Guest Editorial

Can increasing the number and role of community pharmacists in South Africa help address rising antimicrobial resistance rates, and what are the implications?*

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Abstract

Antimicrobial resistance (AMR) is a critical issue globally as well as in South Africa, exacerbated by concerns with inappropriate antibiotic use in primary care. This includes prescribers in South Africa with variable dispensing of antibiotics without a prescription. Where this does occur, this is principally for patients with urinary tract infections (UTIs), including those associated with sexually transmitted infections (STIs), and STIs. There is little dispensing of antibiotics without a prescription for self-limiting conditions including upper respiratory tract infections (URTIs). Community pharmacists in South Africa typically offer symptomatic relief first for patients presenting with URTIs unlike prescribers. In view of this, coupled with the key role that community pharmacists played during the COVID-19 pandemic, and the fact that in a number of countries trained community pharmacists can diagnose and dispensed antibiotics for certain infections including UTIs, we believe it is time for the South African Government and Health Authority to review current legislation and expand the services of community pharmacists. An increased number of community pharmacists can also work with prescribers to improve their antibiotic use, building on examples in South Africa and across developing countries. This paper summarises published evidence to promote an increasing role for community pharmacists in the country to reduce AMR, and the suggested next steps to take this debate forward. We believe this is essential if South Africa is to effectively tackle rising AMR rates.

Keywords: antimicrobial resistance, community pharmacists, national action plan, self-purchasing antibiotics, pharmacist dispensing, South Africa

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* As Editor of the ***South African Pharmaceutical Journal*** (SAPJ), I have invited this guest editorial to spotlight an urgent national crisis during World AMR Awareness Week 2025 (18–24 November), themed "*Act Now: Protect Our Present, Secure Our Future*". South Africa's AMR National Strategy Framework (2018–2024) has lapsed without renewal, prompting an open letter from over 70 experts to Minister Dr Aaron Motsoaledi urging reinstatement amid rising AMR threats to NHI and health security, with global projections of 40 million deaths in 25 years. This editorial, co-authored by other scientists, synthesises evidence positioning community pharmacists as underutilised stewards: they already prioritise symptomatic care for self-limiting infections unlike primary care prescribers. It proposes four interlinked reforms: recognise pharmacists as AWaRe-aligned AMS partners in national structures; expand PCDT and scoped prescribing for UTIs/STIs; strengthen pharmacist–prescriber data-driven AMS; and align workforce planning to deploy unemployed pharmacists against AMR while improving access. These actionable steps operationalise WHO Global Action Plan priorities for South Africa.

Introduction

Antimicrobial resistance (AMR) is a critical public health concern across all countries leading to increased morbidity, mortality and costs.[1-7] The associated costs also include the social burden arising from AMR, which has been under-recognised to date.[8] The highest AMR prevalence rates globally are currently seen among low- and middle-income countries (LMICs) including among African countries.[1,9-11] AMR is fuelled by high rates of inappropriate prescribing and dispensing of antibiotics, including antibiotics from the World Health Organization (WHO) Watch and Reserve list with their greater resistance potential.[12-15] For instance in 2022 alone, more than 659,000 children in Africa and more than 752,000 children in Southeast Asia died of AMR-associated complications, with many of these deaths linked to increasing use of Watch and Reserve antibiotics.[16] Utilisation of Watch antibiotics increased by 126%, with similar increases for Reserve antibiotics, in this population between 2019 and 2021, driving up AMR-associated deaths.[16]

A key area of concern among LMICs driving up AMR rates are consistent high levels of dispensing of antibiotics without a prescription, including from the WHO Watch list.[17-20] These high rates have persisted despite ongoing legislation banning such activities.[17,18] High rates are exacerbated by pressure from patients with often limited knowledge of antibiotics and AMR, previous successful experiences with antibiotics including for viral self-limiting conditions including upper respiratory tract infections (URTIs), their infections seen as minor, often long waiting times and costs to see healthcare professionals (HCPs) in primary healthcare clinics (PHCs) as well as the costs of medicines, compared with the convenience of community pharmacies.[17,21-24] South Africa is no exception with high rates AMR, impacting on mortality, alongside high rates of inappropriate antibiotic use across all sectors including primary care (Supplementary Table S1).[25-31] Primary care is critical in this respect as this sector can account for up to 95% of total antibiotic use in humans in LMICs.[32] If not addressed, global mortality from AMR is estimated to reach 1.91 million (1.56–2.26) deaths attributable to AMR by 2050, and 8.22 million (6.85–9.65) deaths associated with AMR by 2050, with up to 4.1 million AMR-related deaths alone in sub-Saharan Africa.[33-34] These projected increases in sub-Saharan Africa have resulted in calls to rapidly instigate multiple activities to urgently address the situation.[35]

