level, through re-engineered primary health care (PHC) services. Along with pharmacy workforce shortages and service delivery challenges, health reform is a clarion call to strategically re-position the pharmacist's role in DHS strengthening. The pharmacist's involvement in the three DHS streams, namely the clinical specialist support teams, school health services and municipal ward-based PHC outreach teams, is pertinent. This paper contextualises pharmacists' current peripheral role in the health system, discusses a team-based approach and identifies opportunities to integrate pharmacy students into the re-vitalised PHC framework. Re-positioning of pharmacists within district clinical specialist support and school health teams could create opportunities for community-based and population-based services whereby a range of clinical and pharmaceutical services could materialise. Pharmacy training institutions could strengthen the DHS through established partnerships with the community and health services. Academic service learning programmes could integrate pharmacy students as part of the PHC outreach teams to promote community health. Interdependence between the health services, pharmacy schools and the community would create a platform to contextualise learning and dismantle existing silos between them. Multi-sectoral engagement could enable pharmacy schools to design strategies to optimise pharmaceutical service delivery and align their activities towards social accountability.

Keywords: district health system, pharmacists, pharmacy students, primary health care

Introduction

South Africa's efforts to transform the health system toward primary health care (PHC) have been gradual due to its historical socio-economic fragmentation. The proposed PHC approach, development of the district health system (DHS)¹ and the National Health Act² provide a framework for a uniform health system. Limitations within the current DHS are multifactorial exacerbated by poor adherence to appropriate medicine use systems, as well as weak procurement and distribution management systems often resulting in stock-outs in facilities.³ The National Health Insurance (NHI), a form of universal health coverage, advocates for equitable, efficient and quality health services⁴ with the DHS, a decentralised governance and management structure, focusing on a fully integrated service with extensive community outreach and home-based services.⁵ Extensive reform of the existing health service structures and management systems are under way. While undergraduate training curricula are being oriented towards PHC, current health practitioners have not been adequately trained in implementing PHC, newly qualified health professionals receive training in silos that translate poorly towards patient care, and in-service training and continuing medical education are weak.³

This article briefly describes South Africa's DHS, contextualises the pharmacist's current role, and discusses the potential to integrate a team-based pharmacy training approach within the PHC framework. We examine the pharmacists' current role within the public health service, explore opportunities to re-position their role in PHC re-engineering, critically assess how pharmacists could offer community-based pharmaceutical care and discuss how pharmacy training could be integrated in strengthening the DHS.

District management teams (DMTs), sub-DMTs and district hospital chief executive officers aim to improve the PHC system, to increase life expectancy, decrease maternal and child mortality, combat HIV and AIDS, decrease tuberculosis burden, and strengthen health system effectiveness.⁵ PHC re-engineering offers a comprehensive service package characterised by a skills mix that is currently being piloted in 10 districts across the country.⁶ The DHS's three streams comprise clinical specialist support teams, school health services and outreach teams (PHC agents). Clinical specialist support teams aim to improve maternal and child health and strengthen clinical governance.⁵ Municipal ward-based PHC agents, environmental health and health-promotion practitioners and community health workers (CHWs) are allocated to families to address health problems. This outreach team will link with a PHC nurse to meet service delivery targets. A doctor, PHC nurse, nurse, pharmacy assistant and counsellor comprise the PHC clinic staff.⁵

DMTs conventionally include district pharmacists with extensive practice and management experience. The district pharmacists offer pharmaceutical support, monitor drug use patterns, undertake pharmacovigilance, evaluate pharmaceutical expenditure, oversee medicine procurement, and take leadership and governance roles.⁷ In the South African setting DMTs should ensure that PHC outreach teams work alongside school health services to provide health promotion, prevention and curative services including immunisation, deworming, treatment of minor skin conditions and sexual and reproductive health education.⁸

