Why do we need to change the guideline again!!!!

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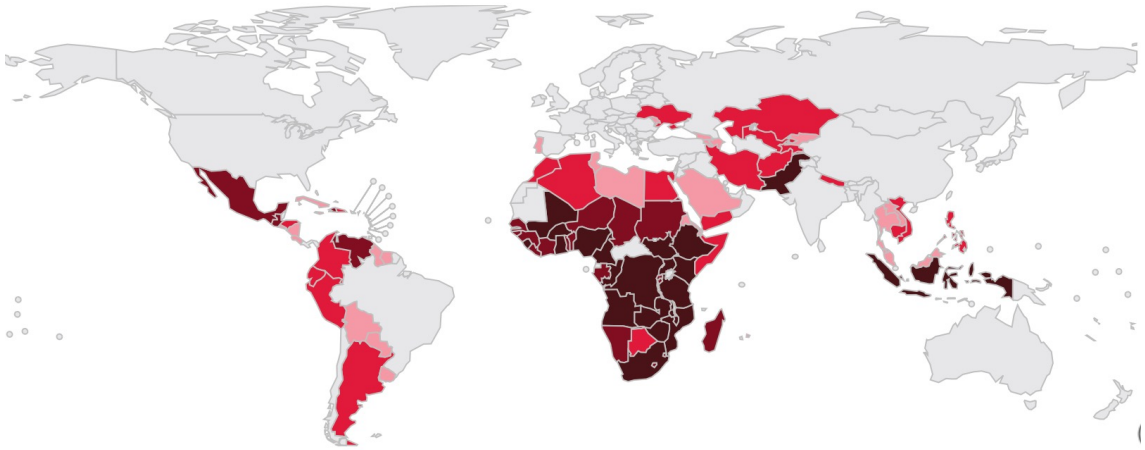
Paediatric HIV Landscape in 2022

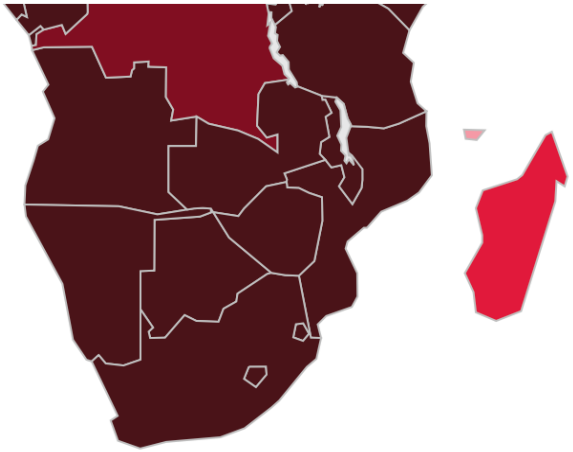


New Pediatric HIV infections

Eastern/Southern Africa 50%

- Despite falling incidence rates - approximately **160 000 newly infected children with HIV**
- Approximately **95 000 AIDS-related deaths** in children
- Approximately 1.7 million children (<14 years) living with HIV

Paediatric HIV Landscape – South Africa



New HIV infections in 2020

- Children (<15 years): 12 000 (6900 – 31 000)
- Adolescents (10-19 years): 38 000 (5 400 - 77 000)
- All Ages: 230 000 (150 000 – 310 000)

