Retention in care and viral suppression among HIV clients receiving 6-month versus 12-month prescriptions in South Africa's CCMDD Program

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Introduction: The Scale of the Challenge

SA HIV TREATMENT CONTEXT

6M+

people on ART

South Africa has the world's largest HIV treatment program

- Program focus has shifted from rapid scale-up to ensuring long-term retention and sustained viral suppression
- Maintaining engagement with millions of stable clients strains health systems already facing resource constraints and high patient volumes
- New care models needed to maintain quality while reducing system burden

DIFFERENTIATED SERVICE DELIVERY MODELS(DSD)

- DSDs tailor care to stable clients' needs while reducing facility burden

The CCMDD Program & Study Rationale

THE CCMDD PROGRAM

- One such decentralized ART delivery program is the Central Chronic Medicine Dispensing and Distribution (CCMDD) program
- Standard model: 6-month prescriptions with bi-annual clinic visits
- COVID-19 pandemic response (2020) **extended** prescriptions to 12 months, while maintaining 2–3 monthly CCMDD collection schedules

EVIDENCE GAP & STUDY AIM

- WHO currently recommends 6-monthly clinic visits for established clients and has explicitly called for evidence on less frequent visit models
- This study compares 12-month vs 6-month prescription outcomes to guide sustainable, patient-centred HIV care policy in resource-constrained settings

Key Question

Does moving from 6-month to 12-month prescriptions maintain retention in care and viral suppression among stable HIV clients in South Africa's CCMDD program?

SA HIV Standard of Care & DSD Models (2020)

STANDARD OF CARE FOR STABLE HIV CLIENTS

6 months
Viral load test post-ART initiation

12 months
Viral load test post-ART initiation

Annually
Ongoing viral load monitoring

Eligible for DSD: on ART ≥6 months · virally suppressed · no active TB · not pregnant · no uncontrolled chronic conditions

SERVICE DELIVERY MODELS

Facility Pickup (Fac-PuP)

External Pickup (Ex-PuP)

Adherence Clubs

Methods

STUDY DESIGN

Retrospective cohort analysis - routinely-available electronic health data

STUDY POPULATION

Adults (≥18 yrs) on ART

6- or 12-month medication prescription visit, 1 Jun–30 Nov 2020

LOCATION

7 of 9 South African provinces: Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, North West & Mpumalanga

DATA SOURCES

TIER.Net linked to SyNCH (prescription & CCMDD collection data)

STUDY FLOW

Linked SyNCH–TIER.Net Records
n = 1,068,135

Exclusions applied:
No prescription between Jun-Nov 2020
(n=637,400)

Eligible CCMDD Clients
Jun–Nov 2020 prescription visit
n = 430,735

Exclusions applied:
Age <18 (n= 993) · Data anomalies (n=761)
Northern Cape (n=11)· Non-HIV clients (n=44)

Final Study Population
n = 428,926

Study Design: Follow-up & Endpoints

FOLLOW-UP TIMELINE

Exposure defined: 6- or extended 12-month prescription at baseline

PRIMARY ENDPOINTS (assessed months 12–24)

Retention in Care

DEFINED AS:

≥1 medication dispensing or collection visit during months 12–24 after baseline

Not retained includes transfers out and deaths

Viral Suppression

DEFINED AS:

First viral load result during months 12–24 is <50 copies/ml

No recorded viral load in window → assigned as missing

Results: Study Population Characteristics

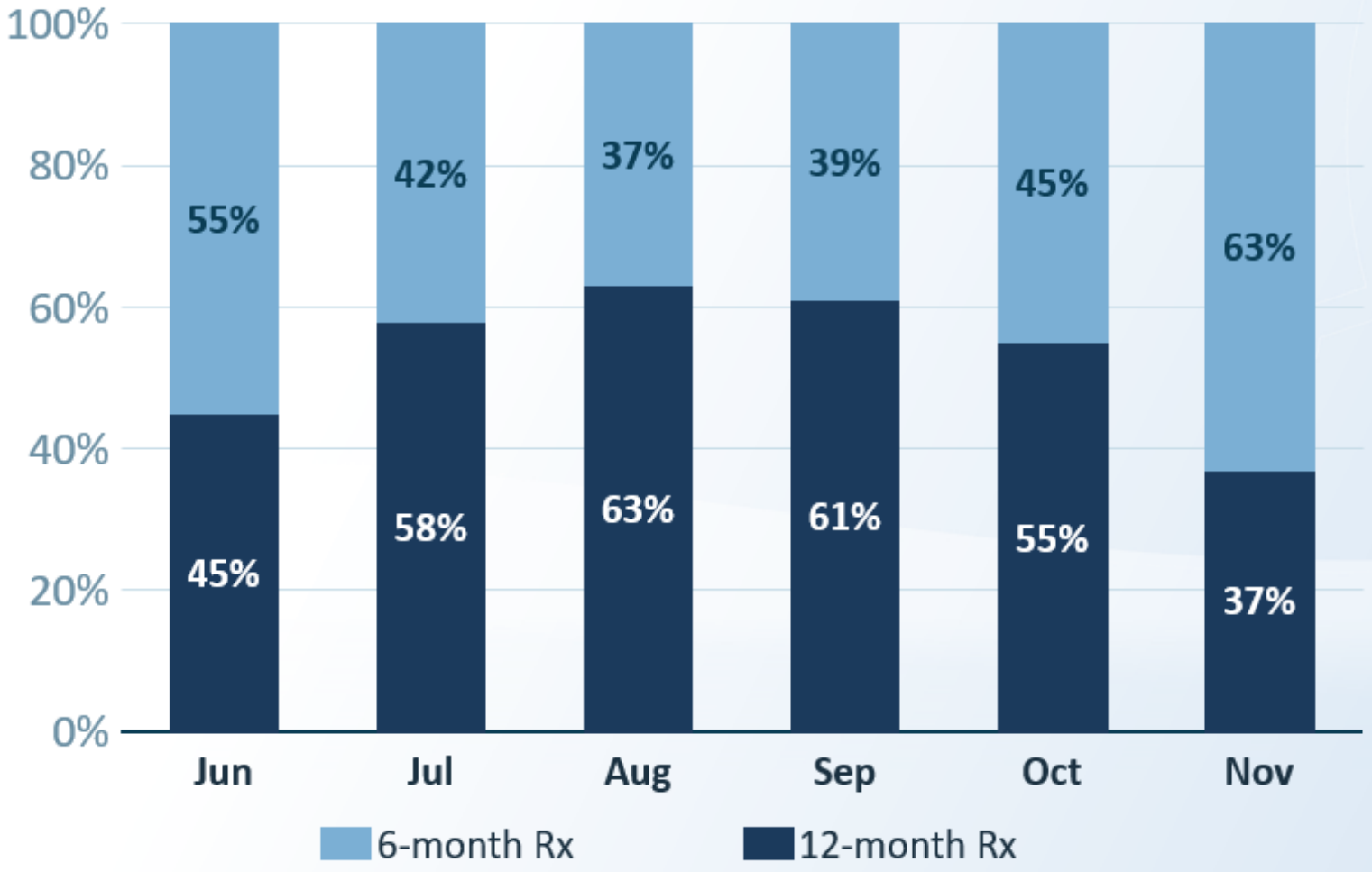
428,926
Total clients

196,531
6-month Rx (46%)

232,395
12-month Rx (54%)

Characteristic	6-month Rx	12-month Rx	Total
Median age, years (IQR)	44 (37–51)	43 (37–51)	44 (37–51)
Age 18–34	47,725 (24%)	62,075 (27%)	109,800 (26%)
Age 35–49	100,155 (51%)	117,057 (50%)	217,212 (51%)
Age 50+	38,075 (19%)	42,602 (18%)	80,677 (19%)
Female sex	131,785 (67%)	160,459 (69%)	292,244 (68%)
Median time on ART, years (IQR)	6 (3–8)	6 (4–9)	6 (4–9)
Ex-PuP (community pickup)	122,598 (62%)	148,043 (64%)	270,641 (63%)
TDF/3TC/DTG regimen	95,848 (49%)	139,693 (60%)	235,541 (55%)