While the explicit role of the pharmacist's assistant (a pharmacy support worker) is noted in the PHC team, that of a pharmacist

has yet to be elucidated in any one of the streams. Even though there are potential options for the pharmacist's involvement in the district management and specialist support teams, their roles and responsibilities remain elusive. This maybe attributed to the vertical nature in which pharmacy services have traditionally operated; as a result they are not fully integrated within the health system. This omission could be due to lack of knowledge or understanding of the scope of practice for each pharmaceutical cadre within a reformed health system. Neither South Africa's PHC re-engineering strategy nor the Sustainable Development Goals (SDGs) offers a framework for the role of the pharmacist. The government's plan to increase enrolment for the training of pharmacy personnel,⁹ and the fact that medicines are identified as a building block for health system strengthening,¹⁰ endorses the crucial role of pharmacists. Access to essential medicines for each DHS stream is a basic health need and right, underpinned by SDG 3, directed at ensuring healthy lives and promotion of well-being for all at all ages, which reinforces the pharmacists' pivotal role in the health system¹¹:

3.1 By 2030 reduce the global maternal mortality ratio to less than 70 per 100 000 live births.

3.2 By 2030 end preventable deaths of new-borns and under-five children.

3.3 By 2030 and the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases and combat hepatitis, water-borne diseases, and other communicable diseases.

3.4 By 2030 reduce by one-third premature mortality from non-communicable diseases (NCDs) through prevention and treatment, and promote mental health and well-being.

3.5 Strengthen prevention and treatment of substance abuse, including narcotic drug abuse including harmful use of alcohol.

3.6 By 2020 halve global deaths and injuries from road traffic accidents.

3.7 By 2030 ensure universal access to sexual and reproductive health care services including for family planning information and education and the integration of reproductive health into national strategies and programmes.

3.8 Achieve universal health coverage (UHC), including financial risk protection, access to quality essential health care services, and access to safe, effective, quality, and affordable essential medicines and vaccines for all.

3.9 By 2030 substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water, and soil pollution and contamination.

Communities frequently prioritise medicine availability as a quality indicator of a health service.¹² Recognised as custodians of medicines, re-positioning pharmacists' role within the comprehensive PHC service package is imperative through education and advocacy.

Despite having achieved an integral role in South Africa's HIV programme, public sector pharmacists maintained a peripheral and isolated role within the health system, contributing towards sub-optimal service delivery. Less than a third (29%) of

pharmacists are employed in the public sector, servicing the majority (80%) of the population,¹³ which is characterised by historical fragmentation, inadequate infrastructure and support personnel, and poor procurement policies.¹⁴ In addition, pharmaceutical services in primary care facilities tend to operate vertically and the high patient load resulted in pharmacists adopting a product-centred role through mechanical dispensing, stock control and management, being perceived as medicine suppliers. The low pharmacist to population ratio (1:3849) and inequitable distribution in public versus private and rural versus urban health sectors¹³ remains a challenge, especially to primary care nurses who are required to undertake additional tasks such as stock management and dispensing along with their clinical responsibilities. However, with the expansion of training and employment opportunities being offered for pharmacist assistants in the public sector,¹³ this should enable pharmacists to prioritise pharmaceutical care by targeting high-risk patients receiving chronic medication therapy¹⁵ where concerns about health and medicine-related matters could be addressed.¹⁶

Following PHC revitalisation, defined key performance areas for pharmacists within the DHS could be guided by some questions: How would a re-positioned framework affect pharmacists currently working in the public sector? What is a potential framework re-positioning pharmacists in the DHS? What training opportunities could be envisaged for pharmacy students to strengthen the DHS?

How would a re-positioned framework affect pharmacists currently in the public sector?

Public sector pharmacists would continue with routine operational procedures (dispensing, stock management, administration, student and assistant training). Training and support would be essential to work within the three streams (elaborated for each team below) of the district-based multidisciplinary teams. Their primary roles would focus on managing the district's medicines supplies based on disease burden: monitor supply and demand patterns; promote rational prescribing; and undertake pharmacovigilance. Training on antibiotic stewardship, information management, pharmaco-economic evaluation, epidemiology and clinical governance would be needed to strengthen the pharmaceutical system. Career progression opportunities would be based on specialisation, expertise, competence and leadership skills.

Re-positioning the role of the pharmacist in the revitalised PHC system: a proposed framework

Health system strengthening by the pharmacy workforce depends on service delivery interventions, health information use, medical products, health financing, leadership and governance.¹⁰ In the NHI context, pharmacists' roles would be directed towards service improvements, human resource planning, management, infrastructure transformation, engagement in mass mobilisation for better health, review of drug policy and strengthening of research and development.

