

A literature review on the Central Chronic Medicine Dispensing and Distribution Programme in South Africa

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ARTICLE INFO

Received: 01 January 2025

Accepted: 22 February 2025

Published: 29 March 2025

Keywords:

Access, chronic medication, collection, external pick-up points, implementation challenges, patient experience

Peer-Review: Externally peer-reviewed

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To cite:

de Beer, P., Tladi, K. M., & Mokoena-de Beer, A. G. (2025). A literature review on the Central Chronic Medicine Dispensing and Distribution Programme in South Africa. *Orapuh Journal*, 6(3), e1225

<https://dx.doi.org/10.4314/orapi.v6i3.25>

ISSN: 2644-3740

Published by Orapuh, Inc. (info@orapuh.org)

Editor-in-Chief: Prof. V. E. Adamu

Orapuh, Inc., UMTG PMB 405, Serrekunda,

The Gambia, editor@orapuh.org.

ABSTRACT

The increasing burden of non-communicable diseases (NCDs) in South Africa has placed significant pressure on the healthcare system. As part of the National Health Insurance (NHI) initiative, the need to improve healthcare delivery and medication access arose. In response, the country implemented the Central Chronic Medicines Dispensing and Distribution (CCMDD) program in 2014, establishing external pick-up points for medication collection. This literature review evaluates the implementation of the CCMDD program in South Africa, focusing on patient experiences, implementation challenges, and its impact on the healthcare system. A systematic search of PubMed/MEDLINE, Cochrane Library, African Journals Online, Google Scholar, and CINAHL identified 11 articles published between 2014 and 2024. Braun and Clarke's thematic method of data analysis revealed four key themes: **Patient experience and satisfaction** – highlighting positive reception and reduced waiting times. **Operational challenges** – including communication issues and infrastructure limitations. **Program implementation and expansion** – showing coverage of 88% of health districts by 2019. **Healthcare system impact** – demonstrating reduced facility congestion but noting challenges such as missed appointments and medication wastage. The review concludes that while the CCMDD program has shown promise in improving healthcare accessibility and efficiency, ongoing challenges persist, including resource constraints, patient education gaps, and systemic barriers in rural areas. Recommendations for the program's success include addressing operational barriers, improving infrastructure, enhancing patient education, integrating technology to improve communication systems, ensuring adequate resources for program sustainability, and aligning it with broader health initiatives such as NHI. Further research, adaptive implementation strategies, and the integration of digital health solutions are needed to maximize the program's benefits.

INTRODUCTION

In South Africa, the burden of chronic diseases, including non-communicable diseases (NCDs) and Human Immunodeficiency Virus (HIV), continues to rise, placing significant pressure on the healthcare system. According to the [World Health Organization \(WHO\) \(2024\)](#), NCDs—including heart disease, stroke, cancer, diabetes, and chronic lung disease—are collectively responsible for 74% of global deaths, with South Africa contributing 52% of these deaths. Additionally, by 2023, an estimated 7.7 million people in South Africa were living with HIV ([UNAIDS, 2023; WHO, 2024](#)).

At the same time, South Africa faces significant challenges in healthcare delivery, particularly in the distribution of chronic medications. With a high burden of HIV, tuberculosis, and NCDs, ensuring consistent access to medication is crucial. These statistics highlight the urgent need for innovative strategies to improve patient experience and access to essential medications. One such strategy is the decentralization of medication distribution through external pick-up points—an approach gaining traction and support globally. In response, South Africa adopted this model in 2014 by launching the Central Chronic Medicines Dispensing and Distribution (CCMDD) program, which aims to enhance access to chronic medications for patients with stable conditions while reducing congestion in healthcare facilities ([Bogart et al., 2022; Otwombe et al., 2022](#)). Additionally, the program seeks to optimize workload management in public health facilities by enabling patients to collect their medication from external pick-up points, thereby reducing the frequency of facility visits.

[Muthelo et al. \(2020\)](#) highlight that the CCMDD program delivers pre-dispensed medication to contracted pick-up points, expanding service accessibility for patients through public-private partnerships. Under this program, patients receive a six-month repeat prescription and return to healthcare facilities only once every six months or when they experience health complications. According to [Piotie et al. \(2021\)](#), eligible patients for the CCMDD program must be older than 18 years, provide informed consent, and be stable on chronic medication. Stability on medication is defined as remaining on the same treatment

regimen for at least 12 months, with the two most recent laboratory results being within normal ranges.