There are ongoing Global, Regional and National initiatives to reduce the prevalence and burden of AMR. These include the WHO Global Action Plan (GAP) to reduce AMR in 2015, subsequently developed into National Action Plans (NAPs).[36-39] However, there are ongoing concerns with the implementation of NAPs among LMICs, including among African countries, due to issues with available resources and personnel to instigate agreed activities.[37,38,40-42] South Africa has also developed and launched its NAP.[43,44] However, similar to other LMICs, there are ongoing concerns regarding the implementation of its NAP, which has resulted in approaches to the Ministry of Health to urgently address the situation.[44-46] Recent activities include an open letter from academic researchers, infectious diseases specialists, infection prevention practitioners, microbiologists, pharmacists, pharmacologists, public health experts, and policy experts in the field of AMR to the Minister of Health in June 2025 to prioritise the development and implementation of the NAP.[46] Other WHO initiatives include encouraging greater monitoring of AMR patterns to improve future empiric prescribing through the WHO GLASS initiative.[47,48] In addition, the development of the WHO AWaRe classification and guidance aiming to increase the use of Access antibiotics where antibiotics are necessary with their lower resistance potential.[49-51] Alongside this, encouraging initial non-antibiotic treatments for self-limiting conditions such as URTIs.[50,51] WHO AWaRe guidance is welcomed as there have been concerns with the robustness of a number of antibiotic guidelines produced in LMICs.[52] The initial target was that at least 60% of antibiotic use across sectors should be Access antibiotics.[49,53] However, this has increased to 70% following the United Nations General Assembly (UN GA) high-level meeting on AMR in September 2024.[54,55]

Recent global discussions, including surrounding the recent UN GA high level meeting on AMR, have highlighted that in many LMIC settings strict enforcement of prescription only policies for antibiotics is often not feasible as a result of weak enforcement, workforce shortages, shortages of antibiotics in PHCs, access barriers to see HCPs in PHCs and entrenched informal antibiotic markets.[21,56-58] It is increasingly argued that unregulated access to antibiotics without a prescription should be understood as a symptom of available resources and primary care health system constraints, and that community pharmacists in particular need to be integrated into regulated, algorithm-guided, AWaRe-aligned models of care to improve future antibiotic use, which builds on their skills demonstrated during the COVID-19 pandemic.[59-63] This broader framing is particularly relevant for South Africa, where high AMR rates, gaps in NAP implementation and persistent inequities in access to primary care coexist with under utilised pharmacy capacity.[56,64] Trained community pharmacists can also reduce the extent of substandard and falsified antibiotics within their pharmacies, which is a concern across Africa adding to AMR.[57,65,66] However, to date, this appears to be less of an issue in South Africa compared with other African countries and other LMICs.[57,67,68] The informal sector, which can also add to AMR, is again less of an issue in South Africa compared with other African countries and other LMICs.[57,58]

Antimicrobial stewardship (AMS) activities are urgently needed in South Africa to improve future prescribing and reduce AMR.[46] This includes addressing continued concerns with low levels of knowledge regarding antibiotics and AMR among prescribers in primary care as well as high levels of inappropriate prescribing of antibiotics (Supplementary Table S1).[69-74] There are a growing number of antimicrobial stewardship programs (ASPs) being undertaken among African countries, including South Africa, to try and improve future use given ongoing concerns, and this is likely to continue given rising AMR rates.[21,27,75,76]

There has generally been limited dispensing of antibiotics without a prescription in South Africa compared with other African countries in published studies.[18,77-80] Where this occurs, this has generally been from Independent as opposed to Chain pharmacies, and typically

for patients with urinary tract infections (UTIs) suggestive of sexually transmitted infections (STIs) or for STIs.[79] There has generally been very limited dispensing of antibiotics without a prescription in South Africa for patients with URTIs, with usually symptomatic treatment offered first in accordance with WHO AWaRe guidance, which contrasts with the situation with prescribers (Supplementary Table S1).[50,80-82] This is important given concerns with the overuse of antibiotics to treat URTIs across LMICs where symptomatic treatment should be offered first.[21,50,83-86]

Taken together, this suggests that South African community pharmacists are already acting, to some extent, as de facto stewardship partners in the management of self-limiting infections, even as broader system weaknesses continue to drive inappropriate antibiotic use and AMR. This is encouraging. However, we are aware that there are currently sub-optimal numbers of pharmacists working in the public sector in South Africa providing patient care and guidance to prescribers alongside high levels of unemployment among community pharmacists.[64,87,88] This needs to be urgently addressed to improve future antibiotic use in the country given, as mentioned, high rates of AMR and the implications.[30,46] In view of this, there is a need to document experiences across countries where community pharmacists are allowed to prescribe antibiotics, provide guidance and support to prescribers as well as patients, and assess their impact to reduce inappropriate antibiotic use. This reflects the growing recognition of the value that community pharmacists can bring to improving patient care in LMICs at a time of increasing pressures on available resources.[59,89,90] The findings can provide future direction to all key stakeholders in South Africa given current challenges. This was the aim and objective of this editorial.

