



Impact Case Study

Societal impact through *PHLEX*:
*Pharmacy Hub for Experiential
Learning Excellence*

Community. Connect. Care



July 2026



UNIVERSITY of the
WESTERN CAPE

Author: Mariam Parker

Contributors: Yasmine Khan
Nicole Keuler

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PHARMACY HUB for LEARNING & EXPERIENTIAL EXCELLENCE

Community. Connect. Care.

Impact Case Study

Title of the Impact Case Study

PHLEX: Transforming Pharmacy Education into Societal Impact through Experiential Learning

Submitting University

University of the Western Cape (UWC)

Name, Position and Email Address of Contact Person

Dr Mariam Parker

Senior Lecturer & Head: Experiential Learning Unit, UWC School of Pharmacy

Email: mparker@uwc.ac.za

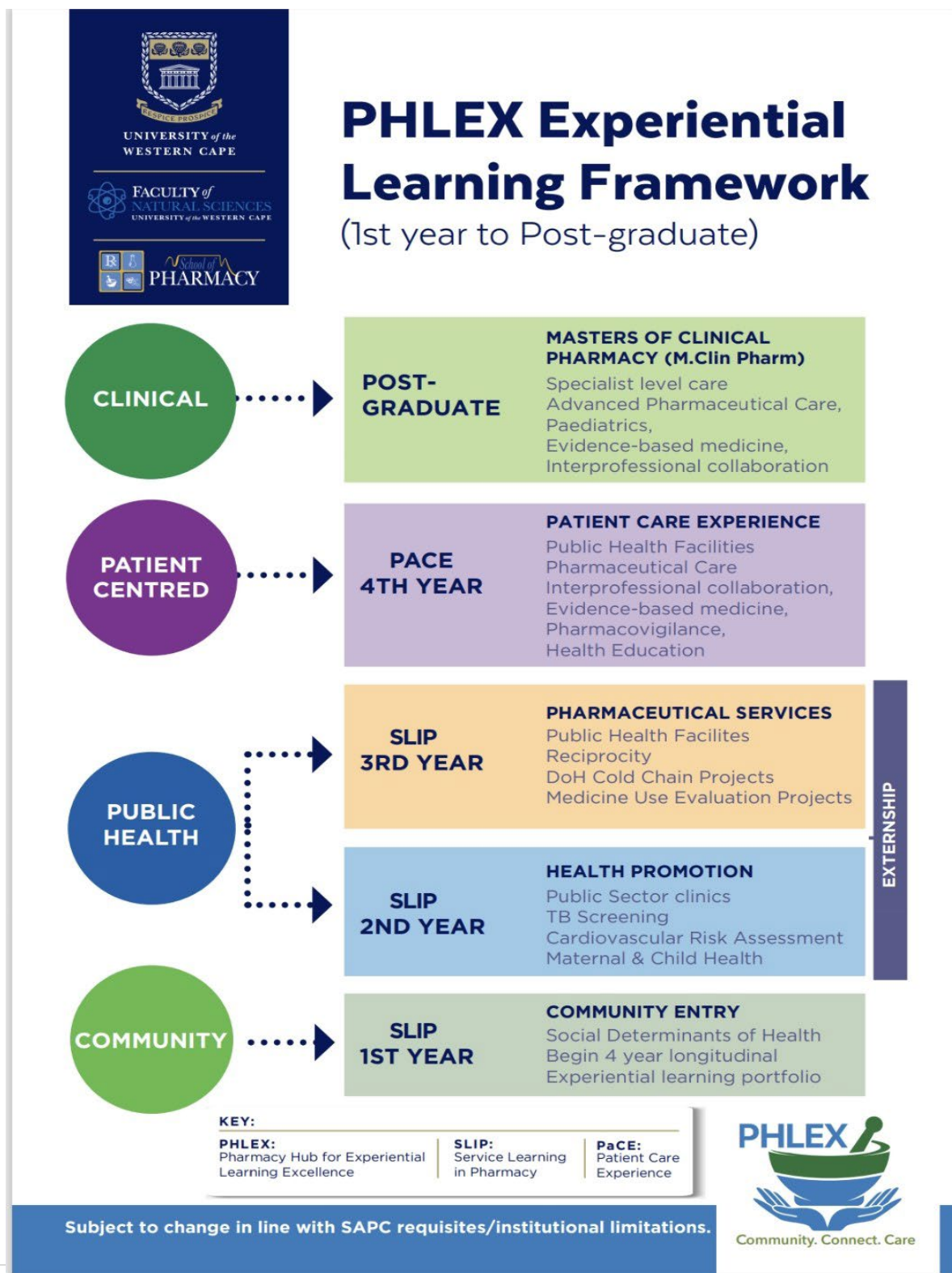
SUMMARY OF THE IMPACT

The Pharmacy Hub for Experiential Learning Excellence (PHLEX) at UWC has redefined pharmacy education in South Africa by embedding 400 hours of structured, community-based service learning into the undergraduate curriculum. Through scaffolded, practice-integrated placements, PHLEX directly impacts public health services in the Western Cape while shaping socially accountable, practice-ready pharmacists.