The CCMDD program is particularly crucial within the framework of South Africa's National Health Insurance (NHI), which seeks to achieve universal health coverage, alleviate pressure on overburdened public healthcare facilities, and improve access to medication for stable patients ([Magadzire et al., 2015; National Department of Health, 2022](#)). External pick-up points—also referred to as decentralized medication delivery models or alternative medicine collection points—allow for the distribution of chronic medication refills at accessible community sites outside hospital and clinic settings ([Bogart et al., 2022; Magadzire et al., 2015](#)). These sites may include retail pharmacies, specialized distribution facilities, or private-sector establishments.

To address South Africa's healthcare challenges, external medication pick-up points have been implemented to improve chronic medication access. However, transitioning from traditional clinic-based care to a decentralized model requires a thorough assessment of its effectiveness, challenges, and impact on patient outcomes and the healthcare system.

Objectives of the Review

This literature review aims to consolidate current knowledge on the implementation of the CCMDD program in South Africa. Specifically, it seeks to address the following research questions:

1. What are patients' experiences regarding the CCMDD program?
2. What are the current challenges in implementing the CCMDD program?
3. What is the impact of the CCMDD program on the healthcare system?

By providing a comprehensive evaluation of the CCMDD program's implementation, this review identifies areas for improvement to ensure its long-term effectiveness and success in South Africa.

METHODS

This study conducted a systematic literature search using selected databases and search engines, including PubMed/MEDLINE, Cochrane Library, African Journals

Online (AJOL), Google Scholar, and CINAHL. The keywords used in the search included: "chronic conditions," "South Africa," "external pick-up points," "medication adherence," "patient experience," "decentralized drug distribution," "chronic medication," and "healthcare access." These terms were selected based on their relevance to addressing the research questions, study design, sample size, and publication date (preferably within the last 10 years).

Inclusion Criteria

Articles were selected based on the following criteria:

- Focus on chronic medication, external pick-up points, and patient experiences
- Conducted in South Africa
- Published in English
- Peer-reviewed
- Published between 2014 and 2024

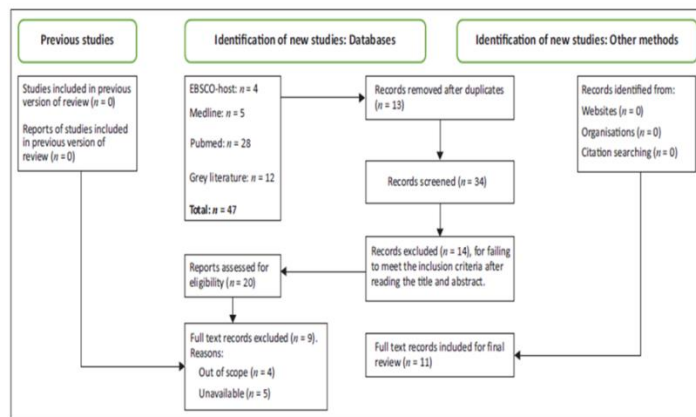
A total of 47 published articles were identified from the selected databases. The retrieved evidence was imported into Mendeley for reference management and duplicate removal. The references were then exported as RIS files into Rayyan, a software used for screening and selecting relevant studies (Rayyan, 2022).

Through Rayyan, 13 duplicate articles were removed, as shown in Figure 1, leaving 34 articles for further screening. Additional screening led to the removal of 14 articles that did not meet the specified inclusion criteria. The remaining 20 articles underwent abstract screening, where:

- 4 articles were excluded as they fell outside the scope of the review
- 5 articles were unavailable as full-text documents

This process resulted in a final selection of 11 articles for review. The charting of the selected articles was guided by the JBI Manual for Evidence Synthesis and the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Aromataris et al., 2024). The document selection process is illustrated in Figure 1 and summarized in Table 1.

Figure 1: PRISMA Diagram of Document Selection (Page et al., 2021)



Source: Adapted from PRISMA. PRISMA Statement 2020: Page MJ, McKenzie JE, Bossuyt PM, et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ*. 2021;372:1-9. <https://doi.org/10.1136/s13643-021-01626-4>

RESULTS

Article Characteristics

The 11 selected articles were published between 2019 and 2024. One study (9%) was published in 2019, three (27%) in 2020, one (9%) in 2021, five (45%) in 2022, and one (9%) in 2024 (see Table 1 below).

