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Our Issues, Our Drugs, Our Patients

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Comparison of Health Services Costs and Patient Clinical Outcomes of Two Models for Dispensing Antiretroviral Treatment in South Africa

A Kheth'Impilo Initiative

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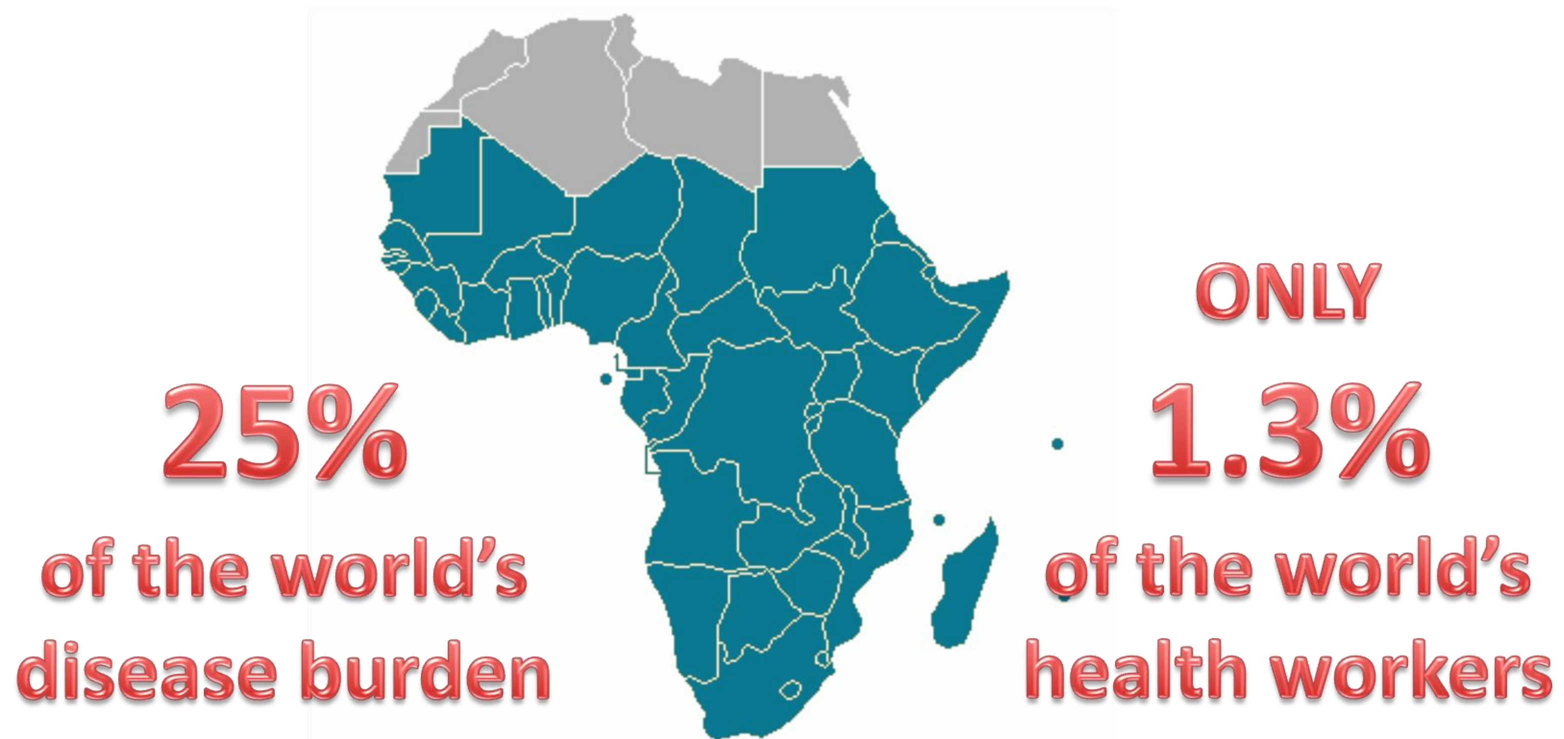
2016