Since 2019, over 460 undergraduate and postgraduate students have provided supervised health and pharmaceutical services across more than 38 Department of Health facilities, contributing to quality improvement projects, patient education, health promotion campaigns, and service delivery in under-resourced communities. Impacts include improved patient safety (cold-chain audits, medicine use evaluations), health literacy (communication tools co-developed by students with oversight from

provincial health structures), and strengthened pharmaceutical services (integration of student-generated innovations into practice).

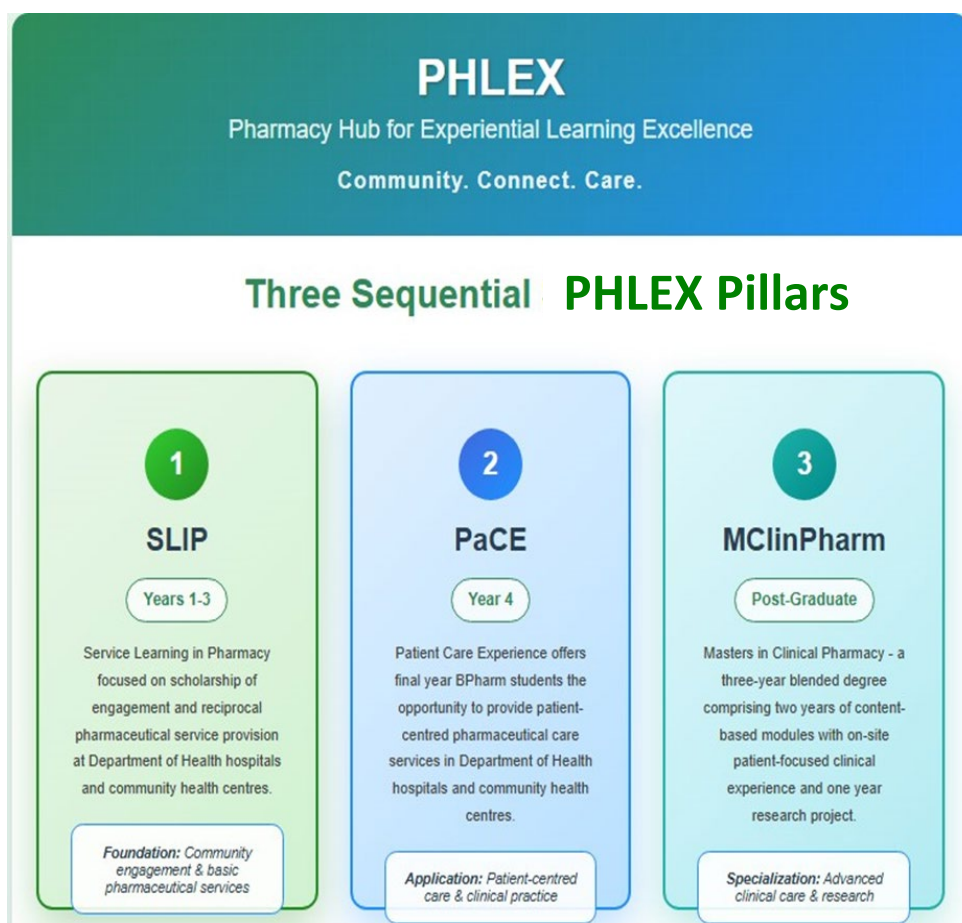
PHLEX demonstrates that university teaching can tangibly improve health systems, foster equity, mutual value creation and create societal benefit while preparing graduates as agents of systemic change.