Table 1: Sources of evidence used to develop themes (n=11)

| Author | Title | Method | Findings and Implications |
|-------------------------|---|---|---|
| Mukumbang et al. (2022) | Comparing Patients' Experiences in Three Differentiated Service Delivery Models for HIV Treatment in South Africa | Exploratory qualitative research study design underpinned by tenets of the descriptive phenomenological paradigm. | Findings: Patients in the quick pick-up model had fewer positive experiences regarding information sharing, communication, education, and emotional/psychological support compared to the adherence club models. Patients' satisfaction with the differentiated service delivery models depended on how well the model aligned with their self-management goals for HIV treatment. Across all three models, patients reported quick service delivery and reduced waiting times for antiretroviral medication access. Implications: There is a need to understand the impact of patient experiences and preferences on retention in care and medication adherence across different models, as well as to explore the experiences of those who have dropped out. |
| Louw et al. | Home delivery of | Observational | Findings: Of the 547 patients |

| Author | Title | Method | Findings and Implications |
|-------------------------|---|---|--|
| (2020) | medication as part of reducing congestion in primary healthcare in Tshwane District Health Services | study with elements of action research evaluating the implementation of a home medication delivery program. | who qualified for home delivery, 79% accepted the service, while 21% declined. The service was well-received, helping patients access medications during the COVID-19 lockdown and reducing their risk of exposure. Implications: Expansion of the home delivery program to more clinics and districts in Tshwane, integration with the existing CCMDD program. |
| Bassett et al. (2022) | Uptake of Community-Versus Clinic-Based Antiretroviral Therapy Dispensing in the Central Chronic Medication Dispensing and Distribution Program in South Africa | Prospective observational cohort study. | Findings: Uptake of community-based pickup points was associated with younger age, full-time employment, no self-perceived barriers to care, and higher self-efficacy. Convenience in location and hours was linked to community-based option uptake. A perceived lack of in-clinic follow-up after a missed collection date was a challenge. Implications: Investigate how including medications for various chronic conditions in CCMDD may mitigate HIV-related stigma while maintaining confidentiality. |
| Bogart et al. (2022) | Implementation of South Africa's Central Chronic Medicine Dispensing and Distribution Program for HIV Treatment: A Qualitative Evaluation | Qualitative, multi-site exploration of CCMDD program implementation. | Findings: Participants held favorable attitudes toward CCMDD, citing stigma reduction. However, patient-level barriers (e.g., lack of education) and organizational barriers (e.g., communication issues, infrastructure) were reported. Implications: Improve patient education, enhance communication, dedicate more space and staff to the CCMDD program, and conduct quality improvement research to address implementation challenges. |
| Hlongwana & Gray (2022) | Barriers and Facilitators to Medicine Collection Through the CCMDD Programme at a Durban Hospital | Observational, cross-sectional study. | Findings: Patients on long-term treatment and those receiving multiple medications were more likely to collect their medication parcels. Internal pickup points were associated with higher collection rates than external pickup points. Some patients were enrolled in CCMDD before their chronic |

| Author | Title | Method | Findings and Implications |
|--------------------------|---|---|---|
| | Understanding How Community Antiretroviral Delivery Influences Engagement in HIV Care: A Qualitative Assessment of the Centralized Chronic Medication Dispensing and Distribution Program in South Africa | Qualitative assessment using in-depth interviews and focus group discussions. | conditions stabilized. Implications: Assess adherence and chronic condition stability before enrolling patients, implement pill counts, clinical pharmacist services, and monitoring for uncontrolled conditions. Prioritize down-referral to lower levels of care. Utilize technology for better tracking. |
| Dorward et al. (2020) | Strategies That Enabled Access to Chronic Care During the COVID-19 Pandemic and Beyond in South Africa | Exploratory qualitative research study. | Findings: CCMDD overcame material barriers to clinic visits, changed the meaning of collecting ART, and was less disruptive to social practices compared to standard clinic-based ART provision. Implications: Expansion of community-based ART delivery programs like CCMDD may facilitate HIV care engagement. |
| Mboweni (2024) | Experiences of Participants in a Decentralized Antiretroviral Therapy Program in South Africa During the COVID-19 Pandemic | Observational, prospective cohort study. | Findings: Structural strategies such as appointment systems, decanting options, and mobile clinics improved chronic care access during COVID-19. The shift to digital/remote services (e.g., telemedicine, SMS appointment reminders) was observed. A "buddy system" helped patients receive medications. Implications: Expand structural strategies and digital care services, and utilize the "buddy system" for medication collection. |
| Jarolimova et al. (2022) | Process Evaluation of the Central Chronic Medicines Dispensing and | Facility-based cross-sectional process evaluation using both quantitative and | Findings: Participants reported concerns about food insecurity, fear of COVID-19 infection, and loss of income. A small proportion (8%) delayed ART pick-up, but 70% expressed concerns about future ART access. Mental health scores declined during the pandemic. Implications: Not mentioned in this study. |
| Smith & Nicol (2020) | | | Findings: Missed appointments affected 8%-12% of patients monthly, leading to government costs for expired medications, |