Background

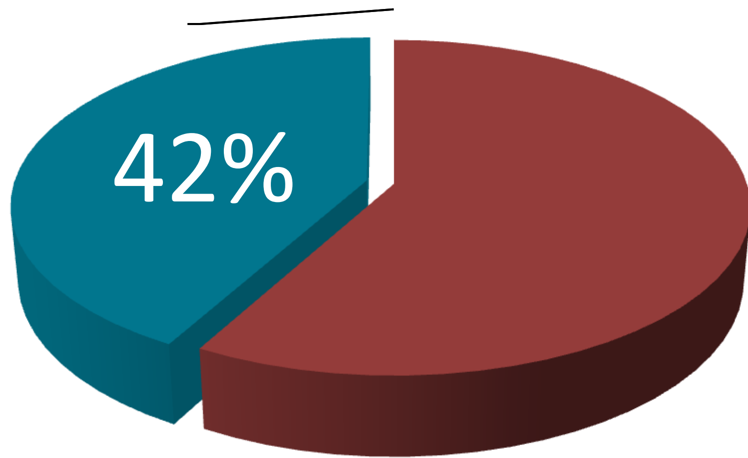


South Africa currently has **1 Pharmacist per 3837** population – WHO recommends 1 Pharmacist per 2300

Background

- Pharmaceutical care is an important component of the ART program.
- Pharmacists address potential drug related problems and promote patient adherence.
- Excellent adherence is critical to the individual patient's well being and prevention of viral resistance.
- Shortage of pharmacists are due to limited training institutions, migration of pharmacists to developed countries, rural/urban maldistribution and private/public sector maldistribution.

Background



>2.6 Million
people have started ART,
yet only
42%
of HIV positive adults
receive ART

Two task shifting models have been developed in recent years:

① Indirectly supervised pharmacist assistants (ISPA)

② Clinical nurse practitioners who issue pharmaceuticals.

Background

A previous economic evaluation has found the ISPA model to be the least costly pharmaceutical model in the ART Program, but did not include measures of quality of care or clinical outcomes.

The aim of this study was to compare the ISPA and nurse-managed dispensing of ART models in terms of:

1. Quality of pharmaceutical care
2. Clinical outcomes of patients assessing these services
3. The cost of providing each of these approaches from a health service perspective.

Methods

A retrospective analysis of pharmaceutical care quality audits, patient clinical data, and staff costing data was undertaken in South Africa

7 ISPA Facilities (WC)

8 Nurse-managed Facilities (KZN)

All facilities were primary healthcare sites supported by Kheth'Impilo – *a non profit organization that supports the SA DOH with health system strengthening innovations and pharmacy services*.

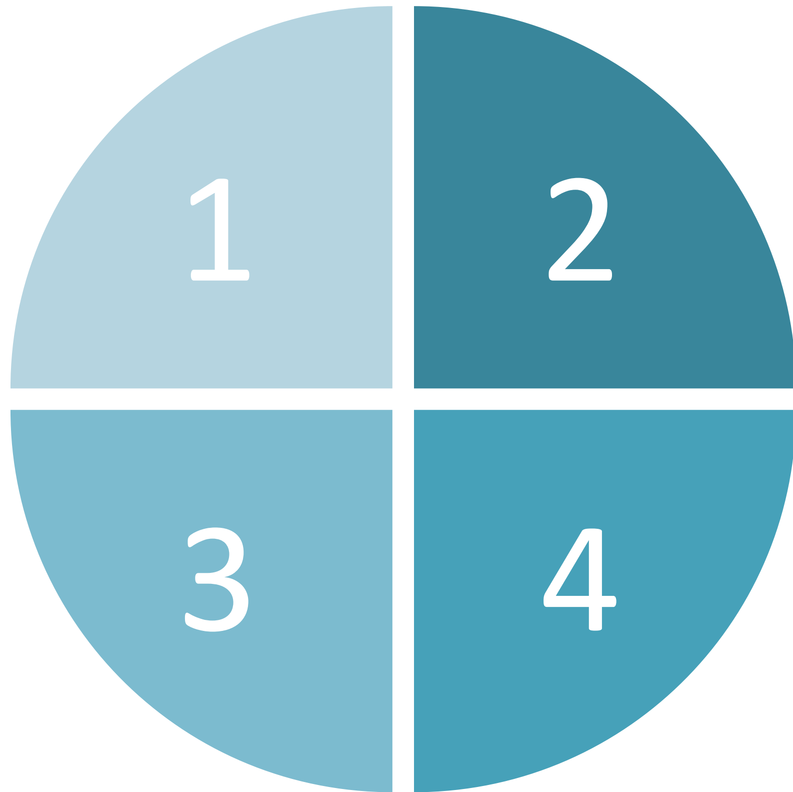
Methods

- ISPAs are qualified post basic pharmacist assistants with additional 6-12 months mentoring and training.
- According to the law PBPAs can work under the indirect supervision of a pharmacist in the primary care sector under specific conditions.
- ISPAs take responsibility for the dispensing of ART, management of the dispensary, management of all medicine orders in the facility.
- A Pharmacist performs a supervisory visit once a week.