People living with HIV

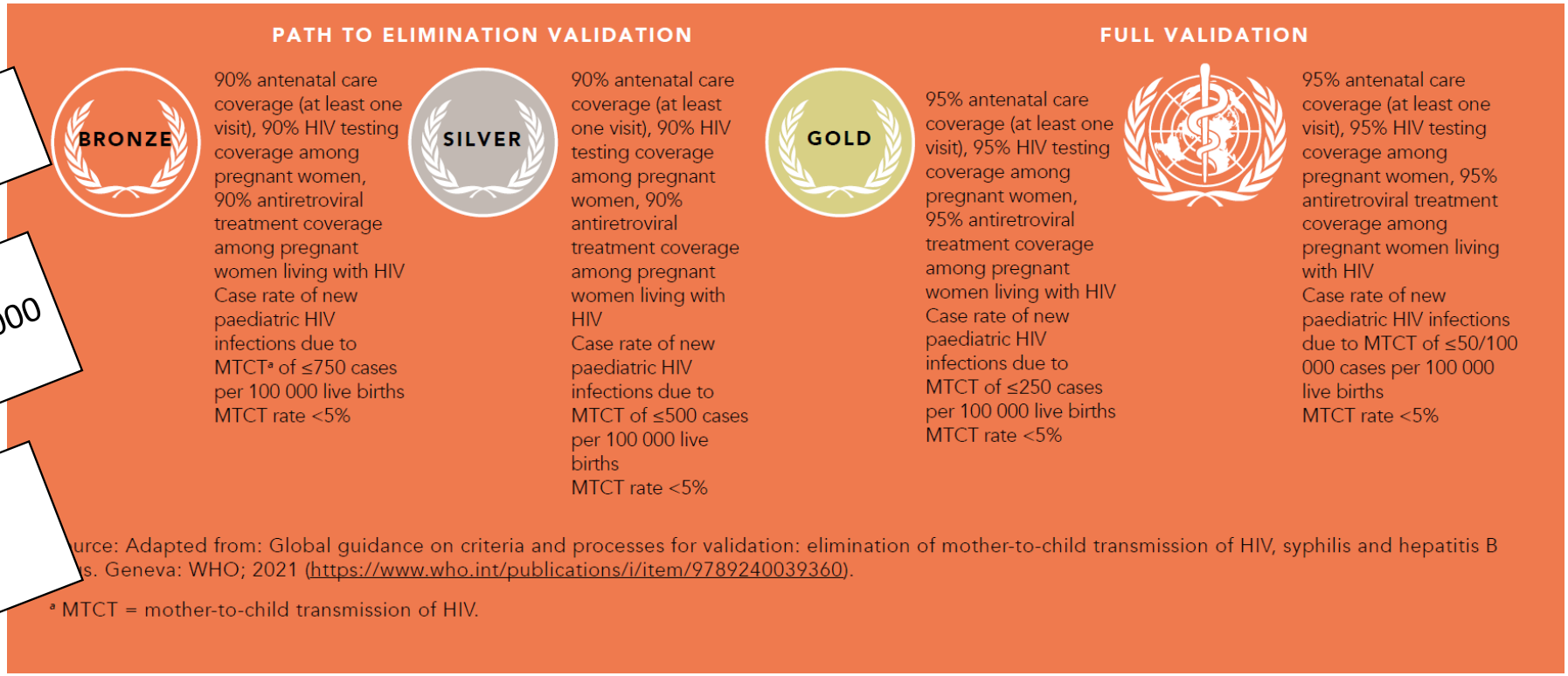
- Children (<15 years): 310 000 (200 000 – 540 000)
- Adolescents (10-19 years): 370 000 (190 000 - 550 000)
- All Ages: 7 800 000 (5 200 000 – 10 000 000) – Prevalence 17.7 (11.7 – 22.5)

