HOW DO LESS INTENSIVE DIFFERENTIATED MODELS OF CARE COMPARE TO CONVENTIONAL CARE FOR HIV TREATMENT IN SOUTH AFRICA?

Retention in care and viral suppression

Why this matters

- Many countries in sub-Saharan Africa and elsewhere are scaling up **differentiated models of care (DMOC)** for HIV treatment to improve health outcomes, achieve client-centred care, and increase healthcare system efficiency. (DMOCs are sometimes called "differentiated service delivery," or DSD, models.)

Facility-based pickup points

- South Africa has three main "less intensive" models for ART clients who are established on treatment and have documented viral suppression: **facility-based medication pickup points, external (out-of-facility) medication pickup points, and adherence clubs**. These differentiated models or "Repeat Prescription Collection Strategies" for established ART clients are supported by three means for dispensing treatment: the Central Chronic Medicine Dispensing and Distribution (CCMDD) programme, the Central Dispensing Unit (CDU), and facility-based pharmacies.

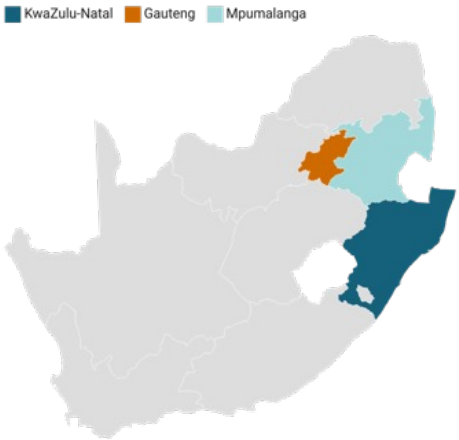
External pickup points

- The outcomes of less intensive DMOCs in routine use in national treatment programs have not been well documented, and methods used in previous observational studies are likely to have produced bias results. We conducted an observational study using routinely collected electronic medical record (EMR) data and a target trial emulation methodology to **compare outcomes in less intensive DMOCs to outcomes in conventional care**.

Adherence clubs

How we did it

- We applied **a target trial emulation (TTE) methodology** to data from South Africa's electronic medical record system, TIER.Net, for 18 clinics in 3 provinces. TTE is an approach that minimizes confounding in observational studies, where randomization is not possible.
- We assigned each individual client in the TIER.Net data set to an intervention (less intensive DMOC) or comparison (conventional care) arm, based on their characteristics and whether they had ever enrolled in a less intensive DMOC.
- We analyzed **8 different emulated trials**, each representing a six-month 'trial enrolment' period between July 2017 and July 2021. We then pooled the results of each to get an overall estimate of retention and viral suppression for clients in less intensive DMOCs and in conventional care.
- Results were estimated for three "follow-up end dates," at 12, 24, and 36 months after the observation start date for each participant.
- Retention in care was defined as attending a clinic visit within 12 months of the follow-up end date, and viral suppression was defined as a viral load <400 copies/ml within 12 months of the follow-up end date.*
- Clients were eligible for less intensive DMOCs if they were 18 or older, on ART for at least 12 months, had two suppressed viral load (VL) measurements, and were not pregnant, as required by national guidelines at that time.
- We estimated risk differences of outcomes comparing less intensive DMOC and conventional care clients, using an adjusted Poisson model with an identity link function.