Prescription Mix Over Time (Jun–Nov 2020)

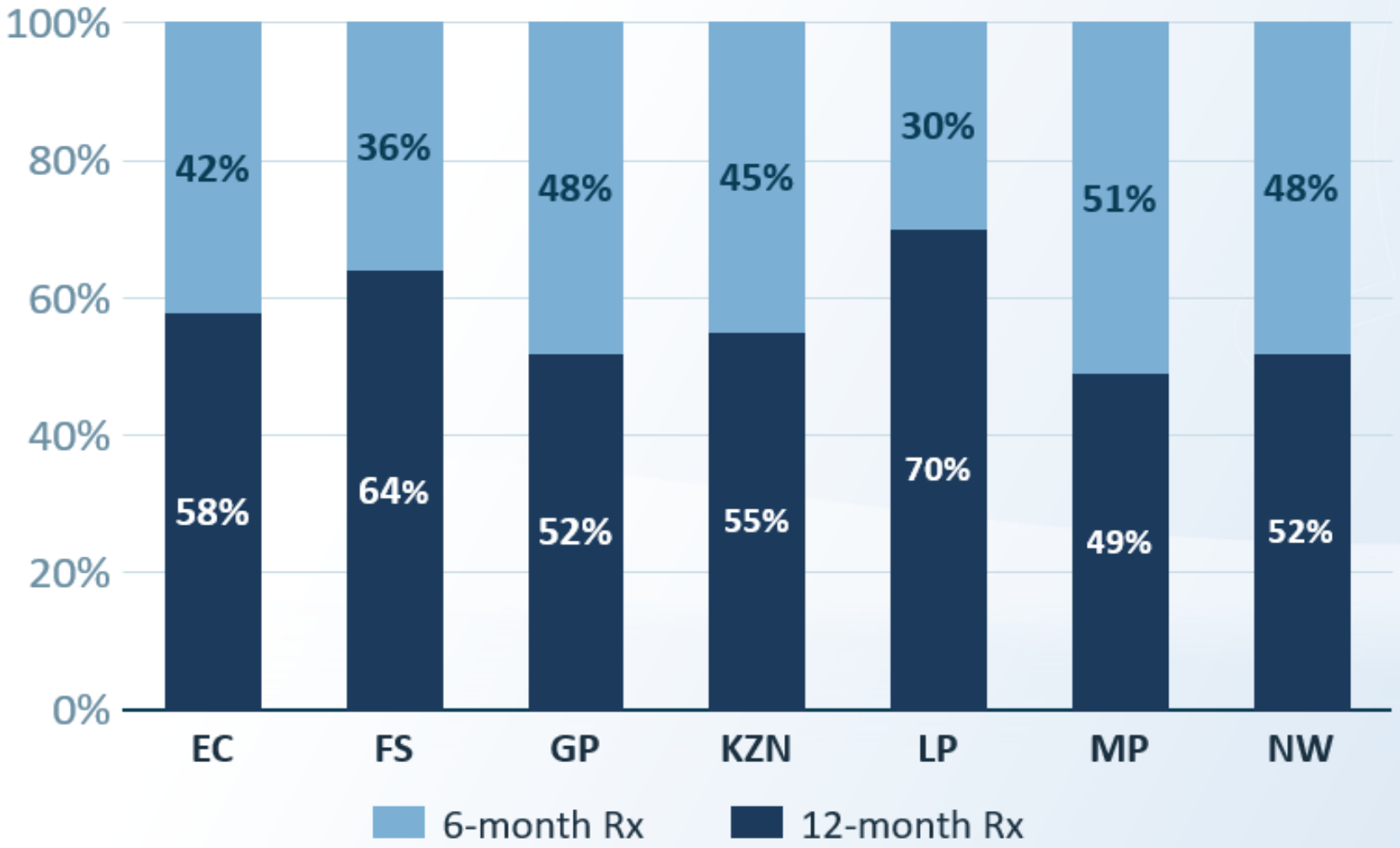


KEY TAKEAWAY

63%

peak 12-month Rx share in August 2020