Closing the tap – progress towards ~~EMTCT~~

Maternal testing and ART coverage: 106%

Case rates: 1290 cases per 100 000 live births

VHT rate: 6 weeks: 1.7% 18 months: 4.3%



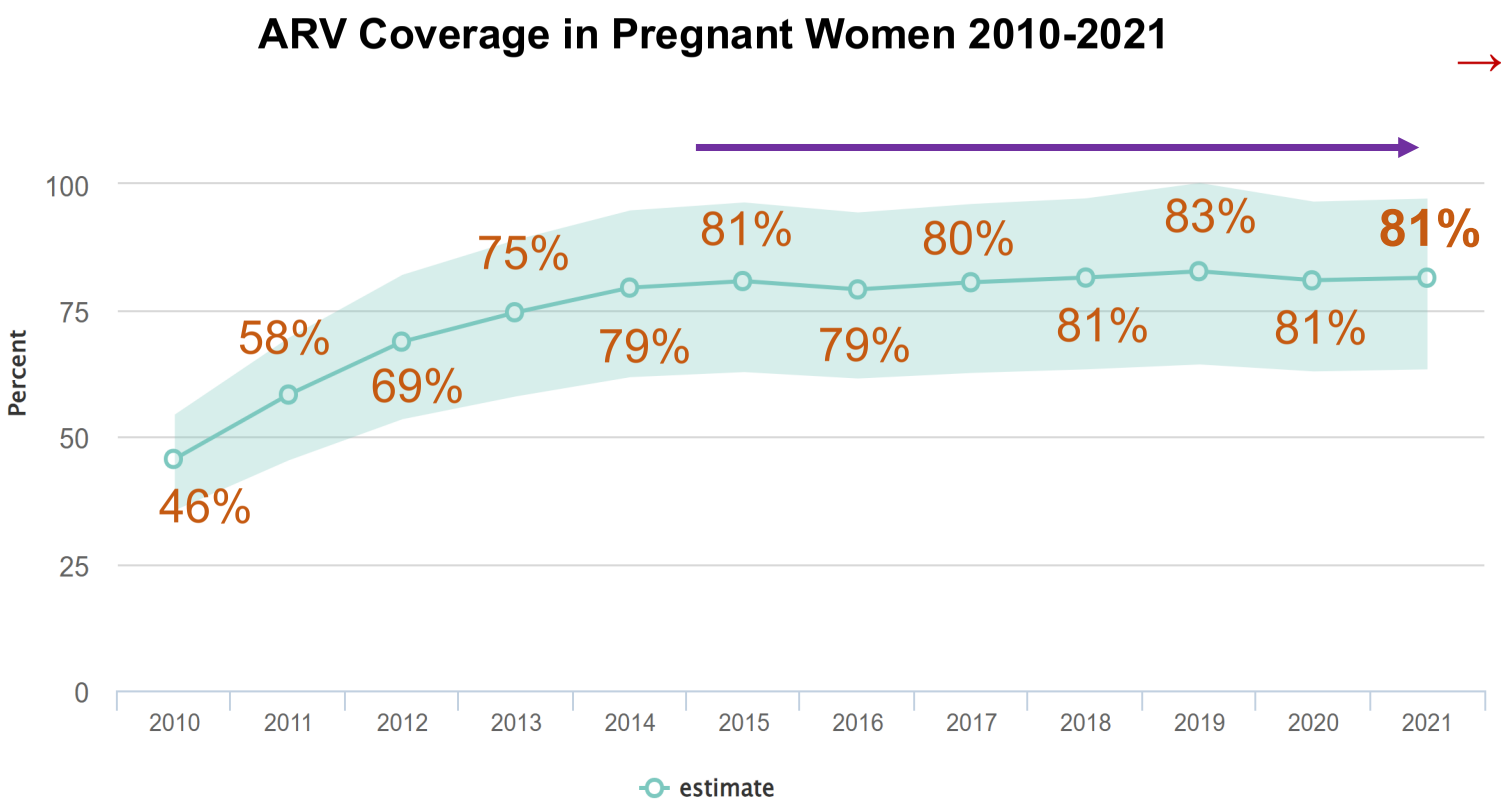
Botswana became the first High-burden country to achieve silver status towards EMTCT

BMC Infectious Diseases **volume 19**, Article number: 783 (2019)
Goga AE,et al. J Epidemiol Community Health2020;0:1–9. doi:10.1136/jech-2019-213453

ART Coverage in Pregnant Women

Was 81% in 2021 – A Slight Decline Since Peak of 83% in 2019

Maternal ART Globally, 2010-2021

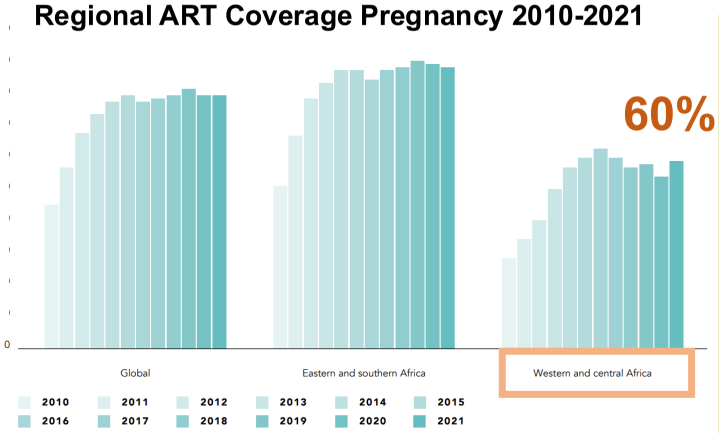


Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

→ **81% of pregnant women with HIV received ART** in 2021.