Methods

- To expand the ART program NIMART was introduced in SA in 2010.
- In the nurse managed pharmacy model we analysed in KwaDukuza, nurses initiated patients onto ART and issued the medication – a model widely adopted in SA.
- Stock ordering, control and management of the medicine room are mostly the nurses responsibility.
- A Pharmacist visits the NIMART nurses monthly and performs the same quality audit as at the ISPA facilities.

Data collection and analysis

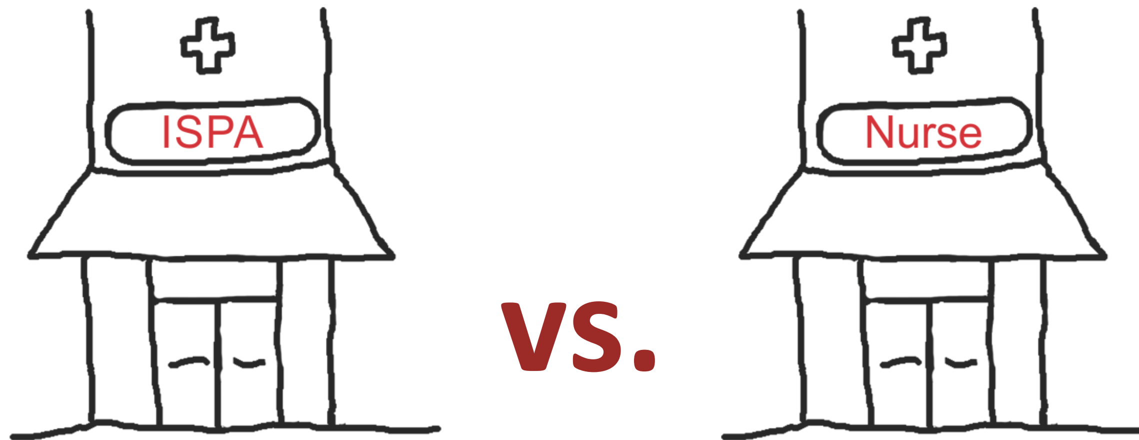


Compared using Risk Ratio's (RRs) & 95% Binomial exact confidence Intervals (CI)

1. Good pharmacy practice
2. Stock control
3. Evaluation of prescriptions & patient folders
4. Patient exit interview

- Random Folder review at ISPA facilities
- At nurse managed facilities, all Folders for newly initiated patients reviewed during proceeding month

