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Retention in Care Trajectories of HIV-Positive Individuals Participating in a Universal Test-and-Treat Program in Rural South Africa (ANRS 12249 TasP Trial)

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Objective: To study retention in care (RiC) trajectories and associated factors in patients eligible for antiretroviral therapy (ART) in a universal test-and-treat setting (TasP trial, South Africa, 2012–2016).

Design: A cluster-randomized trial whereby individuals identified HIV positive after household testing were invited to initiate ART immediately (intervention) or following national guidelines (control).

Methods: Testing sites were defined as 173 health care facilities (appointments, counseling, diagnosis, or death). Group-based trajectory modeling was used to identify 4 RiC trajectories over 18 months and associated factors in 777 ART-eligible patients.

Results: Four RiC trajectory groups were identified: (1) group 1 “retained” in care (reference, n = 244, 31.3%), (2) group 2 “lost care then “retained” after 12 months (intermediate group), n = 139, 17.9%), (3) group 3 “lost care and never returned,” n = 40, 5.1%), (4) group 4 “lost care and never returned,” n = 96, 12.4%), and (5) group 5 “lost care and never returned,” n = 168, 21.6%). Group 1 patients were most likely to have initiated ART within 1 month and were likely to be male, young (<20 years), without a regular partner, and to have a CD4 count >350 cells/mm³. Group 2 patients were more likely to be women without social support, newly diagnosed, young, and less likely to have initiated ART within 1 month. Group 4 patients were most likely to be newly diagnosed and aged 30 years or younger.

Conclusions: High CD4 counts at care initiation were not associated with a higher risk of exiting care. Prerequisite ART initiation and social support for young and newly diagnosed patients with HIV are needed to maximize RiC.

Key Words: antiretroviral treatment, HIV, South Africa, retention in care, trajectories

J Acquir Immune Defic Syndr 2019;83(1):175–183

INTRODUCTION

South Africa has the highest number of people living with HIV (PLWH) in the world, estimated at 7 million in 2017. Every year, around 200,000 new HIV infections are reported, making it the largest treatment program worldwide.¹ Despite a reduction in HIV-related morbidity and mortality and a consequent increase in life expectancy,² HIV incidence remains unacceptably high.³

In 2016, South Africa adopted the WHO's recommendation to implement a universal test-and-treat (UTT) strategy for HIV.⁴ The success of this strategy depends on sustained retention in care (RiC).^{5,6} Modeling estimated that to achieve

Summary

- Malnourished children are at increased risk for severe pneumonia and mortality
- Breastfeeding is protective
- Vitamin A should be dosed according to the Road to Health 100 000 IU stat at 6 months; 200 000 IU stat at 12 months at 18 months
- From 24 months onwards, 200 000 IU every 6 months
- Vitamin D-deficient children are at increased risk for CA, vitamin D 400 IU daily
- Zinc 10 mg (for infants) and 20 mg (for older children) decreases the risk of pneumonia
- Environmental exposure to cigarette smoke or indoor air correlated with impaired lung health in children
- Careful attention to limiting transmission of respiratory pathogens reduces burden of respiratory illness
- Hand hygiene
- Cough etiquette
- Decontamination of environmental surfaces
- Use of masks
- Administered at Birth
- 6 weeks, 14 weeks and 9 months
- 6 weeks, 10 weeks, 14 weeks and 18 months as part of the national immunization schedule
- Not routinely administered in the SA EPI, but should be considered

Countries	2001	2011	2001-2011
	Prevalence	Incidence	Prevalence
Swaziland	22.2	4.11	26.0
Botswana	27.0	3.48	23.4
Lesotho	23.4	2.67	23.3
South Africa	15.9	2.42	17.3
Zimbabwe	25.0	2.11	14.9
Zambia	14.4	1.89	12.5
Namibia	15.5	2.39	13.4
Mozambique	9.7	1.63	11.3
Malawi	13.8	1.74	10.0

CHRONIC CONDITIONS	2011	2016
TB	100	110
How to collect a sputum specimen for TB testing	80	85
TB diagnosis	81	85
Drug sensitive TB (DS-TB) routine care	83	81
Multidrug-resistant TB (MDR-TB) routine care	84	88
Extensively drug-resistant TB (XDR-TB) routine care	88	88
HIV	96	96
HIV diagnosis	96	96
HIV routine care	96	96
HIV post-exposure prophylaxis (PEP)	78	78
HEPATITIS	105	105
Hepatitis B (HBV)	105	105
CHRONIC RESPIRATORY DISEASE	106	106
Asthma and COPD diagnosis	106	106
Using inhalers and spacers	106	106
Asthma routine care	106	106
Chronic obstructive pulmonary disease (COPD) routine care	106	106
OTHER PAGES	107	107
Glossary	107	107
Present the culturally	107	107
Initial assessment of the patient	107	107
Address the patient's general health	107	107
Exposed to infectious fluid, post-exposure prophylaxis	79	79
Review the patient on post-exposure prophylaxis (PEP)	79	79
Protect yourself from occupational infection	111	111
Protect yourself from occupational stress	112	112
Communicate effectively	113	113
Support the patient to make a change	114	114
Highlight numbers	115	115