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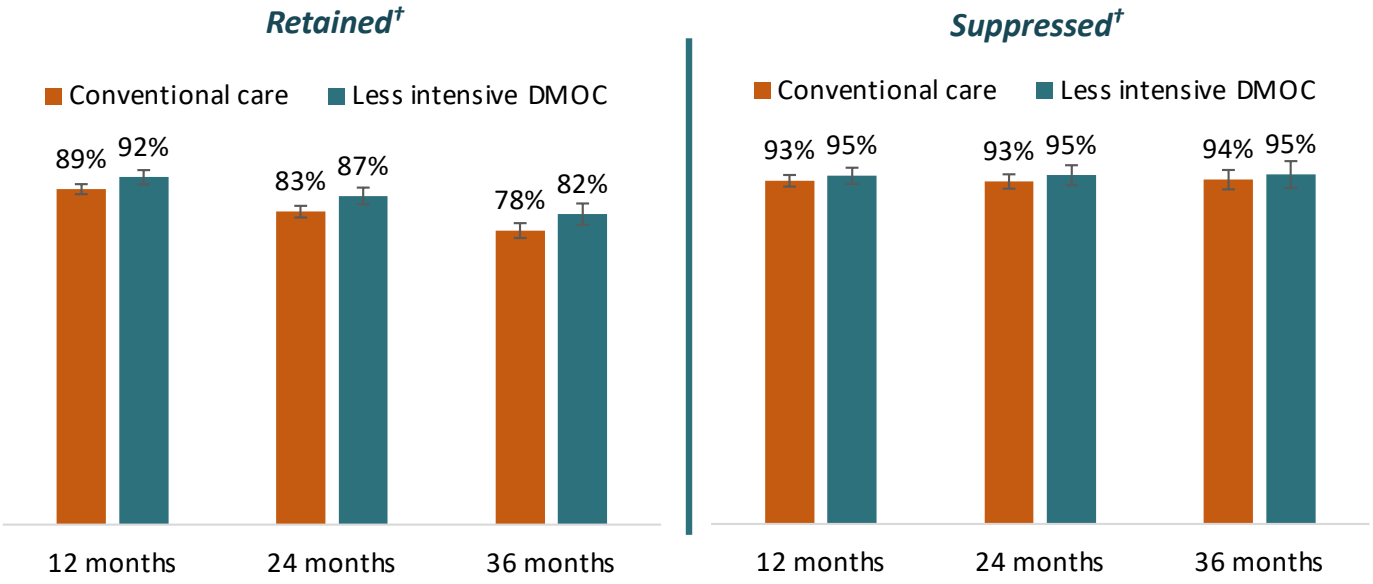
*The 2016 South African Adherence Guidelines were used to define less intensive DMOC eligibility and viral suppression in this analysis, as the majority of the enrollment period fell within their period of coverage. We note that under current guidelines, the VL threshold for suppression is 50 c/mL and 3 month dispensing has been included as a model of care.

What we found

Who were the clients in our study?