Results



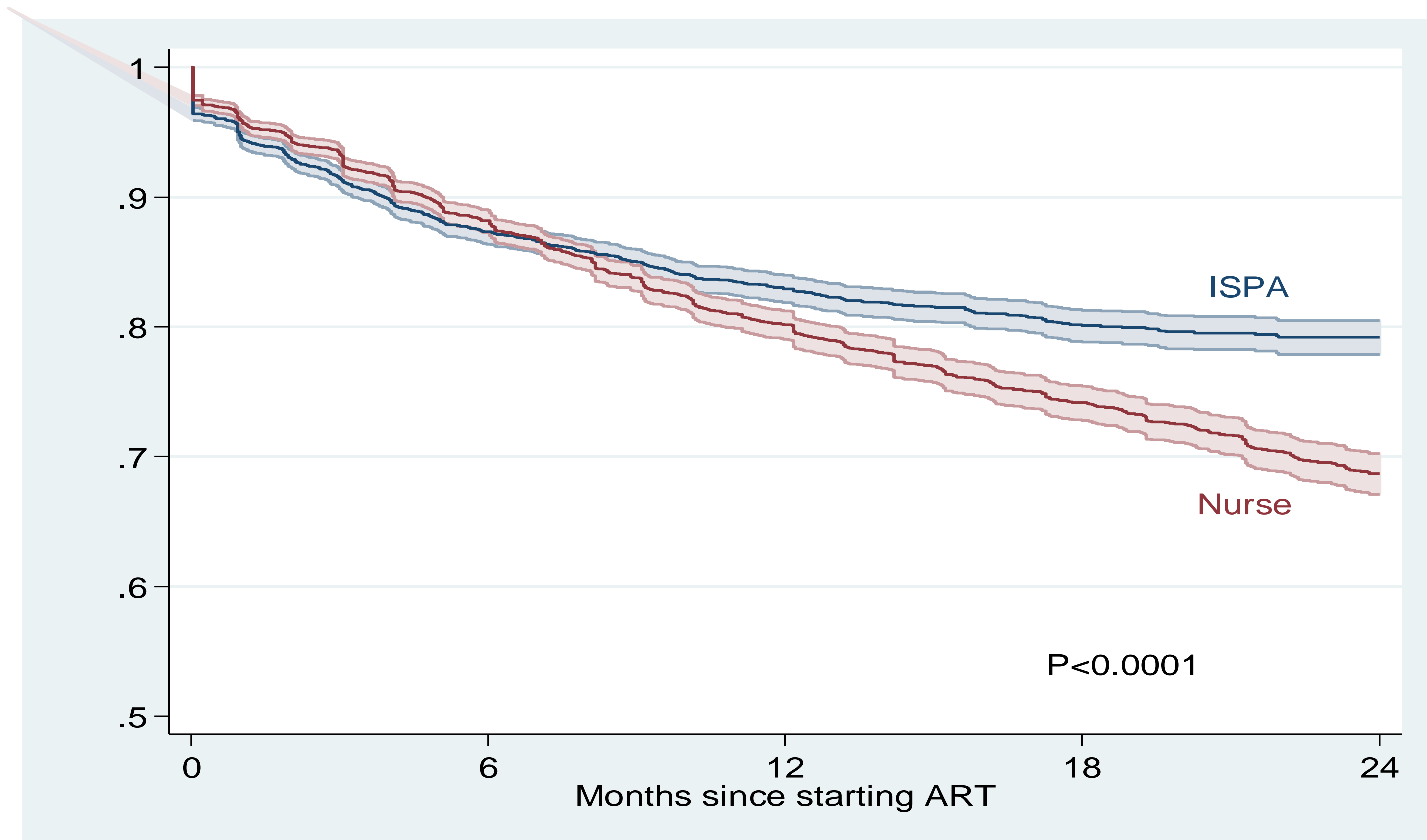
79.3%

Patient Retention after two years of ART

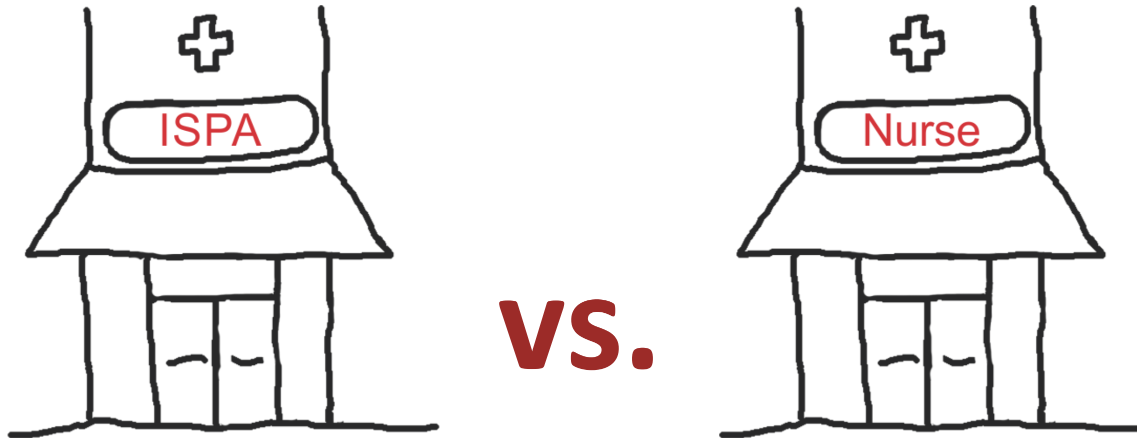
68.5%

adjusted hazard ratio=1.29 [95% CI:1.15-1.46; P<0.0001]

Patient retention at Indirectly Supervised Pharmacist Assistant (ISPA) dispensing and nurse-managed sites in South Africa



Results



89.5% Virological Suppression **84.8%**

adjusted odds ratio=1.18 [95% CI: 1.00-1.38; P=0.042]

Results

vs.

$0.43 Cost per item dispensed **$0.84**

Results

vs.