South Africa's quadruple disease burden¹⁷ redefines the pharmacists' role in PHC re-engineering in prevention and treatment of conditions that require access to medicines. Integrating the existing vertical pharmaceutical service requires a shift from an isolated nature of practice to a team-based one, with linkages to each DHS stream. In preparation for the DHS, training commenced for a new cadre of pharmacy personnel, namely pharmacy technicians. These mid-level workers would have greater scope of practice than that undertaken by existing

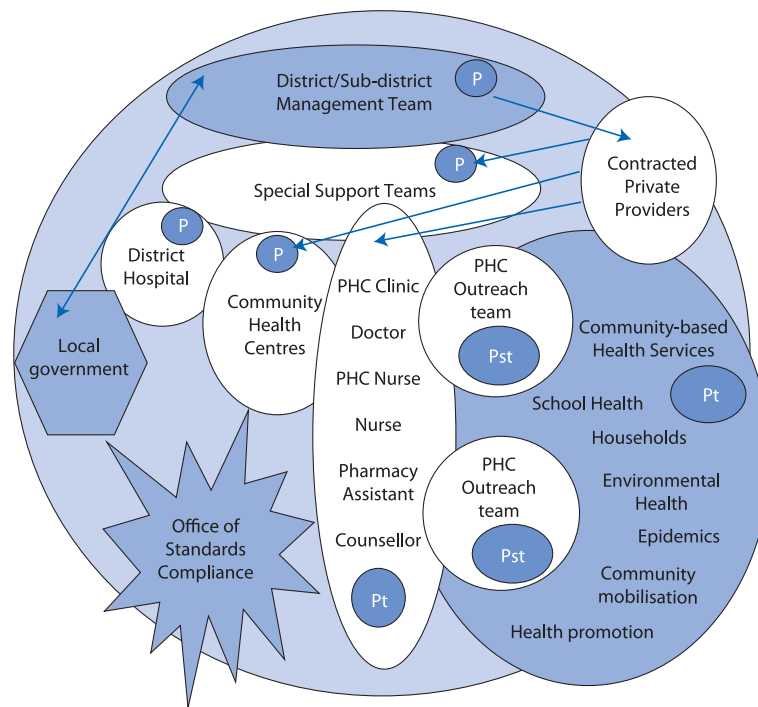


Figure 1: Primary health care model within the DHS⁵ indicating potential entry points for pharmacists (P), pharmacy assistants (Pt) and students (Pst).

pharmacist assistants who are primarily trained in drug supply and stock management. Pharmacy technician training comprises two years at a higher education institution, followed by a six-month internship.¹⁸ Introducing the pharmacy technician into a multidisciplinary team would enable pharmacists to capacitate themselves towards specialisation¹⁹ and assume leadership roles. Among others, specialisation in chronic medication therapy management, antibiotic stewardship, clinical pharmacy, health promotion, pharmacovigilance, pharmacoepidemiology, pharmacoconomics, corporate governance, health information and technology management would be essential. Potential entry points of the pharmacy workforce in the three streams of DHS across are discussed below (Figure 1).

District clinical specialist support teams

Currently, South Africa's four-year pharmacy training enables a graduate to practise as an intern (one year) and upon successful completion of the pre-registration examination, undertake community service (one year) at a public sector facility, before qualifying as a generalist pharmacist.²⁰ A generalist pharmacist specialising in clinical pharmacy would be recognised as a clinical pharmacist,²¹ demonstrating career progression and active patient-centred service within the health system. A clinical pharmacist engages in policy decision-making at national and provincial levels and can offer support to a generalist pharmacist whose primary role is to ensure that strategies are implemented and operational at the facility level.

