

# The Phelophepa Health Care Train: a pharmacoepidemiological overview of the Western Cape in 2009

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## Abstract

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**Background:** The Phelophepa Health Care Train is the only primary healthcare train in the world. Phelophepa is an innovative initiative that attempts to make a positive difference to primary healthcare in rural South Africa. The primary aim of this study was to determine the epidemiological and prescribing statistics for Phelophepa during the period that the train was stationed in the Western Cape in 2009.

**Methods:** Phelophepa visited seven stations during the eight weeks that it was stationed in the Western Cape (between 6 April and 5 June 2009). Data were collected by workers and students on the train.

**Results:** A total of 4 026 prescriptions were dispensed by the pharmacy on Phelophepa during the eight weeks. The average number of items per prescription was 3.51. The average cost per prescription was R65,48 (average cost of R18,64 per item). Patients only paid R5,00 per prescription. There was an increase in the number of pulmonary diseases/infections as well as ophthalmic conditions (especially dry eyes). Common problems experienced during the outreach to schools were ear infections and chest infections. Common conditions identified in Caledon, for example, were musculoskeletal problems, genitourinary conditions, fungal infections and eye disorders. Medication is prescribed mainly by nurses and includes those listed in the Primary Healthcare Essential Drug List.

**Conclusions:** The statistics compiled by Phelophepa are a useful source of pharmacoepidemiological data about rural South Africa. It is recommended that more studies be conducted to detect especially epidemiological differences between regions visited, as well as changes over time.

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## Background to the study

The public healthcare sector in South Africa is currently under severe pressure. As a result, it often fails to provide basic healthcare to poorer people living in the rural areas of South Africa. One of the strategic objectives published by the National Department of Health in South Africa (2004–2009) was to strengthen primary healthcare.<sup>1</sup> Primary healthcare was proposed 30 years ago by the World Health Organization as a set of values, principles and approaches aimed at raising the level of health in deprived populations.<sup>2</sup> In all countries, it offered a way to improve fairness in access to healthcare and efficiency in the way resources were used. The Phelophepa Health Care Train is one innovative initiative that is attempting to make a positive difference to primary healthcare in rural South Africa. Phelophepa brings health and hope to thousands of rural South Africans in need of access to healthcare facilities. This 16-coach train with its

19 resident staff members, known as the ‘miracle train’, carries modern medical equipment on board. Phelophepa is regarded as a journey of hope that continues to make a history of caring.<sup>3</sup>

The Phelophepa Health Care Train was initiated in 1994 as the first and only primary healthcare train in the world. It operates as a health and education facilitation tool, reaching thousands of people in rural communities in South Africa. “Phelophepa” is a combination of the Tswana and Sotho words meaning “good, clean health”. Phelophepa has been described as the train of hope.

The Phelophepa concept is unique in that it:

- Utilises a train to provide healthcare to rural communities usually denied health facilities and services; and
- Utilises students in health disciplines to administer the services, whilst overseen by qualified practitioners,

thereby providing these students with an invaluable learning experience.

Phelophepa is operational, on average, for 36 weeks every year and visits most stations for a period of only one week. A specific station will be visited by Phelophepa once every two years. Communities are prepared in advance for the visit of the train. Community members receive training to assist with security on-site, as well as patient administration, and to aid healthcare workers with the provision of services. Communities are also left with newly-acquired skills and knowledge after the train has left (as a result of the different educational programmes during the visit), in an attempt to empower communities in rural areas.

Over 45 000 individuals are treated at Phelophepa's onboard clinics (Psychology Clinic, Health Clinic, Eye Clinic, Dental Clinic and Edu-Clinic [educational clinic]) during its annual operational period.<sup>4</sup> Approximately 900 local volunteers complete a five-day Basic Health Education Programme annually, and an average of 895 final-year students do voluntary work on the train every year.<sup>4</sup> A total of 26 970 medicine prescriptions were issued in 2008.<sup>5</sup> There is no medical practitioner on the train, and diagnosing and prescribing are done mainly by the nursing staff as well as the dentist and optometrist. Antiretroviral medicines are not issued by Phelophepa since these are dispensed under programmes of the South African government. Similarly, the Phelophepa staff do not immunise children nor do they undertake any family planning services. The Phelophepa staff focus their efforts on the diagnosis, treatment and prevention through education of common *minor* conditions in rural areas. When a patient is diagnosed with a *chronic* disease (such as diabetes or hypertension) protocols are in place for referral to hospitals or local clinics. Every year, pharmacy students from five universities in South Africa volunteer to work in groups of two on Phelophepa for a one-week period. The focus of this study is on the Western Cape, since this is where pharmacy students from Nelson Mandela Metropolitan University worked during 2009.