| Author | Title | Method | Findings and Implications |
|-------------------|--|--|--|
| | Distribution Programme in Namakwa District, Northern Cape Province: A Multimethod Approach | qualitative methods. | increased workload for staff, and potential negative therapeutic outcomes. Implications: Not mentioned in this study. |
| Liu et al. (2021) | Expansion of a National Differentiated Service Delivery Model to Support People Living with HIV and Other Chronic Conditions in South Africa: A Descriptive Analysis | Descriptive, longitudinal analysis of CCMDD expansion from 2016 to 2019. | Findings: CCMDD expanded to 88% of health districts and 94.6% of health facilities, with over 2 million active patients by October 2019. Implications: Strengthen program implementation and scale up DSD models in other settings. |
| Kemp (2019) | Barriers to and Facilitators of Integrated Primary Mental Health Care in South Africa | Cross-sectional analysis of prospective cohort baseline data. | Findings: Nurses detected and referred patients at comparable rates to PHC settings globally, but gaps remained. Implications: Implementation strategies in low-resource settings should improve detection and referral rates. |

Thematic Analysis

The 11 articles were thematically analysed using Braun and Clarke's method of data analysis (Braun & Clarke, 2022). This approach was chosen as it effectively identifies and analyses patterns within qualitative data. Four overarching themes emerged:

1. **Patient Experience and Satisfaction:** The reviewed studies reported positive experiences with the CCMDD program, including quick service delivery and reduced waiting times (Mukumbang et al., 2022; Dorward et al., 2020). However, experiences varied based on individual ability to manage personal social practices.
2. **Operational Challenges and Barriers:** Several studies highlighted communication issues, infrastructure limitations, and challenges related to medication collection from external pickup points compared to internal pickup points (Bogart et al., 2022; Hlongwana & Gray, 2022).
3. **Program Implementation and Expansion:** The CCMDD program significantly expanded between 2016 and 2019, reaching 88% of health districts (Liu

et al., 2021). It also successfully engaged patients with both HIV and non-communicable diseases.

4. **Impact on the Healthcare System:** While the program reduced congestion in primary healthcare facilities, it introduced new challenges such as missed appointments and costs related to medication expiry, leading to wastage (Louw et al., 2020; Smith & Nicol, 2020).

DISCUSSION

This review provides a comprehensive overview of the key aspects related to the implementation of collecting chronic medication at external pick-up points in South Africa, particularly through the Central Chronic Medicines Dispensing and Distribution (CCMDD) program. It highlights both the benefits and challenges of the program, as well as areas for potential improvement and further research.

The implementation of external pick-up points for chronic medication in South Africa, primarily through the CCMDD program, has significantly transformed the landscape of healthcare delivery in the country. This discussion explores the multifaceted impacts and challenges of this initiative through five key themes.

Patient Experience and Satisfaction

Patient experience and satisfaction have emerged as central themes in evaluating the CCMDD program. The initiative has been largely well received by patients, who appreciate the convenience and accessibility of external pick-up points. Studies consistently report reduced waiting times and less disruption to patients' daily lives compared to traditional clinic-based care (Mukumbang et al., 2022; Bogart et al., 2022). Importantly, the program has also positively impacted reducing HIV-related stigma by integrating medication collection for various chronic conditions. However, patient satisfaction is closely tied to how well the service aligns with individual self-management goals, highlighting the need for a patient-centred approach in program implementation.

Operational Challenges and Barriers

The CCMDD program has shown significant potential in improving healthcare delivery and efficiency. Despite its successes, the program faces considerable operational challenges, particularly in rural areas, which hinder its full

implementation (Bogart et al., 2022). Infrastructure and resource constraints, including communication and coordination issues between healthcare facilities and pick-up points, have led to instances of medication packaging errors and delivery delays. These challenges underscore the need for improved staff training and education, as well as robust systems for quality control and error prevention.