UNDERPINNING ACADEMIC WORK

The PHLEX programme is the flagship teaching innovation of the UWC School of Pharmacy. It is rooted in pedagogical and health professions education theory, drawing on Boyes Model experiential learning (Dewey, Kolb), constructivism (Vygotsky), situated learning and communities of practice (Lave & Wenger), and transformative learning (Mezirow). The PHLEX programme is anchored in **three sequential pillars**. Together, they form a coherent, scaffolded journey that cultivates clinical competence, critical thinking, and social responsiveness and service. The three sequential pillars are

1. **SLIP:** Service Learning in Pharmacy
2. **PaCE:** Patient Care Experience
3. **M.ClinPharm** (post-graduate pillar) Masters of Clinical Pharmacy



DISCIPLINARY CLASSIFICATION:

Medical and Health Sciences (Health Professions Education, Clinical Pharmacy, Pharmacy Practice)

NARRATIVE DESCRIPTION OF THE IMPACT

Addressing South Africa's Healthcare Challenges through Education

South Africa's health system faces profound challenges: inequitable access, workforce shortages, high burdens of communicable and non-communicable disease, and systemic resource constraints. Traditional pharmacy education often left graduates unprepared for these realities, contributing to professional attrition and underutilisation of pharmacists' potential as frontline health workers.

PHLEX was designed as a transformative response: to bridge the gap between academic knowledge and real-world public health needs. By embedding students in communities and health facilities, PHLEX ensures that the training of pharmacists directly contributes to service delivery, patient education, and system strengthening — well before graduation.

How PHLEX Creates Societal Impact

1. ***Building a Culture of Reciprocity in Service-Learning by Enhancing Health Services***
 - Unlike traditional placements, PHLEX requires students to give back to facilities through tangible service outputs. This model has been welcomed by health partners, who report strengthened capacity and mutual value creation through collaboration with UWC.
 - The reciprocal design ensures impact is not limited to student learning, but extends to real-time benefits for health facilities and patients.
 - PHLEX students have conducted several quality improvements projects across 38 Department of Health facilities. Projects such as **vaccine cold-chain audits** and **medicine use evaluations** have directly improved compliance with national standards, reducing risks to patient safety.
 - Findings are escalated to pharmaceutical policy specialists, leading to corrective interventions such as medicine prescribing policy amendment, staff training and system redesigns.
2. ***Providing Healthcare Promotion and Improving Community Health Literacy***
 - Students co-create health promotion and disease prevention communication tools (posters, counselling aids) with patients and facility staff.

Example: A chronic pain management poster designed at Vanguard CHC (2021) was adopted by the Provincial Pharmaceutical and Therapeutics Committee and disseminated across four health sub-structures, reducing inappropriate analgesic use.

Example: A student-developed “medicine dial-up wheel” for HIV/TB dosing was adopted by New Somerset Hospital in 2019, improving rational prescribing across adult wards.

3. Department of Health Policy: Quality Improvement Projects

a. Medicine Use Evaluation (MUEs)

MUEs are conducted under the oversight of the Provincial Medicine Use Evaluation Committee and form part of a continuous, criteria-based programme to ensure the rational use of medicines. Facilities are allocated MUE medicines based on local medicine usage data. Pharmacy students, trained in retrospective record review, **conduct folder-based audits using a standardised data collection tool approved at provincial level.** This multi-site project student-driven project assesses the availability, use, and prescribing patterns of essential medicines across primary care sites. Student findings **inform prescribing and dispensing processes, monitor alignment with national essential medicine lists, and strengthen pharmaceutical governance** at the facility and district level

b. Cold Chain Audits (Semester 2)

The cold chain audit is a province-wide, same-day assessment of practices related to thermolabile pharmaceuticals. Students, pre-trained in cold chain logistics and pharmaceutical standards, conduct **facility-level audits** using a standardised audit tool aligned with national and international best practices.

Key assessment domains include:

- Temperature-monitoring practices and technology
- Cold chain storage compliance
- Contingency planning and cold chain equipment integrity
- Staff knowledge and adherence to SOPs

The audits are not only designed for research fidelity, but also for comparability across sites, allowing for trends and gaps to be identified in a structured, data-driven manner. **These insights are then used to inform real-time service improvement at facility and provincial levels.**

4. ORAL REHYDRATION SOLUTION BATCHES by 1st year Pharm students

As part of our first-year curriculum I implement a hands-on **Oral Rehydration Solution (ORS) preparation project**, which integrates public health education, pharmaceutical science and experiential learning. Every year our 1st year class **make and donate large batches of Oral rehydrate solution to local clinics**, where patients can't afford ORS for their babies. It is also a powerful learning activity for early professional identity formation and hand on skills development compounding introduces students to the clinical and social relevance of ORS while instilling foundational compounding and quality assurance skills aligned with professional pharmacy standards.