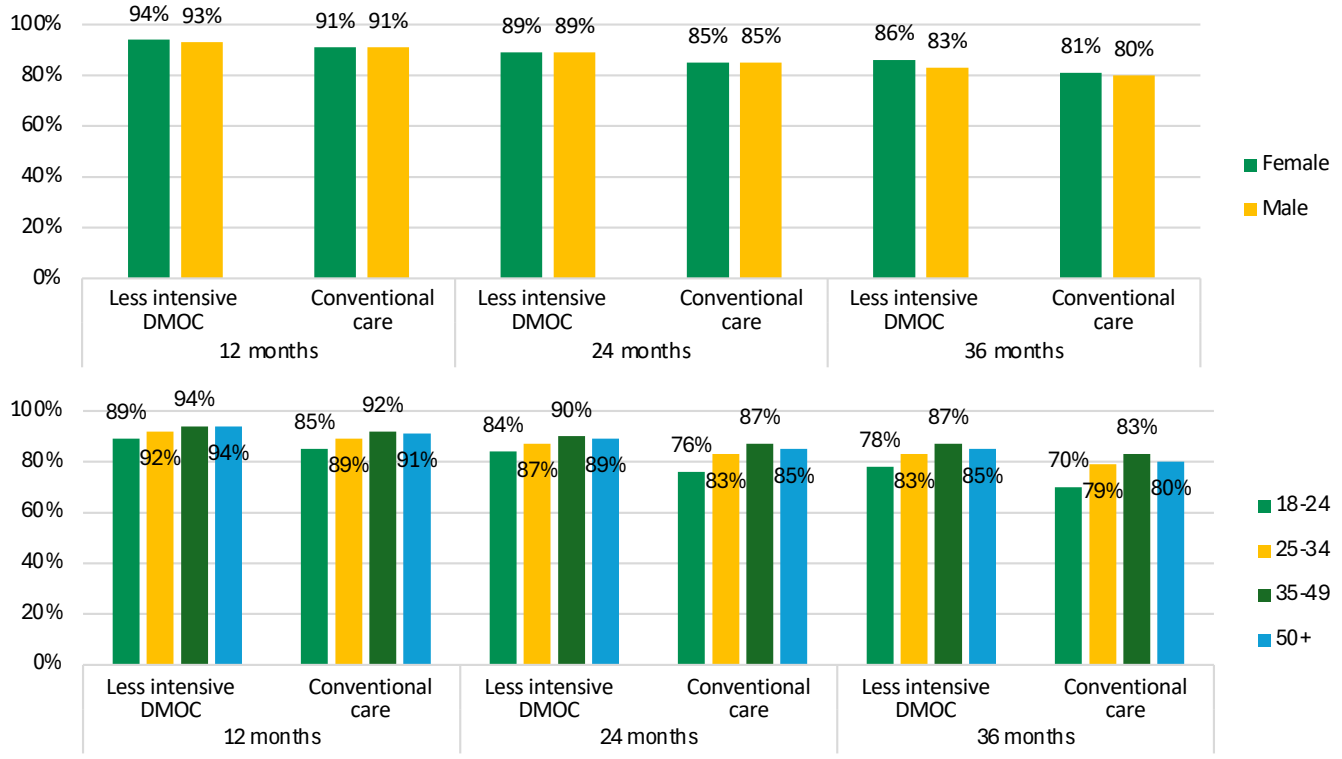
Characteristic		Total (N)	Never enrolled in less intensive DMOC	Ever enrolled in less intensive DMOC
Number of individuals (N)		49,595	23,820 (48%)	25,775 (52%)
Province	*Gauteng*	23,833	11,145 (47%)	12,688 (53%)
	KwaZulu-Natal	12,193	6,696 (55%)	5,497 (45%)
	Mpumalanga	13,569	5,979 (44%)	7,590 (56%)
Setting	*Rural*	13,685	7,289 (53%)	6,396 (47%)
	Urban	35,910	16,531 (46%)	19,379 (54%)
Sex	*Female*	34,145	16,273 (48%)	17,872 (52%)
	Male	15,450	7,547 (49%)	7,903 (51%)
Age group	*18-24 years*	2,759	1,868 (68%)	891 (32%)
	25-34 years	14,715	7,625 (52%)	7,090 (48%)
	35-49 years	23,064	10,040 (44%)	13,024 (56%)
	50 years or older	9,057	4,287 (47%)	4,770 (53%)
Time on ART at start	*1 to 2 years*	14,249	9,333 (65%)	4,916 (35%)
	2 to 5 years	18,881	7,897 (42%)	10,984 (58%)
	More than 5	16,465	6,590 (40%)	9,875 (60%)
Year of ART initiation	*Prior to 2012*	12,954	5,570 (43%)	7,384 (57%)
	2013-2016	21,240	9,179 (43%)	12,061 (57%)
	2017 or later	15,401	9,071 (59%)	6,330 (41%)
WHO stage at ART initiation	*Stage 1*	30,022	14,473 (48%)	15,549 (52%)
	Stage 2	8,105	3,801 (47%)	4,304 (53%)
	Stage 3	5,582	2,576 (46%)	3,006 (54%)
	Stage 4	861	409 (48%)	452 (52%)
CD4 count at ART initiation	*Median cells/µl (IQR)*	244 (131-386)	250 (133-407)	239 (129-370)

How many were retained in care and virally suppressed?



†Adjusted mean estimates. Adjusted for age, gender, urban/rural setting, province, WHO stage at ART initiation, and years on ART at trial enrolment

Were there differences in retention in care by sex or age?



*Retention in care and viral suppression were **similar or better** for clients enrolled in less intensive differentiated models of care.*

What it means

- ART clients who met South Africa's eligibility criteria for less intensive DMOC enrollment between 2017 and 2022 and enrolled in a less intensive DMOC **had better retention in care** than clients who met those criteria but were not in a less intensive DMOC. There was no difference in viral suppression.
- Since remaining in care and having a suppressed viral load are eligibility criteria for less intensive DMOC enrollment, there is little room for improving outcomes, but helping patients **sustain high levels of suppression over time**--like the 95% shown at 36 months--should be considered a success.
- There **was little difference between men and women** at any time intervals (12, 24, 36 months). Younger clients generally had **better retention in less intensive DMOCs** than in conventional care.
- Results should be interpreted with caution, because the TTE methodology does not address all confounding. Clients who were offered and accepted less intensive DMOC model enrollment might have been judged by clinic staff to be **more motivated and likely to remain in care** compared to those not offered enrollment.