$1.35 Cost per patient Visit **$1.89**

Facility human resources involved with pharmaceutical related activities and average provider costs

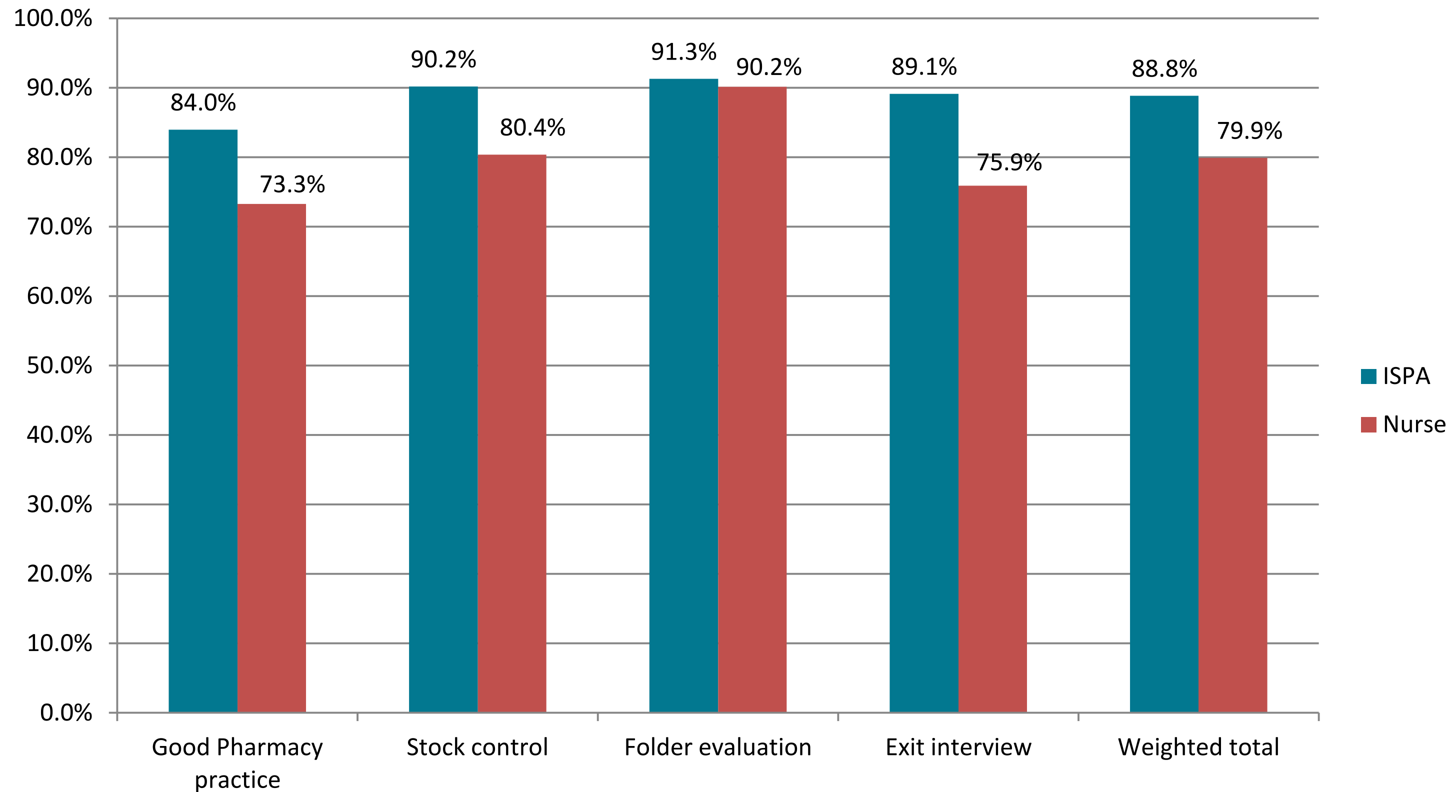
		ISPA facilities[1]	Nurse managed facilities
Number of sites		7	8
Staff FTE assisting in Pharmaceutical related activities			
	Pharmacists	0.9	0.6
	Indirectly Supervised Pharmacist Assistants	9.3	-
	Post-Basic Pharmacist Assistants	-	5
	Professional nurses[2]	0	23.5
Annual number of items dispensed		420 332	1 121 537
Annual number of patient visits		132 834	497 488
Ratio FTE pharmacy related staff to monthly patient visits		1:1085	1:1423
Provider staff cost per patient visit (US$), mean		1.35	1.89
Provider staff cost per item dispensed (US$), mean		0.43	0.84

[1] Values refer to staff and activities limited to HIV-related care.