### Primary aim

The primary aim of this study was to determine the epidemiological and prescribing statistics for Phelophepa during the period that the train was stationed in the Western Cape in 2009.

### Methodology

Phelophepa is operational for 36 weeks annually. However, due to government elections during 2009 and the fact that many students from different universities who wanted to vote worked on the train, it was decided that its operation during the election would be cancelled. Phelophepa

therefore visited five provinces over 34 weeks during 2009. The five provinces were the Eastern Cape (two weeks), Free State (nine weeks), Western Cape (eight weeks), KwaZulu-Natal (eight weeks) and Mpumalanga (seven weeks).

Data are captured by the various clinics on the train as part of their daily activities and afterwards consolidated for each province visited as well as for the entire year. Daily statistics were kept by the pharmacy, with pharmacy students assisting in the electronic capturing of the prescriptions. Data for the study were therefore obtained from the pharmacy on Phelophepa as well as from final-year pharmacy students from Nelson Mandela Metropolitan University who worked on Phelophepa during 2009 while the train was stationed in the Western Cape. All final-year pharmacy students must collect primary healthcare data as part of their primary healthcare externship experience and must include it in their externship reports, so no additional effort was required from the students.

This study only reports on the eight weeks that the train was stationed in the Western Cape. The different stations visited and the dates are listed in Table I.

Table I: Areas visited by Phelophepa in the Western Cape during 2009

Operational week	Station	Dates
12	Piketberg (Easter)	6 to 9 April 2009
13	Piketberg (Easter)	14 to 17 April 2009
14	Not operational (elections)	20 to 24 April 2009
15	Caledon	27 April to 1 May 2009
16	Elgin	4 to 8 May 2009
17	Touwsrivier	11 to 15 May 2009
18	Worcester	18 to 22 May 2009
19	Mossel Bay	25 to 29 May 2009
20	Oudtshoorn	1 to 5 June 2009

Ethical approval for the study was not requested, because only statistics were recorded and no patient could be identified. Students compile these statistics every year as part of their academic programme, and they are aware that feedback is given from their reports to Phelophepa and the university.

## Results and discussion

### Prescriptions dispensed

A total of 25 491 prescriptions were dispensed by the Phelophepa pharmacy during 2009.<sup>5</sup> Of these, 4 026 prescriptions were dispensed during the eight weeks that the train was stationed in the Western Cape (see Table II). This

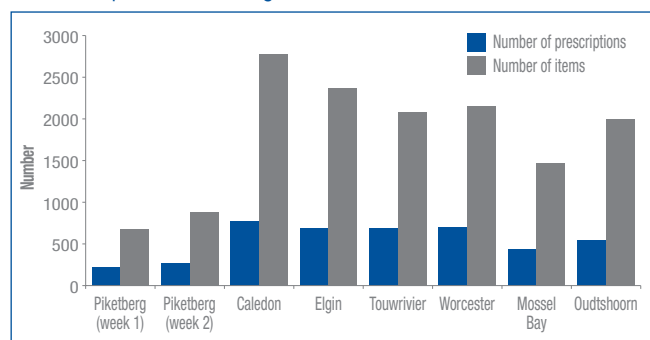
represents 15.79% of all the prescriptions dispensed during 2009, although it represents 23.53% of the time that the train was operational. Proportionately fewer prescriptions were therefore dispensed in the Western Cape compared to the other four provinces visited during the year.

The average cost per prescription was R65,48 (average cost of R18,64 per item). Patients only paid R5,00 per prescription. The average number of items per prescription was 3.51. The average number of items per prescription was the highest in Oudtshoorn (3.87 items per prescription), followed by Caledon (3.72 items per prescription). The lowest number of items per prescription was dispensed in Worcester (3.18 items) and Touwsrivier (3.23 items) (see Figure 1). The reason for this finding is not known.