Hospital clinical pharmacy services have shown reduced rates in mortality²² and preventable adverse drug events.²³ Within the district clinical support teams, two potential performance areas could be achieved: the generalist pharmacist could train clinical staff and adherence counsellors on chronic medication therapy management (non-communicable diseases, HIV/AIDS) and engage in health-promotion activities. A clinical pharmacist

could be tasked to oversee implementation of antimicrobial stewardship programmes in accordance with nationally recognised strategies by working with generalist pharmacists, nursing and medical staff,²⁴ and contribute to clinical governance.²⁵

A public health role for pharmacists in promoting rational and cost-effective drug use would be via a pharmaceutical therapeutics committee (PTC). Generalist pharmacists trained in drug utilisation review studies and pharmaco-economic evaluations would work with clinical teams. Pharmacovigilance is a core competence for pharmaceutical care that should be embedded routinely in the workplace.²⁶ Prescribing patterns in general and particularly for the elderly would be monitored to curb polypharmacy, as complex drug regimens taken against unstable pharmacokinetic profiles²⁷ increase the risk of adverse events and hospitalisations. In developed countries, clinical training of pharmacy students in immunisation,²⁸ paediatric pharmacotherapy,²⁹ chronic medication therapy management,³⁰ pharmacovigilance and diabetes management³¹ are embedded in the health service, which has resulted in positive health outcomes.

School health services

Pharmacists linked to schools would focus primarily on preventive care through the national Expanded Programme on Immunisation (EPI). Adherence training and support offered to the school health team in cold chain storage requirements would secure vaccine efficacy during immunisation campaigns (SDG 3.8). Drug distribution for de-worming, skin conditions⁸ and monitoring the pilot implementation phase to capacitate school health teams would be essential. Assessing staff competence on good dispensing practice and adherence to standard operating procedures in cold chain management, drug administration, storage and disposal form part of quality assurance.

Table 1: Summary of proposed key performance areas of pharmacy personnel located within each of the three PHC streams that could fulfil Sustainable Development Goal (SDG) 3¹¹

PHC streams	Cadre of pharmacy personnel	Proposed key performance areas	Attempt to fulfil SDG 3
District-based clinical specialist support teams	Generalist pharmacist	Train clinical staff and adherence counsellors on chronic medication therapy management e.g. communicable and non-communicable diseases Participate in pharmaceutical therapeutics committees (PTCs); involvement in pharmacovigilance, drug utilisation reviews, pharmaco-economic evaluations and evidence-based pharmaceutical care	SDG 3.3 SDG 3.4 SDG 3.7 SDG 3.8
	Clinical pharmacist	Offer specialised clinical services, such as therapeutic drug monitoring and pharmacotherapeutic interventions for specific conditions e.g. maternal health Undertake chronic medication therapy management Support generalist pharmacist to undertake pharmaceutical care	SDG 3.1 SDG 3.2 SDG 3.3 SDG 3.4 SDG 3.7
School health services	Generalist pharmacist	Train school health nurses on cold chain management, procurement of vaccine and medical products for immunisations Manage drug supply for de-worming and (minor) skin conditions	SDG 3.1 SDG 3.2
	Community pharmacist (public-private partnership)	Offer immunisation services and health promotion initiatives in community pharmacies through non-governmental (or multi-sectorial) partnerships	SDG 3.5 SDG 3.7
Outreach PHC agents	Pharmacy technicians Pharmacy students	Supervise drug supply for DOTs and IMCI Identify and address social determinants that impact on health. Screen and monitor high risk patients. Promote treatment adherence and healthy lifestyle initiatives	SDG 3.8 SDG 3.9

PHC outreach teams

Identifying vulnerable households and collecting information on health determinants is paramount.⁹ Pharmacy technicians and student pharmacists could form part of PHC outreach teams, and receive supervision from either the pharmacist, doctor or professional nurse. As part of an undergraduate pharmacy experiential learning programme students could monitor families on TB treatment (directly observed treatment short course) and offer supervised care on the integrated management of childhood illnesses. By establishing partnerships with communities, they could jointly identify environmental health barriers, sexual practices that increase risk of infections, and injury resulting from gender violence and stigma. Social determinants could be addressed through engagement with relevant stakeholders as community projects,³² to contextualise learning and shape competencies towards social accountability and civic-mindedness.