Prescription Mix by Province

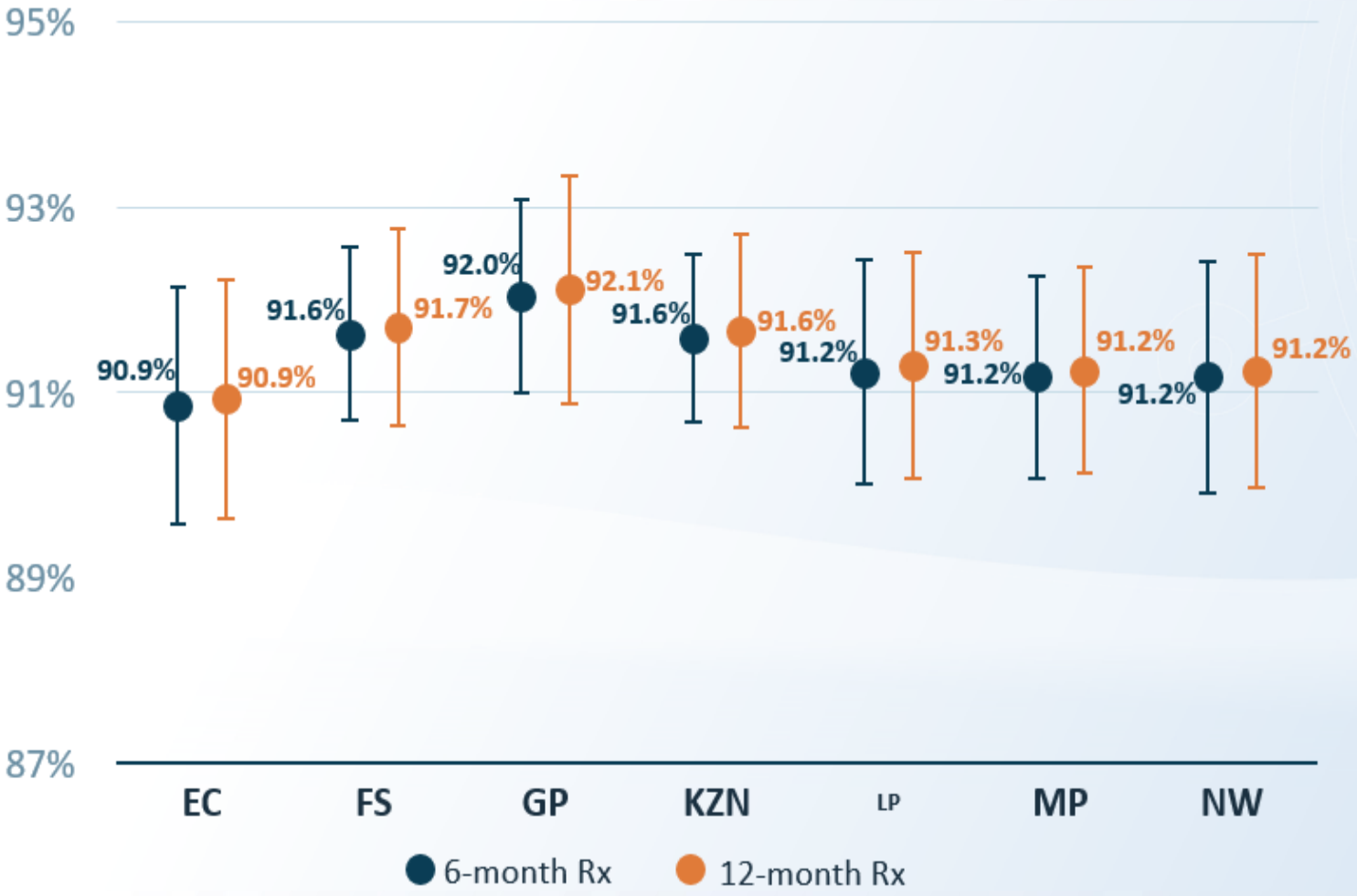


KEY TAKEAWAY

70%

of Limpopo clients received 12-month prescriptions