Completed ORS packets are donated to local public sector clinics, such as Bellville CDC, for use in treating mild to moderate dehydration. In this way, the learning experience is anchored in a real-world contribution, reinforcing students' understanding of pharmaceutical care as a socially engaged discipline.

Reach of the Impact

- Geographic reach: Western Cape facilities spanning urban, peri-urban, and underserved areas; outputs disseminated provincially and nationally.

Beneficiaries:

- Patients and communities served by >38 Department of Health facilities.
- Healthcare teams (pharmacists, nurses, managers) benefiting from student-driven audits, training, and resources.
- Future patients across South Africa through better-prepared pharmacists and emerging clinical pharmacy specialists.

Diversity of impact: From rural maternal health clinics to tertiary hospitals, PHLEX interventions are contextually responsive, demonstrating adaptability across multiple levels of care.

Significance of the Impact

- **For patients:** Tangible improvements in health literacy, medicine information and quality of care.
- **For health facilities:** Access to additional human resources, actionable service improvement data, and co-created knowledge products.

- **For higher education:** A model of how teaching programmes can directly address national development goals (health equity, workforce readiness) while advancing the professional identity of graduates.
- **For society:** PHLEX demonstrates how universities can shift from being ivory towers to embedded partners **in systemic service improvement.**

EVIDENCE AND SOURCES TO CORROBORATE THE IMPACT

- **Quantitative Evidence**
 - a. Over 460 students trained through PHLEX annually (400 hours of undergraduate experiential training, plus postgraduate MCLinPharm).
 - b. Quality improvement projects (medicine use evaluations, cold-chain audits, systems reviews) across 38 Department of Health facilities since 2019.
 - c. Over 500 ORS sachets distributed to local clinics
 - d. 6 x MCLinPharm graduates. With 10 students currently in pipeline.
- **Documentary Evidence**
 - a. Student-designed health literacy tools adopted by the Provincial PTC (2021) and New Somerset Hospital Clinical Governance structures (2019).
 - b. Independent Testimony (Western Cape Department of Health & Wellness)
 - c. Endorsements from Western Cape Department of Health partners who integrate PHLEX outputs into facility practice (e.g., student communication tools, medicine Use evaluations, Cold-chain audits)
 - d. Manuscript under peer review: *Valproate in Women of Childbearing Age: A Medicine Use Evaluation across Western Cape Public Healthcare Facilities* (Johnson Y, Coetzee R, Namane M, Liddell L, Yusuf Z, Louw J, Keuler N, Cohen K, Parker M)
 - e. **FIP** World Congress of **Pharmacy** and Pharmaceutical Sciences Conference accepted Abstract: *The importance of conducting cold chain audits for thermolabile pharmaceuticals in the Western Cape Province, South Africa: Engaging university students in the audit process*, Paper Number 2586
 - f. **Statement of Impact: Medicine Use Evaluation Project Western Cape Department of Health & Wellness**

g. Statement of Impact: Cold-Chain Audit Project Western Cape Department of Health & Wellness

- **Media and Public Outputs**

- a. Dissemination of student-led outputs at provincial governance meetings and national conferences.

- **Any Other Information Considered Relevant**

PHLEX directly advances multiple UN Sustainable Development Goals, including:

- **SDG 3 (Good Health & Wellbeing):** by improving patient safety, literacy, and service delivery.
- **SDG 4 (Quality Education):** by innovating health professions education for equity and responsiveness.
- **SDG 10 (Reduced Inequalities):** by addressing barriers for underserved communities and diversifying the pharmacy workforce.

The programme has become a national reference point for experiential pharmacy education. Its integration of teaching, service, and societal impact exemplifies the transformative role of universities in South Africa's democratic project.

Signed off on behalf of UWC by *Monwabisi Ralarala*

Evidence and sources to corroborate the impact

EVIDENCE ITEM 1: Independent Testimony (Western Cape Department of Health & Wellness)

REFERENCE LETTER: Dr Mariam Parker

June 2025

To Whom It May Concern,

Dr Mariam Parker is widely recognised and highly regarded within our provincial health system as a key ambassador for UWC School of Pharmacy and a visible driver of sustained partnership between UWC and the public sector. Her leadership has played a major role in building and maintaining a trusted working relationship between health service facilities and the university. She understands the operational pressures on frontline healthcare services and has developed thoughtful and respectful ways to embed student learning with minimal disruption to the day-to-day running of healthcare facilities.