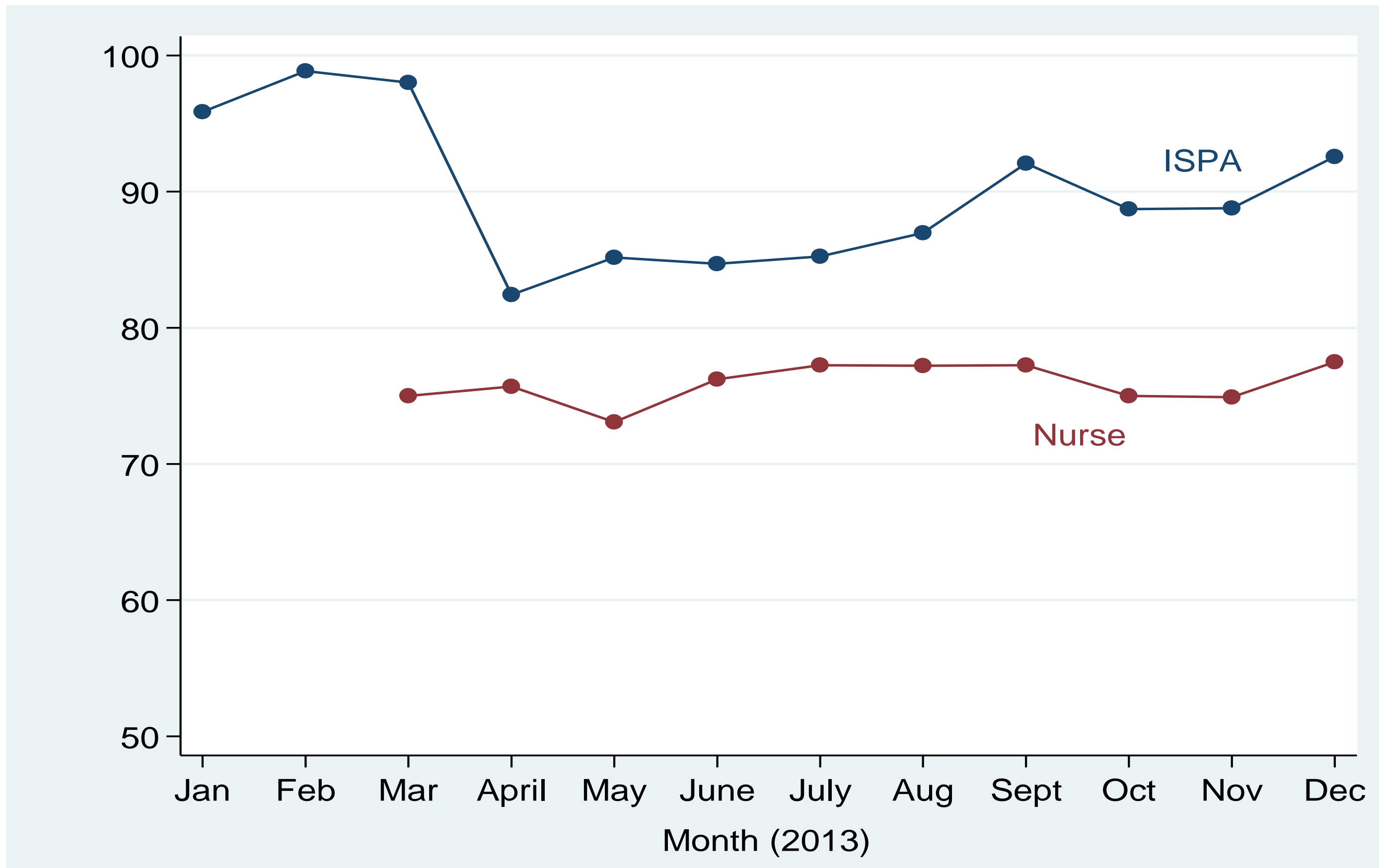
[2] Nurses who consulted patients and issued medicines were assumed to spend an average of 32% of their time with pharmaceutical related activities.

ISPA, indirectly supervised pharmacist assistant; FTE, full time equivalent

Pharmaceutical quality audit scores



Methods



Conclusions

VS.

Lower pharmaceutical services cost

Improved patient clinical outcomes

Improved pharmaceutical quality

Limitations

- The two models of care were in two different provinces – Western Cape and KZN
- The difference in clinical outcomes may not be attributed to the pharmaceutical care model only but may also be related to differences to population or health system or it may be a combination of factors.
- We could not confirm the cause of the difference in clinical outcome through this operational research study.

Acknowledgements

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2016

Thank you