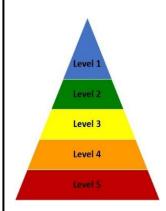
Note: This is Online Appendix 1 of Christie M, Haeri Mazanderani A, Sherman G, Feucht U. How paediatric HIV services weathered the COVID-19 storm in Tshwane District, South Africa. S Afr J HIV Med. 2024;25(1), a1557. https://doi.org/10.4102/sajhivmed.v25i1.1557



Lockdown levels in South Africa:

Lockdown Level 1 (Blue): Minimal COVID-19 spread with high health system readiness; all activities permitted; prevention guidelines still in place.

Lockdown Level 2 (Green): Low COVID-19 spread with high health system readiness; all activities permitted but physical distancing restrictions during leisure and social activities, unrestricted movement, precautions in place to prevent virus resurgence.

Lockdown Level 3 (Yellow): Moderate COVID-19 spread with moderate health system readiness; most activities permitted under restrictions, lesser movement allowed and precautions in place to limit high risk of transmission.

Lockdown Level 4 (Orange): Moderate to high COVID-19 spread with low to moderate health system readiness; fewer activities and movement permitted with severe restrictions, precautions in place to limit community transmission and outbreaks.

Lockdown Level 5 (Red): High COVID-19 spread with low health system readiness; only essential services permitted; movement severely restricted, severe restrictions employed to contain spread of the virus.

Date	Lockdown Level
26 Mar 2020 – 30 Apr 2020	5
1 May 2020 – 31 May 2020	4
1 Jun 2020 – 17 Aug 2020	3
18 Aug 2020 – 20 Sep 2020	2
21 Sep 2020 – 28 Dec 2020	1
29 Dec 2020 – 28 Feb 2021	3
1 Mar 2021 – 30 May 2021	1
31 May 2021 – 15 Jun 2021	2
16 Jun 2021 – 27 Jun 2021	3
28 Jun 2021 – 25 Jul 2021	4
26 Jul 2021 – 12 Sep 2021	3
13 Sep 2021 – 30 Sep 2021	2
1 Oct 2021 – 04 Apr 2022	1

FIGURE 1-OA1: South African COVID-19 lockdown levels with corresponding dates and colour code

TABLE 1-OA1: Indicators, data sources, definitions, and calculations utilised in the study.

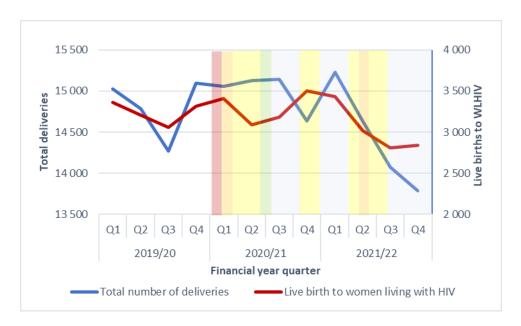
Indicators	Source	Definitions & Calculations		
Care of WLHIV and CLHIV				
Monthly Maternal HIV prevalence [%]	DHIS	Numerator: Total number of monthly live births born women to be living with HIV at delivery		
		Denominator: Total number of monthly live births born to all women		
Mean Maternal HIV prevalence [%]	DHIS	Annual total monthly maternal HIV prevalence/12		
Mean monthly live births [n]	DHIS	Total number of monthly live births born to all women		
		Annual total number of monthly live births born to all women / 12		
Mean monthly live births to WLHIV [n]	DHIS	Total number of monthly live births born women known to be living with HIV at delivery		
		Annual total number of live births born women known to be living with HIV at delivery for each financial year		
		/ 12		
Quarterly number of HIV VL tests performed [n]	NICD	Monthly valid HIV VL test results deduplicated per month and subsequently aggregated per quarter.		
		Age groups: 1] WLHIV = Females aged 15 - 45 years; 2] CLHIV = <15 years		
Quarterly HIV VL suppression* rates [%]	NICD	Numerator: Monthly valid deduplicated HIV VL test results <1000 copies/mL* aggregated per quarter		
Quarterly 1117 VE suppression Tutes [70]		Denominator: All monthly valid deduplicated HIV VL test results aggregated per quarter		
Quarterly number of CD4 tests performed	NICD	Quarterly valid CD4 test results deduplicated per quarter.		
[n]		Age groups: 1] WLHIV = Females aged 15 - 45 years; 2] CLHIV = <5 years and 5 - <15 years		
Quarterly severe immunosuppression rate [¶] [%]	NICD	CD4 count of <200 cells/µL [WLHIV and CLHIV ≥5 years] or <15% [CLHIV <5 years] ¶		
		Numerator: Valid deduplicated CD4 test results aggregated per quarter [<15% / < 200]		
		Denominator: All valid deduplicated CD4 tests aggregated per quarter		
Number of CLHIV newly initiated on ART [n]	DHIS	Children <15 years started on life-long ART with no previous exposure to ART for >30 days		
Number of deaths among CLHIV [n]	DHIS	Deaths among children <15 years receiving ART in the preceding quarter		
Number of CLHIV lost to follow-up [n]	DHIS	Children <15 years on ART who did not attend the health facility for 90 days within the preceding quarter		
Paediatric HIV diagnosis				
Birth HIV PCR tests [n]	NICD	HIV PCR tests performed <7 days of age		
10 weeks HIV PCR tests [n]	NICD	HIV PCR tests performed from 6 weeks - <3 months of age		
Six-month HIV PCR tests [n]	NICD	HIV PCR tests performed from 3 - <8 months of age		
Universal 18-month HIV ELISA/ RDT test [n]	DHIS	HIV ELISA/ RDT tests performed at 18 months of age.		
19 -59 months HIV ELISA/ RDT test [n]	DHIS	HIV ELISA/ RDT tests performed from 19 – 59 months of age.		
5-14 years HIV ELISA/ RDT test [n]	DHIS	HIV ELISA/ RDT tests performed from 5 – 14 years of age		
HIV PCR test positivity rate [%]	NICD#	Numerator: Number of first positive HIV PCR results		
		Denominator: Total number of HIV PCR tests performed		