Pharmacy students are required to develop a moral obligation to serve by accepting responsibility for the outcomes of care. This can be achieved by establishing a 'social contract' with patients where students could be trained to negotiate approaches to health and well-being.³³ Training pharmacy students to establish a therapeutic alliance with patients would enable them to identify the risks associated with medicine-taking, along with the social, economic and environmental determinants that influence health outcomes.¹⁶ For instance, training students in a behaviour change strategy such as motivational interviewing

would enable them to work collaboratively with patients to assess treatment adherence concerns.³⁴ Student competence can be measured with validated tools such as the Behaviour Change Counselling Index (BECCI)³⁵ and Motivational Interviewing Treatment Integrity (MITI), (Table 1).³⁶

Williams (2007) endorses the pharmacy profession's move to go beyond the acquisition of knowledge and technical skills towards the development of value-based ('*phronesis*') covenantal relationship with patients.¹⁶ A similar value-based approach is endorsed for revitalising the medical profession,³⁷ and where the African value of Ubuntu (shared humanity) has been recognised as a social responsiveness framework.³⁸ In this regard community and population-based learning experiences would challenge graduates to critically examine the relevance of theoretical teaching relative to current localised health needs.³⁹ This could be achieved if the health services and pharmacy academic institutions jointly establish interdependent learning through inter-professional teams and practice frameworks by working with communities to specifically address priority health concerns. Pharmacy schools which align their education, service and research activities to meet the values of relevance, effectiveness, quality and equity would be deemed to be socially accountable (Table 1).⁴⁰

Strengthening of South Africa's health system

Compliance with the national core standards is being introduced to promote quality care at facilities. Public and private health facilities that comply with the national core standards qualify for

accreditation.⁴¹ Amongst others, patient safety and security, infection control and basic medicine availability are being prioritised, requiring involvement of pharmacists occupying managerial positions. District pharmacy managers and facility managers could undertake clinical governance roles to ensure that guidelines, protocols and policies geared towards patient and staff safety are implemented through risk management systems. Secure medicine storage for emergency care, high-risk groups, maternity cases and children would be essential. Adherence to medicine administration protocol and adverse events policy would be required to assure patient safety. Infection control policies would require formal surveillance and reporting systems along with staff and patient education. Control of Schedule 5 and 6 medicines would require adherence to the Medicines and Related Substances Act and Good Pharmacy Practice guidelines.⁴² The operational teams, which comprise staff working in each of the three PHC streams, would ensure that occupationally acquired injuries and diseases are minimised. Service providers meeting legislative requirements with documented procedures and policies for pharmaceutical waste management and safe disposal will be contracted.⁴¹

Part of the role of pharmacists working in public health is to undertake a generic management course to oversee the financial aspects of pharmaceutical service delivery. Strengthening skills and capacity in financial management, planning, monitoring, evaluation and contracting to improve accountability would enable pharmacists to contribute towards establishment of the District Health Authority. Pharmacists could train PHC staff in rational medicine use and good dispensing practice, and work through clinic committees and hospital boards to link with CHWs in mapping medicine adherence patterns in the district.

Public–private sector partnerships

Establishment of public–private partnerships between public health service and private community pharmacies would fulfil a national economic objective⁴³ and address the pharmacy human resource deficiency in underserved areas.

Private sector general practitioners will be contracted to underserved communities to offer health services, clinical governance and capacitate the PHC team;⁶ a similar model could apply to community pharmacists. Consultative pharmacy forums could establish a framework between community pharmacies and nearby district hospitals to identify needs and share expertise and services to strengthen the DHS. White (2009) outlines opportunities for community pharmacists to establish practices in rural areas through government incentives (rural allowance).⁴⁴ NHI-contracted pharmacies would be based on equitable licensing certification and accreditation requirements that would enable pharmacists to use existing computerised programs to monitor public health sector patients on chronic therapy, undertake drug utilisation reviews and identify potential drug interactions. Test results from monitoring body mass index (BMI), blood pressure, glucose and cholesterol could be relayed immediately to the patient's district health facility.⁴⁴

Contractual agreements established between a provincial health department and one private chain pharmacy aim to increase family planning and infant immunisation.⁴⁵ While nurses operate out of pharmacy consulting rooms, pharmacists manage the cold chain requirements, storage and distribution to match public accessibility. Trained community pharmacists in possession of a DoH permit (Section 22A (15) of the Medicines and Related Substances Act 101 of 1965) could also offer

immunisation, family planning and primary health care services. By adjusting existing legislature and protocols pharmacists could prescribe medicines which could be National Health Insurance subsidised, for example, by introducing a sub-category (2A) in the Schedule 2 medicine category, where pharmacists could initiate therapy (Pharmacist Prescribed Medicines) namely, hormonal contraceptives, anti-inflammatories, anti-gout, topical (ear and eye) antimicrobials and prophylactic anti-malarial agents.⁴⁴