Results: Adjusted Retention in Care by Province



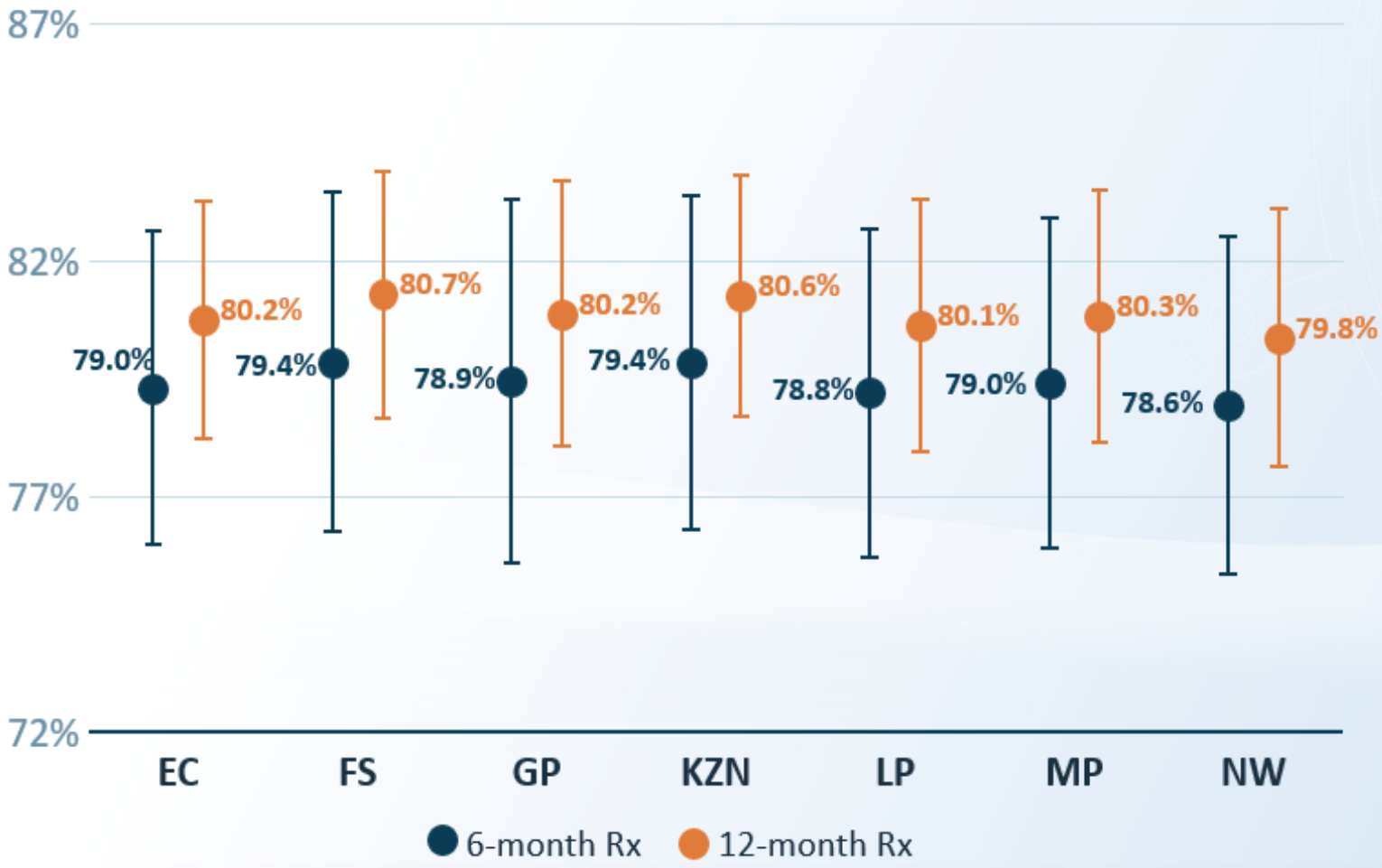
KEY TAKEAWAY

<1%

max adjusted difference between prescription groups