As the leader of the UWC School of Pharmacy's SLIP programme, Dr Parker has led the alignment of academic training with the real-world needs of the health system. The value of this work is not only in the thousands of hours of hands-on training pharmacy students now receive across dozens of facilities, but in how it has strengthened the competence, confidence and readiness of pharmacy graduates entering the workforce. This has had a tangible impact on the profession as a whole, ensuring that new graduates are both academically qualified and practically prepared for the realities of pharmacy in South Africa's health sector.

She has intentionally established and championed the principle of **Reciprocity** within experiential learning on our platform. This means that students are not only there to learn, but to give back, through activities like patient-facing health education campaigns, health literacy materials, and student-led medicine use evaluations. These projects support our work on the ground and have brought value to the communities we serve. More importantly, they have helped reduce the natural tension that arises when large numbers of students rotate through facilities on the service platform, drawing on our staff time and facility resources.

Her strategic and solutions-oriented leadership has been central to the long-term success of our academic (UWC)-health service platform partnerships. Dr Parker does not view student placements as a burden to be managed by the health system, but rather as an opportunity for mutual value creation. She consistently asks how students can contribute meaningfully, how their presence can support service delivery, enhance quality improvement efforts, and foster stronger patient engagement. This kind of forward-thinking, respectful leadership has earned Dr Parker the profile of a highly regarded academic and a trusted, valued partner across our professional community.

Ebrahim Wajoodien

Manager Pharmacy Services Assistant

Karl Bremer Hospital



Figure 1: Poster and dial-up wheel developed by PaCE students



Figure 2: Community engagement initiative championed by PaCE students



Figure 3: Infection prevention and control training for community health workers

Tramadol should not be used for the treatment of osteoarthritis pain because it can make you feel dizzy and sleepy.

This can lead to a fall and bone fracture, especially in older persons.

Taking tramadol can also cause constipation.

Making lifestyle changes can effectively treat pain.

Self-managing your pain caused by Osteoarthritis

Exercise

Exercise is a very important way to keep healthy. It makes our muscles and bones strong and it helps with relieving pain.

Walking for 30 minutes each day. Gardening, dancing and stretching.

Eating well

Managing your weight plays an important role in the management of osteoarthritis.

If possible, ask your doctor to refer you to a dietitian.

Wear comfortable shoes at all times

Wear shoes that has a thin, flat and flexible sole.

What can you do about swelling?

- Lift your leg
- Move your feet up and down
- Bend your knees and hips
- Massage and rub the area
- Put ice on the area where it is swollen.

Protect your joints by using assistive devices

A crutch or a walking stick can help lessen the weight and stress on the joints

Physiotherapy

This will focus on education and exercise that can help you in managing your pain.

If possible, speak to your doctor about physiotherapy.

Managing your osteoarthritis pain with medication

- Paracetamol (Panado) is a safe drug that can be used to effectively manage your pain.
- The use of ibuprofen, and other pain medication should be used under the guidance of your doctor.

Figure 4: Poster designed by PaCE students in 2021

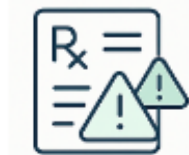
by: Kruger-jakins T, Saw M, Edries N, Parker R. The development of an intervention to manage pain in people with late-stage osteoarthritis. South African J Physiother. 2016;72(1):1-7.

Prepared for Vanguard CHC by Carla Pasquallie and Noxolo Nibabandaba
4th Year BPharm, University of the Western Cape, 2021

Figure 5: PaCE students with their facility preceptor presenting their communication tool to patients at a community health centre



Medicine Use Evaluations – Help to Reduce Irrational Prescribing



Identify inappropriate prescribing patterns:

- Detect potentially harmful or ineffective medication use
- Identify deviations from clinical guidelines



Provide data-driven feedback

- Analyse prescribing trends and outcomes
- Enable informed decision-making



Support education and training

- Educate healthcare providers on best practices
- Encourage adherence to evidence-based medicines



Enhance patient safety

- Prevent adverse drug events (ADEs) and interactions
- Ensure appropriate medicine use Reduce medication errors

Optimize healthcare costs

- Rational prescribing reduces wasteful spending on unnecessary or ineffective medications
- Improve resource allocation

Figure 6: Department of Health & Wellness (Western Cape) Report on MUE project Slides: Mr Leonard Liddel

Valproate in Women of Childbearing Age: A Medicine Use Evaluation across Western Cape Public Healthcare Facilities

Johnson Y^{1,2}, Coetzee R³, Namane M⁴, Liddell L¹, Yusuf Z¹, Louw J¹, Keuler N², Cohen K, Parker M²