Approach

A narrative review approach was undertaken for the content of this editorial to allow for a broader scope of sourced papers as pertinent information contained within identified papers may be part of broader papers. In addition, key documents and information may only be available via the Internet or in Journals not covered by Pub Med or Web of Science; consequently, would typically be excluded from systematic reviews. We are aware this approach may lead to bias. However, the co-authors have considerable experience in this area including providing guidance to all key stakeholder groups across LMICs on ways to appreciably reduce inappropriate antibiotic use.[15,18,21,57,75,84,91-95] We believe this is important given ongoing concerns with AMR in South Africa and the implications, with the principal aim of this editorial to suggest potential ways forward for all key stakeholder groups to enhance the utilisation of community pharmacists to reduce AMR in South Africa.[30,46]

Data from included papers were extracted into summary tables capturing country, year, setting, intervention type and key outcomes, and ordered chronologically where pertinent. The principal authors (TM and BG) synthesised the material thematically, focusing on: (i) pharmacist prescribing for selected infections where this occurs; (ii) community pharmacy-based AMS interventions to reduce unnecessary antibiotic dispensing; and (iii) pharmacist–prescriber partnerships to optimise prescribing, with emphasis on lessons relevant to South Africa (Supplementary Tables 2–4). Key findings were documented by the principal authors (TM and BG) as part of the synthesis, similar to other recent approaches involving these authors.[18,21,57,75]

International evidence and implications for South Africa

International experience demonstrates that community pharmacists can safely manage selected infections including UTIs, reduce unnecessary antibiotic use and contribute to AMS activities when appropriately trained, supported and integrated into primary care systems.

Three main domains emerge from the international literature. These include pharmacists diagnosing and prescribing antibiotics for uncomplicated infections (Supplementary Table S2), AMS oriented interventions to reduce inappropriate dispensing of antibiotics without a prescription among patients (Supplementary Table S3), and pharmacist–prescriber partnerships to optimise antibiotic prescribing in primary care (Supplementary Table S4).

Supplementary Table S2 contains details of programmes across multiple countries, including Canada, New Zealand and the United Kingdom, where community pharmacists have been authorised to treat a range of infectious diseases with antibiotics including UTIs.[96-100] We are also aware in France that community pharmacists are now allowed to dispense antibiotics for patients with UTIs.[101] However, they must belong to a coordinated structure and have previously obtained the agreement of the referring physician, with studies ongoing to assess their impact on subsequent patient care in controlled, cluster-randomised studies.[101]

For such initiatives to succeed in other countries, identified barriers must be addressed.[100,102] These include fostering a favourable socio-political context including developing clear policy pathways and logistics, instigating targeted training courses for community pharmacists to address potential shortcomings in necessary diagnostic and other skills, and raising key stakeholder recognition of the potential role for community pharmacists to be able to prescribe antibiotics in certain situations.[100-102] Alongside this, allocating specific resources and updating infrastructures to improve patient care.[100,102]

Supplementary Table S2 contains details of published studies where community pharmacists have provided advice to patients on the appropriate management of their infectious disease, especially aimed at reducing their requests to dispense antibiotics for essentially self-limiting conditions. As a result, recognising community pharmacists as critical to improve antimicrobial use in primary care across LMICs. ASPs have historically been more difficult to undertake among LMICs due to issues with personnel, available resources, weak infrastructures and inadequate antimicrobial resistance surveillance.[103-105] However, this is changing among LMICs, including among African countries, providing direction for the future.[21,27,75,106-109] Overall, appropriately trained community pharmacists integrated into current health care systems can make an appreciable impact in minimising inappropriate antibiotic use among LMICs (Supplementary Tables S3 and S4).[110,111] This includes working alongside prescribers in LMICs to improve their future antibiotic prescribing through auditing, feedback and other activities.[88,112]

Table I: Proposed inter-related activities for all key stakeholder groups going forward to enhance antibiotic use in primary care in South Africa