Adjusted for: age · sex · time on ART · DSD model · ART regimen · comorbidity

Results: Adjusted Viral Suppression by Province



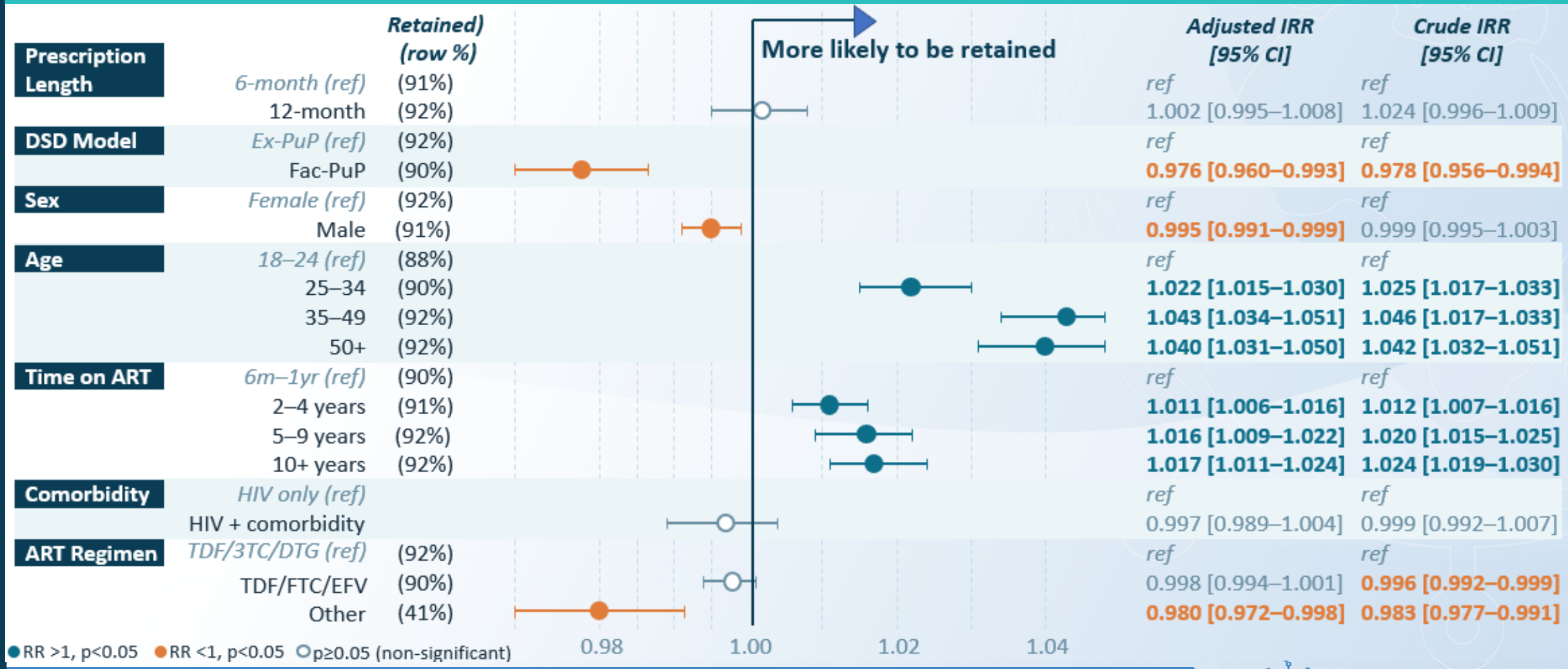
KEY TAKEAWAY

+1.3%

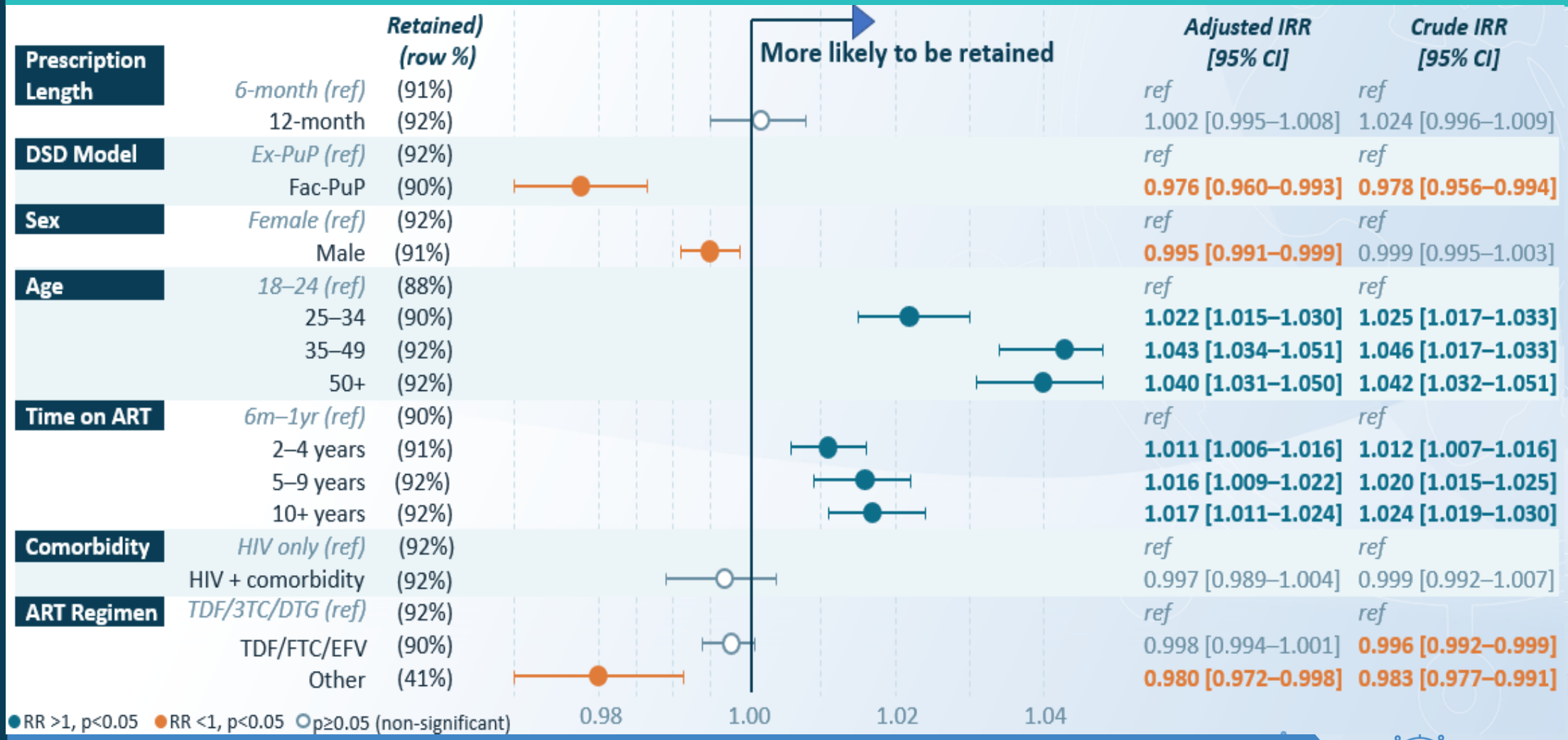
avg. adjusted gain with 12-month prescription across provinces