		Age groups: 1] At Birth [<7 days of age]; 2] 10 weeks [6 weeks - <3 months]; 3] 6 months [3 - <8 months of
		age]
Testing coverage [%]	NICD DHIS	Numerator: Number of first positive HIV PCR results
		Denominator: Total number of monthly live births born to WLHIV
		Age groups: 1] At Birth [<7 days of age]; 2] 10 weeks [6 weeks - <3 months]
HIV ELISA/ RDT test positivity rate [%]		Numerator: Number of positive HIV test results
	DHIS	Denominator: Total number of HIV tests performed
		Age groups: 1] 18 months; 2] 19 - 59 months of age; 3] 5 - 14 years of age
		Numerator: Number of first positive HIV PCR results
HIV EID case rate	NCID	Denominator: Total number of monthly live births born to all women
[cases /100 000 live births]	DHIS	Multiplier: 100 000
		Age groups included: 1] At Birth [<7 days of age]; 2] 10 weeks [6 weeks - <3 months]; 3] 6 months [3 - <8
		months of age]
Expanded Programme on Immunisation [‡]		
BCG dose [n] [‡]	DHIS	BCG vaccine given to a child ≤1 year – preferably immediately after birth
DTaP-IPV-Hib-HBV-1 dose [n] [‡]	DHIS	DTaP-IPV-Hib-HBV 1 st dose vaccination given to a child ≤1 year – preferably at around age 6 weeks
Measles-1 dose [n] [‡]	DHIS	Measles vaccine 1 st dose given to a child ≤1 year – preferably at age six months
DTaP-IPV-Hib-HBV-4 [n]	DHIS	DTaP-IPV-Hib-HBV 4 th dose vaccination given to a child at around age 18 months
Monthly estimated total population immunisation coverage [%] [†]	DHIS	Numerator: Total monthly immunisations administered
		Denominator: Mean monthly live births
		Vaccinations included: 1] BCG; 2] DTaP-IPV-Hib-HBV-1; 3] Measles-1; 4] DTaP-IPV-Hib-HBV-4
Estimated number of immunisations administered to infants exposed to HIV [n] [†]	DHIS	Multiplicand: Mean monthly live births to WLHIV
		Multiplier: Monthly estimated total population immunisation coverage
		Vaccinations included: 1] BCG; 2] DTaP-IPV-Hib-HBV-1 and 4; 3] Measles
		Numerator: Monthly HIV tests performed
Integration of EID and EPI services amongst	DHIS	Denominator: Estimated number of immunisations administered to infants exposed to HIV
infants exposed to HIV [%]	NICD	HIV tests included: 1] Birth HIV PCR; 2] 10-week HIV PCR; 3] six-month HIV PCR
		Vaccinations included: 1] BCG; 2] DTaP-IPV-Hib-HBV-1; 3] Measles-1

DHIS , District Health Information Service; NICD , National Institute for Communicable Diseases; HIV , Human Immunodeficiency virus; WLHIV , Women living with HIV; CLHIV , Children living with HIV; ART , Antiretroviral therapy; VL , viral load; CD , Cluster of differentiation; PCR , Polymerase Chain Reaction; ELISA , Enzyme-linked immunosorbent assay; RDT , Rapid diagnostic test; BCG , Bacillus Calmette-Guerin; DTaP-IPV-Hib-HBV , Diphtheria, Tetanus, Pertussis, Polio, Haemophilus influenzae type b, and Hepatitis B; WLHIV, Women living with HIV; EPI , Expanded Program on Immunisation ; EID , Early Infant Diagnosis.

^{*,} HIV viral suppression: HIV VL of <1000 copies/mL [25].

^{¶,} Severe immunosuppression: CD4 count of <200 cells/µL [WLHIV and CLHIV ≥5 years] or <15% [CLHIV <5 years] [31,32]; §, HIV PCR; *HIV ELISA/ HIV RDT; #, De-duplicated using NHLS Corporate Data Warehouse record linking algorithm; ‡, Restricted to public sector data



Source: District Health Information Service, Tshwane District Health Services, Gauteng Province. Note: Quarters: Q1: April to June; Q2: July to September; Q3: October to December; Q4: January to March. HIV, Human Immunodeficiency virus; Q, Quarter; WLHIV, Women living with HIV.

FIGURE 2-OA1: Total number of deliveries and live births to women living with HIV per quarter from April 2019 to March 2022.