To address these challenges, evidence-based interventions such as integrating technology to track medication collection, enhancing staff training, and improving patient education should be prioritised. Additionally, aligning the CCMDD program with the National Health Insurance (NHI) framework could improve healthcare delivery and medication access.

Program Implementation and Expansion

The theme of program implementation and expansion reflects the rapid growth of the CCMDD program across South Africa. From 2016 to 2019, the program expanded to cover 88% of health districts, demonstrating its scalability (Bogart et al., 2022; Otwombe et al., 2022). However, this rapid expansion has highlighted the importance of carefully considering enrolment criteria and processes. The integration of the CCMDD program with existing healthcare systems has been a critical factor in its success, but it has also revealed areas where technological adaptations are needed to improve efficiency and reduce errors.

Impact on the Healthcare System

The impact of the CCMDD program on the healthcare system has been substantial. One of its primary goals—decongesting primary healthcare facilities—has been largely achieved. This has allowed healthcare workers to focus more on acute cases and complex chronic disease management. However, the program has also introduced new cost implications, particularly related to missed appointments and potential medication wastage.

The impact on medication adherence and health outcomes is still being evaluated, with initial results showing promise but also highlighting areas for improvement. The COVID-19 pandemic further underscored the importance of decentralised medication distribution systems like CCMDD. The program's adaptability during this crisis has been noteworthy, with innovations such as home delivery

and “buddy systems” for medication collection ensuring uninterrupted access to treatment.

Implications for Practice

The successful implementation of external pick-up points for chronic medication in South Africa, as exemplified by the CCMDD program, requires a multifaceted approach that prioritises patient-centred care and addresses operational challenges. Healthcare providers and policymakers must enhance patients' experiences by prioritising patient-centred care and tailoring services to individual needs and preferences, self-management goals, and comprehensive education.

Specific actionable steps should include:

- **Targeted training programs** for healthcare staff to improve communication.
- **Feedback mechanisms** to elicit patient input and address concerns promptly, ensuring smooth coordination and responsive service delivery.
- **Infrastructure and resource investments**, particularly in underserved and rural areas, to improve staff training, quality assurance mechanisms, and technological adaptations such as digital solutions. These can enhance patient engagement, improve medication adherence, minimise errors, and increase the program's visibility and data management.
- **Tailored strategies** to improve outreach among marginalised populations by enhancing health literacy and self-management skills.

Continuous monitoring and evaluation of the program's performance—including patient outcomes, cost-effectiveness, and healthcare system impacts—will be crucial for informing quality improvement initiatives and guiding the expansion and refinement of the CCMDD program and similar chronic medication distribution models across South Africa.

Securing adequate and sustained funding to support the program's infrastructure, staffing, and ongoing operations is essential to ensure long-term sustainability and equitable access to essential medicines for individuals living with chronic conditions.

CONCLUSIONS AND RECOMMENDATIONS

The use of external pick-up points under the CCMDD program has had a significant impact on improving chronic medication access in South Africa. At the same time, it has positively influenced patient experiences and facility efficiency. While the CCMDD program has shown considerable promise in enhancing healthcare accessibility and efficiency, ongoing challenges such as resource constraints, patient education gaps, and systemic barriers in rural areas must be addressed to maximise its impact.

Continued research, adaptive implementation strategies, and a focus on patient-centred care will be crucial in maximising the benefits of this innovative approach to chronic disease management.

Specific recommendations include:

- **Improving infrastructure**, including incorporating technology to support the program's operations, especially in rural areas.
- **Enhancing patient education** through targeted campaigns to address knowledge gaps and improve medication adherence.
- **Strengthening communication** through regular check-ins or counselling sessions to address patients' emotional and psychological needs.
- **Implementing robust tracking systems** to monitor medication collection, identify true defaulters, and allocate dedicated space and staff resources for the CCMDD program.
- **Refining enrolment criteria** to ensure that individuals with chronic conditions are stabilised before joining the program.
- **Aligning the CCMDD program with the NHI framework** to optimise resource allocation. Future research should explore the cost-effectiveness of the CCMDD program and its potential expansion to other regions in South Africa, including the integration of technology to address implementation challenges.

Acknowledgement: The authors would like to acknowledge the Eagles Group for their input during the development phase of this article.

Ethical Approval: Nil required.

Conflicts of Interest: None declared.

ORCID iDs:

de Beer, P.¹: Nil identified
Tladi, K. M.²: Nil identified
Mokoena-de Beer, A. G.³: Nil identified

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