Inter-related activity	Rationale and ways forward
Recognising trained community pharmacists as core AMS partners within an AWaRe-aligned national response	• The emerging evidence from South Africa indicates that community pharmacists generally demonstrate comparatively conservative antibiotic use for self limiting infections such as URTIs, often prioritising symptomatic management over antibiotics[79-81,119] • This is in contrast to current prevailing prescribing patterns in primary care in South Africa (Supplementary Table S1), perpetuating ongoing concerns regarding AMR in South Africa • Consequently, rather than positioning community pharmacies primarily as enforcement targets, future policies in South should formally acknowledge their de facto stewardship contribution, including educating patients (Supplementary Table S3), and integrate them into provincial and district AMS structures as well as into any reconstituted national AMR advisory arrangements, e.g. a reinstated Ministerial Advisory Committee on AMR. • This implies using pharmacy generated data in the future to track alignment of antibiotic use with WHO AWaRe Guidance and UN-GA targets,[50,51,54] which could include instigating and monitoring agreed quality indicator targets based on AWaRe[120] • Such activities will necessarily involve community pharmacists in the design and delivery of public and patient education on antibiotic use, and ensure that SAPC pharmacy representatives have a voice in future national AMR planning and monitoring processes building on their skills
Expand antimicrobial-stewardship oriented PCDT and pharmacist prescribing for selected infections in South Africa	• International experience, particularly from Canada, New Zealand and the United Kingdom, demonstrates that suitably trained community pharmacists can safely manage uncomplicated UTIs and similar conditions under protocol, achieving high clinical cure rates, high patient satisfaction, reduced pressure on primary care and emergency care, as well as reduced costs (Supplementary Table S2) • Currently in South Africa, North West University remains the only accredited provider of the PCDT supplementary qualification, and no other institution currently has concrete plans for comparable programmes.[121] This represents a missed opportunity given the country's growing AMR burden and the acknowledged need to shift care for selected infections into community settings to improve patient access • In line with the recent comments, and in collaboration with SAPC, we propose that national stakeholders should prioritise the development, accreditation and piloting of new, AMS focused PCDT and pharmacist prescribing pathways for a constrained set of first line Access antibiotics for clearly defined indications including UTIs and selected STIs (Supplementary Table S2)[56,79,119,122] • SAPC, universities, and professional bodies, should urgently convene a joint working group to specify curricula, competency requirements and supervision arrangements, drawing on WHO AMR competency frameworks, WHO AWaRe guidance, and national and international pharmacy workforce guidance to further develop the PCDT supplementary qualification[50,118,122] • Pilot implementation should be accompanied by rigorous evaluation of clinical outcomes, equity and unintended consequences, with a view to informing wider rollout if results are favourable. This will necessarily involve academic institutions in South Africa working with others
Strengthen pharmacist–prescriber partnerships and data-driven AMS	• Collaboration between pharmacists and prescribers has been shown to improve guideline concordance, increase the proportion of Access antibiotics used and reduce unnecessary antibiotic prescribing for URTIs in primary care settings in South Africa and elsewhere (Supplementary Table S4). • Scaling up such models would move AMS away from ad hoc, individual initiatives in hospitals, towards a more systematic team based practice in primary care where up to 90% or more of antibiotics are used in patients across LMICs, and where there are currently concerns with the use of antibiotics in South Africa (Supplementary Table S1)[30,32] • Priority actions include: (i) expanding pharmacist led audit and feedback sessions alongside academic detailing programmes targeting high volume antibiotic prescribers; (ii) formalising shared care pathways between public sector clinics and community pharmacies for common infections including UTIs and URTIs; and (iii) embedding AMS related indicators into routine performance management for both pharmacy and medical services (Supplementary Table S4) • These activities should be aligned with WHO and FIP recommendations that all healthcare professionals, including pharmacists, acquire core AMR and AMS competencies during pre-service and in-service training.[118,122] This includes enhanced communication skills acknowledging the issues of language where this occurs given ongoing concerns[82,114]
Align AMR workforce planning, access to care and stewardship objectives to achieve NAP goals	• The coexistence of rising AMR, persistently poor access to pharmaceutical care in many public and rural settings, and growing unemployment among community pharmacists and pharmacist's assistants in South Africa, highlights the absence of a current coherent AMR workforce strategy to address rising rates. [30,31,46] • International frameworks emphasise that developing an AMR competent workforce is a central pillar of effective national responses, with pharmacists increasingly recognised as key stewards of antimicrobial use • For South Africa, this implies moving beyond generic calls for "more pharmacists" towards a deliberate, competency based workforce planning that links expanded community pharmacy roles to defined AMR and AMS functions across the healthcare system, e.g. surveillance activities, prescribing, dispensing, patient education and inter professional leadership • The strategic investment in community pharmacy infrastructure and roles, tied to expanded and clearly regulated scopes of practice, AMS responsibilities and sustainable remuneration, could simultaneously improve access to high quality primary care services, reduce inappropriate antibiotic use and absorb part of the growing pool of unemployed pharmacy professionals • Workforce policy should explicitly incorporate WHO AMR competency frameworks and related FIP development goals, ensuring that pre-service curricula, PCDT and other supplementary qualifications, and continuing professional development, are aligned with the knowledge, skills and behaviours required for effective antimicrobial stewardship. Such an approach would also respond to the concerns raised in the open letter regarding the absence of a current national AMR strategy and advisory structure, by signalling that pharmacy workforce reform is part of a broader, system level response to AMR rather than a stand alone professional agenda.