If a maternal HIV test is not feasible, consent should be obtained to perform a rapid HIV test on the child. HIV test at six weeks post-cessation of breastfeeding. Age-appropriate HIV testing at six weeks post-cessation of breastfeeding is retained, with emphasis on testing even if breastfeeding continues for longer than 18 months. 18-month rapid test/ELISA for all children regardless of HIV exposure (universal testing). 18-month rapid test for HIV-exposed infants. HIV PCR test used as a confirmatory test for any HIV-positive result up to age two years. Definition of high-risk infant exposure. Maternal ART for < 4 weeks prior to delivery. High-risk infant at birth. Maternal VL ≥ 1000 copies/mL at delivery, or in the last 12 weeks of pregnancy. No maternal VL result available in the last 12 weeks. Unknown maternal HIV status because the infant is orphaned or abandoned. Maternal VL ≥ 1000 copies/mL. High-risk infant during breastfeeding (> 72 h after delivery). New maternal HIV diagnosis during breastfeeding. Maternal VL ≥ 1000 copies/mL after previous viral suppression on ART. Infant post-exposure prophylaxis. High-risk infants: AZT for six weeks and NVP prophylaxis for 12 weeks. AZT for six weeks and NVP prophylaxis for a minimum of 12 weeks. Exclusive breastfeeding policy, practice and influences in South Africa, 1990 to 2018: A mixed-methods systematic review. Highest risk of mother-to-child transmission of HIV or death in the first 6 months postpartum: Results from 18-month follow-up of an HIV-exposed national cohort, South Africa [homepage on the Internet]. If the maternal VL is not suppressed by 12 weeks, continued NVP is given until maternal VL suppression is achieved, or until four weeks after breastfeeding cessation. Breastfeeding. Breastfeeding recommended for 18 months (later changed to 24 months). Breastfeeding recommended for 24 months or longer whilst ensuring maternal ART and viral suppression, in line with recommendations for the general population. Lancet. Durban: Health Systems Trust; 2016. 2019;14(10):e224029. Fogel J, Li Q, Taha TE, et al. Myer L, Phillips TK. Pediatric HIV: Progress on prevention, treatment, and cure. Goga A, Jackson C. 1. 2019;16(9):e1002895. 10.1371/journal.pmed.1002895 [PMC free article] [PubMed] [CrossRef] [Google Scholar]25. Moyo F, Haeri Mazanderani A, Barron P, et al. Lancet HIV. JAIDS; 2017;75(1):S115–S122. 10.1097/qad.0000000000000212 [PubMed] [CrossRef] [Google Scholar]3. HIV Med; 2016;18(2):80–88. New Engl J Med. 2018;37(6):559–563. 2019;38(5):508–512. Zash R, Holmes L, Disko M, et al. Safety and pharmacokinetics of dolutegravir in pregnant mothers with HIV infection and their neonates: A randomised trial (DolPHIN-1 study). Nieuwoudt SJ, Ngandu CB, Manderson L, Norris SA. 10.1097/qai.0000000000001343 [PubMed] [CrossRef] [Google Scholar]28. 10.1097/aid.2015.0366 [PubMed] [CrossRef] [Google Scholar]30. Available from: [Google Scholar]16. Predictors of perinatal HIV transmission among women without prior

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Gertsch A, Michel O, Locatelli I, et al. 10.1093/cid/cir008 [PMC free article] [PubMed] [CrossRef] [Google Scholar]Page 2Summary of the main changes in the South African 2019 prevention of mother-to-child guideline.Contents2015 consolidated HIV guideline2019 PMTCT guidelineOverall approach-A renewed focus on the practicality for the end userAn operational focus on the integration of services, provision of a one-stop service, linkages to care, including care provided in the community by community health workers and other relevant stakeholdersPrevention-Guidance on universal infection precautions, and for preventing HIV acquisition in HIV-negative women and sero-discordant couplesPlanned pregnancies and safe conception-Guidance for family planning and contraception in WLWH, as well as on safer conceptionMaternal HIV testingAt first visit, at 32 weeks, and every three months during breastfeedingAt first visit and at every subsequent BANC visit, and three-monthly during breastfeedingMaternal ART-Guidance on adherence messagesGuidance for the use of DTG in women of childbearing potentialMaternal HIV VL monitoring Guidelines for newly diagnosed mothers, and WLWH already on ARTAdditional guidance for previously ART-exposed mothersVL done at delivery and at six months post-partum for all women, and six-monthly during breastfeedingART for the mother presenting in labour Stat dose NVP and TDF/FTC, and AZT three-hourly during labourStat dose of NVP and a stat dose of TDF, 3TC, and DTG in a fixed-dose combination (TLD)Start ART next day (TLD preferred), after appropriate counsellingInfant HIV testing HIV PCR test at birth and 10 weeksHIV PCR test at birth and 10 weeks remain unchanged18-week HIV PCR test for high-risk infants removedSix-month HIV PCR test for all HIV-exposed infants introduced18-week PCR test for high-risk infants who received extended NVP for 12 weeksAt six months of age, establish the HIV status of all infants not already known to be HIV-exposed by offering an HIV test to the mother. 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