Adjusted for: age · sex · time on ART · DSD model · ART regimen · comorbidity

Results: Predictors of Retention in Care (n=407,193)



Results: Predictors of Viral Suppression (n=352,534)



		Retained) (row %)	Adjusted IRR [95% CI]	Crude IRR [95% CI]
Prescription Length	*6-month (ref)*	(91%)	*ref*	*ref*
	12-month	(92%)	1.002 [0.995–1.008]	1.024 [0.996–1.009]
DSD Model	*Ex-PuP (ref)*	(92%)	*ref*	*ref*
	Fac-PuP	(90%)	**0.976 [0.960–0.993]**	**0.978 [0.956–0.994]**
Sex	*Female (ref)*	(92%)	*ref*	*ref*
	Male	(91%)	**0.995 [0.991–0.999]**	0.999 [0.995–1.003]
Age	*18–24 (ref)*	(88%)	*ref*	*ref*
	25–34	(90%)	**1.022 [1.015–1.030]**	**1.025 [1.017–1.033]**
	35–49	(92%)	**1.043 [1.034–1.051]**	**1.046 [1.017–1.033]**
	50+	(92%)	**1.040 [1.031–1.050]**	**1.042 [1.032–1.051]**
Time on ART	*6m–1yr (ref)*	(90%)	*ref*	*ref*
	2–4 years	(91%)	**1.011 [1.006–1.016]**	**1.012 [1.007–1.016]**
	5–9 years	(92%)	**1.016 [1.009–1.022]**	**1.020 [1.015–1.025]**
	10+ years	(92%)	**1.017 [1.011–1.024]**	**1.024 [1.019–1.030]**
Comorbidity	*HIV only (ref)*	(92%)	*ref*	*ref*
	HIV + comorbidity	(92%)	0.997 [0.989–1.004]	0.999 [0.992–1.007]
ART Regimen	*TDF/3TC/DTG (ref)*	(92%)	*ref*	*ref*
	TDF/FTC/EFV	(90%)	0.998 [0.994–1.001]	**0.996 [0.992–0.999]**
	Other	(41%)	**0.980 [0.972–0.998]**	**0.983 [0.977–0.991]**

Extending Prescriptions Does Not Compromise Care

Retention in care

- 12-month prescriptions maintained equivalent retention to 6-month prescriptions across all 7 provinces (91-92%)
- Older clients and those longer on ART were more retained; Fac-PuP and **male sex** were associated with slightly lower retention
- Adjusted risk ratio showed a small non-significant positive association with 12m prescription (IRR 1.002)

Viral suppression

- 12-month prescription clients had slightly higher adjusted viral suppression consistent across all provinces (1.3% adjusted gain)
- **Male sex** and older age were associated with lower viral suppression; **2–4 years on ART** associated with higher suppression
- Adjusted risk ratio showed a small non-significant positive association with 12m prescription (IRR 1.016)

Extending Prescriptions did not compromise care

Policy & Programme Recommendations

01 **12-month prescriptions considered as a policy option**

Evidence supports maintaining 12-month prescription within CCMDD for stable clients. Outcomes are equivalent to 6-month prescription.

02 **Target retention support for younger and male clients**

Clients aged 18–24 and male clients consistently showed lower retention. Differentiated support required.

03 **Use these findings to inform WHO guideline development**

Results can directly support WHO's call for evidence on less frequent clinic visits for stable ART clients.

Acknowledgements

- Departments of Health in South Africa
- CCMDD Program (Health System Trust)
- Implementing partners

dablapmeds
The shortcut to your chronic medication

CCMDD: NHI initiative