NB: AMR = Antimicrobial Resistance; AWaRe = Access, Watch and Reserve;[49] FIP: International Pharmaceutical Federation; PCDT = Primary Care Drug Therapy; SAPC = South African Pharmacy Council; UN-GA = United Nations General Assembly; URTIs = Upper Respiratory Tract Infections; UTIs = Urinary Tract Infections

Overall, it is important that community pharmacists have appropriate communication skills when talking with patients, including being aware of possible language issues; otherwise, there can be miscommunication potentially adversely affecting antibiotic use.[77,82,113,114] Patient and public engagement is also seen as increasingly important to reduce high levels of requests for antibiotics among patients in LMICs, even for self-limiting infections.[21,115] Community pharmacists can also play a key role in this respect.[21,114] Educational programmes can appreciably improve community pharmacy knowledge regarding antibiotics, AMR and AMS, benefitting all key stakeholder groups going forward.[116]

Recommendations for South African pharmacy stakeholders

South Africa's expired AMR National Strategy Framework, and the recent open letter to the Minister of Health, underscore the urgency of restoring a coherent national response to AMR, including a functioning scientific advisory mechanism.[43,46,56,117,118] Against this backdrop, and in line with the WHO GAP and AWaRe targets, the evidence assembled in this editorial supports a deliberate move away from narrowly punitive, inspection led responses to address the selling of antibiotics without a prescription towards a more enabling, stewardship oriented vision for community pharmacy within a strengthened AMR workforce. This includes the potential for diagnosing and dispensing of antibiotics for agreed conditions to address barriers and shortfalls currently in primary care in South Africa.

Four interrelated sets of actions are proposed for the South African Pharmacy Council (SAPC), the National Department of Health, professional associations, universities and other partners (Table I).

Taken together, these recommendations suggest that South Africa's policy debate should pivot from a narrow focus on enforcing prescription only antibiotic rules towards a more nuanced, system oriented strategy that leverages the full potential of the pharmaceutical workforce within a revitalised national AMR framework.

Conclusion

Community pharmacists in South Africa already contribute meaningfully to AMS activities through conservative dispensing for self limiting infections such as URTIs with typically symptomatic care, and growing engagement in AMS initiatives. However, their potential remains under utilised within the current national AMR policy and service delivery frameworks.

International and local evidence demonstrates that, when appropriately trained, supported and regulated, community pharmacists can safely manage selected infections, reduce unnecessary antibiotic use, and partner effectively with prescribers and patients to optimise their care. At a time when South Africa faces an expired AMR National Strategy Framework, growing AMR rates and the consequences, alongside gaps in access to quality primary care, and increasing pharmacy unemployment, there is a compelling case for repositioning community pharmacists as core AMS partners within a revitalised national AMR response. This supported by an expanded Primary Care Drug Therapy and pharmacist prescribing pathways, structured AMS collaboration with prescribers, and a competency based workforce planning aligned with WHO and FIP guidance.

Ethical considerations

There are no ethical considerations as no patients were involved in this study.

Conflicts of interest

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From the next issue of the SAPJ, and in line with our new DHET accredited status (via SCOPUS), an article publication charge (APC) of R5 800 (excluding VAT) will be levied to support the costs of managing peer review, copyediting, design and layout, and open access hosting of accepted manuscripts; this APC will not apply to authors who are paid up PSSA members. This will apply to all papers that are accepted for publication from the 1st of January 2026.

As this year draws to a close, the SAPJ editorial team extends warm festive greetings to all our readers, authors, reviewers, and partners. May you enjoy a restful holiday period with family and colleagues, and return refreshed for a productive year ahead in 2026 as we continue to grow SAPJ's contribution to pharmacy in South Africa and beyond.

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