1. Western Cape Department of Health and Wellness; Cape Town, South Africa
2. School of Pharmacy, University of the Western Cape, Bellville, South Africa
3. School of Public Health, University of the Western Cape, Bellville, South Africa
4. Department of Family Medicine, University of Cape Town; Cape Town, South Africa
5. Division of Clinical Pharmacology, University of Cape Town; Cape Town, South Africa

MUE paper under review

Abstract

Background: Valproate is an effective antiseizure and mood stabilising medicine, but in utero exposure is associated with preventable teratogenic and neurodevelopmental harm. South African risk-minimisation requirements include annual risk acknowledgement and documentation of effective contraception, but implementation in routine public-sector care has not been well described.

Objectives: To establish oral valproate use among women of childbearing age (WOCBA) in Western Cape public healthcare facilities, assess documented compliance with South African Health Products Regulatory Authority (SAHPRA) pregnancy risk-mitigation requirements, and identify system-level opportunities to strengthen auditable review, contraception visibility and pharmacy verification.

Methods: A criteria-based Medicine Use Evaluation (MUE) with cross-sectional analysis of routine provincial and facility records was conducted among 2 290 eligible WOCBA records from 94 facilities. Eligible records were WOCBA (11 – 50 years old) with at least one prescription for oral valproate dispensed electronically during the six-month period prior to commencement of data collection in April 2024. No intervention was delivered. The primary outcome was fully documented risk acknowledgement, defined as a current clinician and patient/caregiver signed SAHPRA form retained in the record. Secondary outcomes included indication, total daily dose, continuation rationale, contraception used, pregnancy status, switching status and facility platform. Descriptive analyses are reported as auditable implementation indicators.

Results: The MUE included 2 290 records identified through WOCBA valproate screening during the review period across 94 facilities. A fully documented risk acknowledgement form was present in 303 records (13.2%); 1 571 (68.6%) had neither a signed form nor a note documenting the risk-acknowledgement process. Contraception status was recorded as unknown in 1 676 records (73.2%), while long-acting reversible contraception or sterilisation was documented in 199 records (8.7%). Epilepsy was the most common indication (1 621; 70.8%), followed by bipolar mood disorder (417; 18.2%). Among the audit cohort, 757 (33%) records showed a total daily dose >1 000 mg/day, 11 (0.48%) were recorded as pregnant, and 210 (9.2%) were recorded as switched off valproate to an alternative medicine during the review period.

Conclusion. Valproate use among WOCBA remains substantial in the Western Cape public sector and is largely managed in primary healthcare facilities. The MUE demonstrates low documented compliance to the SAHPRA guidelines to reduce the risk of teratogenicity and limited visibility of contraception status. Patient safety should be strengthened through routine patient identification, annual review, electronic form capture, contraception-service linkage, dose-prioritised review and pharmacy verification.

Keywords: valproate; epilepsy; bipolar mood disorder; pregnancy prevention programme; medicine use evaluation; drug safety; risk minimisation; Western Cape

Title: The Importance of Conducting Cold Chain Audits for Thermolabile Pharmaceuticals in the Western Cape Province, South Africa: Engaging University of the Western Cape Students in the Audit Process

¹Caroline De Beer, Helen Hayes, ²Miriam Parker

Department of Health¹, School of Pharmacy, University of the Western Cape²

Background

In the public sector of the Western Cape, thermolabile pharmaceuticals account for 20% of total pharmaceutical spend. Regular cold chain audits are necessary to ensure standards set by WHO (World Health Organisation) and FIP (**Fédération Internationale Pharmaceutique**) are met. Conducting audits across multiple healthcare centres can be challenging due to diversity of practices, varying levels of staff awareness, and lack of standardized audit procedures.

Pharmaceutical university students are often well-equipped with theoretical knowledge. Audits provide them with hands-on experience in a critical area of pharmaceutical practice.

Purpose

The purpose of cold chain audits is to assess current practices relating to thermolabile pharmaceuticals across multiple healthcare centres on the same day to ensure uniformity in data collection.

The collaboration with university students leverages their academic knowledge and skillsets, and promotes the development of future professionals who gain practical knowledge and a deeper understanding of applicable standards.

Method

A cohort of university students, trained in cold chain pharmaceutical practices, were tasked with conducting audits using a standardized audit tool. Data was compiled and analysed to identify trends, weaknesses, and areas of improvement.

Assessed key areas include:

- Compliance with national and international standards and guidelines.
- Temperature-monitoring technology.