Table II: Analysis of prescriptions on Phelophepa in the Western Cape Province during 2009

Indicator	Value
Total number of prescriptions dispensed	4 026
Total number of items dispensed	14 142
Total cost of medicine dispensed	R263 639,12
Average cost per prescription	R65,48
Average cost per item	R18,64

Figure 1: Number of prescriptions and number of items dispensed in the Western Cape Province during 2009



### Major ailment profile for the Western Cape

Poverty, unemployment, alcohol abuse and substance abuse were some of the socioeconomic factors that contributed to the disease burden and were overburdening the healthcare system in this province. Overindulgence in alcoholic beverages was identified as a major social problem in the Western Cape in 2009. It was reported that the counselling of a patient with a strong alcoholic odour leaves one with a feeling of guilt.

There was an increase in the number of pulmonary diseases/infections (during the winter season) as well as ophthalmic conditions (especially dry eyes) in this province. Chronic diseases, particularly hypertension, were on the increase

compared to previous years. From conversations between the pharmacists and patients, it was deduced that snacking on highly salted fish (snoek) may be responsible for some of the uncontrollable hypertension cases.

Skin conditions were, according to the pharmacists, common in the farming areas. Some of these conditions were presumably due to powdered insecticides and pollen, while others were indicative of being related to immune deficiency. Hygiene practices were found to be poor in some areas.

### Outreach programme to schools in the Western Cape

Common problems experienced during the outreach to schools were ear infections. Various forms of ear infection were common amongst the learners, including otitis media, otitis externa with fungal infections, perforated ear drums, wax impaction and foreign bodies in the ears.

Chest infections were also common. Most learners presented with a cough although the lungs were clear, making the primary healthcare team more inclined to suspect that it was a common cold as a result of the fluctuating weather conditions. There were only a few bacterial or viral chest conditions.

### Medication dispensed at Caledon

Caledon was the station where the most items were dispensed as well as the station with the highest number of prescriptions (refer to Figure 1). The four most commonly encountered conditions at Caledon were musculoskeletal conditions, genitourinary system conditions, fungal infections and eye conditions. The number of prescriptions and items dispensed at Caledon are indicated in Table III.

Table III: Number of prescriptions and items dispensed at Caledon

Date	Number of prescriptions	Number of items
27 April 2009	116	402
28 April 2009	156	598
29 April 2009	156	595
30 April 2009	156	613
1 May 2009	153	537
<b>TOTAL</b>	<b>737</b>	<b>2 745</b>

Medication prescribed by nurses and dispensed by the pharmacy includes those listed on the Primary Healthcare Essential Drug List<sup>6</sup> and treatment is, as far as possible, in accordance with the Standard Treatment Guidelines. Examples of treatment provided at Caledon include the following:

- Patients with musculoskeletal ailments were treated with what is commonly referred to as the 'big four' on Phelophepa. This regimen includes a methylsalicylate ointment, vitamin B-Co tablets, combination analgesic

tablets (doxylamine succinate 5 mg, codeine phosphate 10 mg, caffeine anhydrate 30 mg and paracetamol 450 mg) and calcium gluconate (300 mg) tablets. Ibuprofen or diclofenac were also prescribed if indicated.

- Female patients who were diagnosed with a suspected urinary tract infection (UTI) were given 'triple therapy', which included metronidazole 400 mg, doxycycline 100 mg and ciprofloxacin 500 mg (stat dose). Male patients diagnosed with a UTI were treated with doxycycline 100 mg and ciprofloxacin 500 mg (stat dose).
- Tear-replacement drops (dextran-70 1 mg and hydroxypropyl methylcellulose 3 mg/ml) were prescribed for the treatment of dry eyes.

Pictograms are used where possible in addition to written instructions as a tool to communicate with patients who are not literate. Translators are also used in areas where the pharmacists or students are not fluent in the language spoken by most of the patients.

## Conclusion and recommendations

Phelophepa started initially as a train delivering eyecare services to rural communities and has, over the years, become well known also for its unique contribution in the field of dentistry in rural areas, where these services are scarce. Phelophepa has since evolved into a fully fledged primary healthcare train and a second Phelophepa train is currently under construction, so that more rural areas can be served. Phelophepa not only provides a necessary service to patients in rural South Africa, but also serves an important educational role in helping students become familiar with the needs of rural South Africa and the role that healthcare professionals can play. Furthermore, the

data collected by Phelophepa provide a valuable insight into common conditions and ailments in rural South Africa. Statistics for other provinces were not included in this study but could provide an important insight into differences among provinces and regions as well as changes over time. It is recommended that more epidemiological studies be conducted on healthcare in rural South Africa.

## Acknowledgements

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