Community pharmacists could be actively involved in drug and alcohol abuse awareness campaigns directed at youth from vulnerable communities. Pharmacies linked either with community health forums or health-promoting schools could establish multi-sectorial programmes with non-governmental organisations (South African National Council on Alcohol and Drug Awareness, DrugWise) to advocate healthy lifestyle, behaviour modification and offer counselling on misuse of prescription drugs. Providing family support, referring addiction cases to rehabilitation centres and working closely with trained counsellors and school nurses to instil positive living would be essential. Pharmacists trained in an evidence-based behaviour change counselling technique could form part of the routine care plan at pharmacies.³⁴ Pharmacists engaging with the Health Promotion and Development Foundation on interventions could contribute to reducing the effects of social injustices.³²

Pharmacists who may not be in a position to offer patient-centred care could train and support district health care workers and clinical staff who work directly with patients⁴⁶ on chronic medication therapy management and promote referral of difficult cases. Monitoring patient health outcomes for non-communicable diseases, pharmacists would be able to commit towards SDG 3.4,¹¹ as noted in the Durban Declaration.⁴⁷

Re-visiting pharmacy training to strengthen the District Health System

Traditional silos between academic institutions, health services and communities could be dismantled through the formation of cooperative teams, to address the skills scarcity in the public health system.³⁹ Communities of practice established between pharmacy practitioners and academic disciplines could integrate students into the workplace by increasing responsibility levels through practice-specific contexts that optimise patient care.⁴⁸ Such a model would allow for seamless transition from academia to the health service, fostering interdependence towards competencies suited to the local context, and promoting interdisciplinary teaching and learning. Joint staff appointments between the DHS and pharmacy schools would encourage sharing of resources, expertise and training aligned to address population-based needs with a common vision for quality care.

Experiential learning programmes have strengthened capacity in resource-limited settings through pharmaceutical care training,⁴⁹ service learning in pharmacy⁵⁰ and medical⁵¹ education. In developed countries service learning is integral to undergraduate public health⁵² and pharmacy courses,⁵³ sensitising students to preventive care programmes. Pharmacy students and practitioners can systematically plan, implement and evaluate health promotion programmes.⁵⁴ Berger (2009) endorses pharmacy students to develop as change agents to address treatment adherence problems through meaningful patient engagement.³³ Training students in motivational interviewing would enable them to recognise the patients' view of medicine-taking, negotiate a pharmacotherapeutic approach

and develop skills to deal with ambivalence and resistance associated with health behaviour change.³⁴ Student-led medication therapy management services have led to identification of adverse drug reactions and drug interactions.⁵⁵ Training in pharmaco-economic evaluations could equip graduates to determine cost-effective utilisation patterns of clinical pharmacy services.⁵⁶

South Africa's pharmacy workforce comprises pharmacists and assistants, and in the future technicians. Training efforts are being intensified to increase production of pharmacists¹³ and our proposed framework may serve to inform healthcare planners, educators, policy-makers, professional bodies and pharmacists through advocacy and education. We have attempted to illustrate how pharmacy education and the PHC re-engineering strategy could contribute towards a transformative scale-up of education and health system reform, specifically shaping the way in which the pharmacy workforce is trained.⁵⁷

Conclusion

Pharmacists are integral in strengthening pharmaceutical care and services in South Africa's district-based health system. Concerted effort from all sectors of the pharmacy profession is needed to demarcate their roles and responsibilities in clinical specialist support teams, the school health services and municipal ward-based primary health care outreach teams. Alignment of programmes between pharmacy training, services and the community may be a first step towards establishing a team-based practice to address priority health concerns. Pharmacy schools would need to re-visit their educational (teaching, research and community engagement) strategies to strengthen district-based pharmaceutical service delivery. Establishment of multi-sectorial partnerships would be needed for pharmacy schools to advance their efforts towards social accountability.

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