Partnership Between the Western Cape Department of Health and Wellness and the University of the Western Cape School of Pharmacy in Conducting Medicine Use Evaluations

This letter serves to confirm the longstanding partnership between the Western Cape Department of Health and Wellness (WCDHW) and the University of the Western Cape (UWC) School of Pharmacy in the planning, implementation and evaluation of Medicine Use Evaluations (MUEs) conducted within public sector health facilities. Through the SLIP3 programme, undergraduate pharmacy students are afforded a unique opportunity to participate in real-world medicine use research while contributing to quality improvement initiatives within the provincial health system.

The MUE findings generated through this partnership extend beyond student learning and contribute meaningfully to quality-improvement processes within the Department. Findings from these evaluations have been incorporated, where relevant, into facility-level and provincial reporting processes to support monitoring and improvement of medicine use.

For 2025, three MUEs were conducted by students across 36 public-sector facilities, namely investigations relating to the use of oral azithromycin, methyl salicylate ointment and oral valproate. The findings of these MUEs were presented to key stakeholders at the Preceptor Training, Provincial Medicine Use Evaluation Committee, Provincial Medicines Management Committee meetings and were subsequently reviewed within Provincial Pharmacy Services to inform ongoing quality-improvement initiatives.

Key findings from the 2025 Medicine Use Evaluations included:

- **Methyl salicylate ointment:** This evaluation was selected as a pilot study because, despite its high utilisation across the health platform, it is a low-cost medicine that would not ordinarily be prioritised through conventional ABC expenditure analyses. The evaluation found that only 23.6% of prescriptions were observed to be issued for approved indications, namely osteoarthritis, arthralgia and soft-tissue rheumatism, indicating substantial use outside recommended indications. Facilities were encouraged to implement strategies to monitor and promote appropriate use of methyl salicylate ointment.
- **Oral valproate:** This evaluation was conducted at a single facility and assessed compliance with risk-minimization measures for women of child-bearing potential. A risk acknowledgement form signed by both the prescriber and patient was present in only 21% of cases reviewed. Furthermore, only half of these forms were current and therefore considered compliant with legal and clinical requirements. The evaluation also identified that only 26% of women were documented as receiving contraception, while 15% had no documented contraception status recorded. These findings highlighted opportunities to strengthen measures to minimize the risk of valproate use in pregnancy.



- **Oral azithromycin:** Azithromycin is generally reserved for specific indications, including patients with documented penicillin allergy. The evaluation found that a penicillin allergy was recorded in only 12.4% of cases reviewed, prompting further consideration of prescribing practices and adherence to antimicrobial stewardship principles and treatment guidelines.

Furthermore, the WCDHW is the only province in South Africa that conducts structured, standardised, multi-facility Medicine Use Evaluations (MUEs) routinely within the public healthcare sector. This distinctive approach affords students a unique opportunity to gain practical experience in MUE research methodologies within a real-world operational setting. Through active participation in these evaluations, students are able to investigate contemporary medicine-use challenges, analyse prescribing practices across multiple facilities, and explore emerging trends in medicine utilisation, thereby strengthening their research and analytical competencies.

The partnership between UWC and the WCDHW extends beyond student-led evaluations. The School of Pharmacy is represented on the Provincial Medicine Use Evaluation Committee through Dr Mariam Parker and Ms Nicole Keuler. As a subcommittee of the Provincial Pharmacy and Therapeutics Committee, the Provincial MUE Committee is responsible for identifying, prioritising and overseeing medicine use evaluations across the province. Participation by UWC provides valuable academic input into the identification, design, implementation and interpretation of current and future MUEs, strengthening the evidence base for medicines management and promoting rational medicine use within the public health sector.

The Department recognises the significant value of this partnership in generating relevant evidence to strengthen pharmaceutical services, improve patient safety and support rational medicine use across the Western Cape public health sector. At the same time, the collaboration provides undergraduate pharmacy students with meaningful experiential learning opportunities, equipping future pharmacists with practical skills in medicines management, clinical governance, quality improvement and applied research. The continued partnership between the WCDHW and UWC School of Pharmacy serves as an important model of academic-service collaboration that benefits both the healthcare system and the development of the pharmacy profession.

Yours sincerely,



MR LEONARD LIDDELL

CHAIRPERSON: PROVINCIAL MEDICINE USE EVALUATION COMMITTEE



MS YASMINE JOHNSON

PROVINCIAL MANAGER: PHARMACEUTICAL SERVICES (Acting)

DATE: 2026/07/03



1 July 2026

To Whom It May Concern

RE: CONFIRMATION OF USE OF COLD-CHAIN AUDIT FINDINGS FROM UNIVERSITY OF THE WESTERN CAPE (UWC) PHARMACY STUDENT PLACEMENTS

This letter serves to confirm that cold-chain audit findings generated through the placement of University of the Western Cape (UWC) pharmacy students within our facilities have been well received, discussed at various provincial committee meetings, and used by the Western Cape Government of Health and Wellness (WCGHW) colleagues in the course of routine service delivery and quality improvement work. This year marks the third year that students have conducted cold chain audits as part of their studies, and during this period the audit tool has been adapted and refined based on the student feedback received over the course of this period.

Although the audits by the UWC students were only undertaken at Metro facilities, the audit findings and student feedback have informed our work in the following ways:

1. The findings have assisted district managers in identifying cold-chain gaps at facility level, supporting a more targeted monitoring and follow-up.
2. The findings have been used to strengthen cold-chain capacity throughout the province, which was initiated and managed centrally from the provincial office, including informing the procurement of remote temperature-monitoring devices and 30-day temperature-monitoring devices for facilities.
3. The audits have contributed to identifying gaps in cold-chain awareness across the province, informing training and implementation follow-up.
4. Student feedback gathered over the past three years has been used to develop a self-monitoring cold chain audit tool that enables facilities to identify their own cold-chain gaps and implement improvements.

Gretchen Testa has worked to assist in developing this tool and continues to assist in analysing the data it generates.

This collaboration between UWC and the Department of Health has been of reciprocal benefit: pharmacy students have gained practical experience within the health care system, while the audit outputs they produced have provided the Western Cape Department with useful evidence to support cold-chain monitoring, quality assurance, storage practice, and broader pharmaceutical governance across the service platform.

I trust this confirms the ongoing value and use of the UWC cold-chain audit findings within our service. Please do not hesitate to contact me should any further information be required.

Kind regards

A handwritten signature in black ink, appearing to read 'CD', is positioned above the printed name.

Carrie De Beer

Pharmaceutical Cold Chain Policy Specialist

FACULTY OF NATURAL SCIENCES
Private Bag X17 Bellville 7535
Telephone +27 21 9592190
Fax +27 21 959 2977
31/07/2025

Dear Mrs MAY (Bellville CDC)

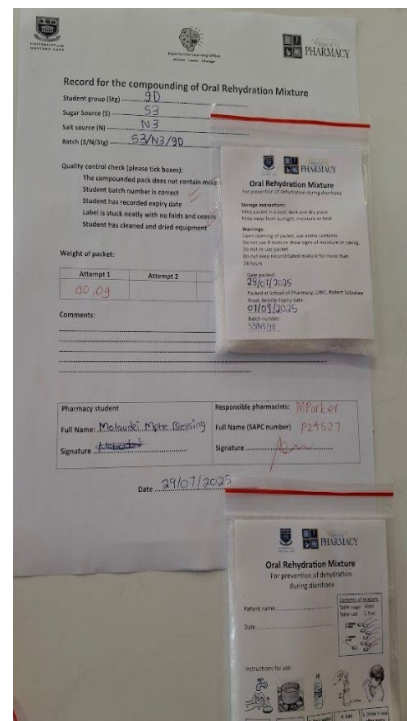
Re: **Donation of Oral Rehydration Solution (ORS) Packets by First-Year Pharmacy Students**

It is with great pleasure that we present this donation of Oral Rehydration Solution (ORS) packets, carefully compounded by our first-year Bachelor of Pharmacy (BPharm) students at the University of the Western Cape. This initiative was undertaken as part of our students' early exposure to experiential learning, with a strong emphasis on social accountability and community-centred practice.

The preparation and donation of these ORS packets form a practical component of the students' training in experiential learning, while simultaneously fostering an ethic of public service and civic engagement. By linking classroom learning with the health needs of surrounding communities, we aim to cultivate not only competent pharmacists, but professionals who are attuned to the social determinants of health and committed to health equity.

Our students were particularly mindful of the burden that dehydration, especially in children, the elderly, and patients with diarrhoeal illness, places on primary care services. It is their sincere hope that this small yet meaningful contribution will support your clinic's vital work in providing accessible, timely care to those most in need.

We are grateful for the opportunity to strengthen our partnership with **Bellville CDC**, and we look forward to future collaborations that enrich both student learning and community health outcomes.



Figures7-9 6: ORS batch compounding and donation 2025