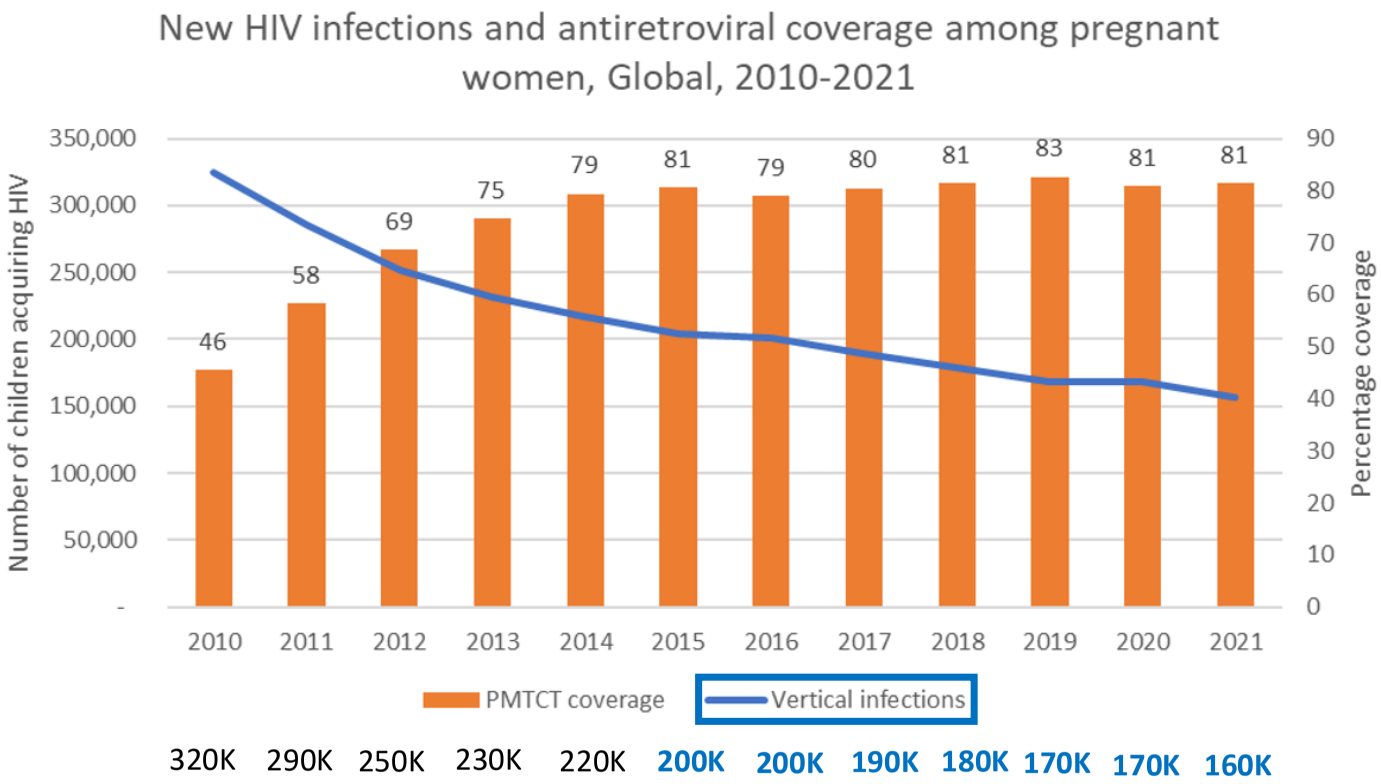
→ **No meaningful increase in pregnant women ART coverage since 2014!**

Regional differences: West/ Central Africa coverage **only 60% 2021**; 43% of pregnant women not on ART from this region



Minimal Decline in New Pediatric Infections in 2021

Maternal ART and **New Infections in Children** Globally, 2010-2021



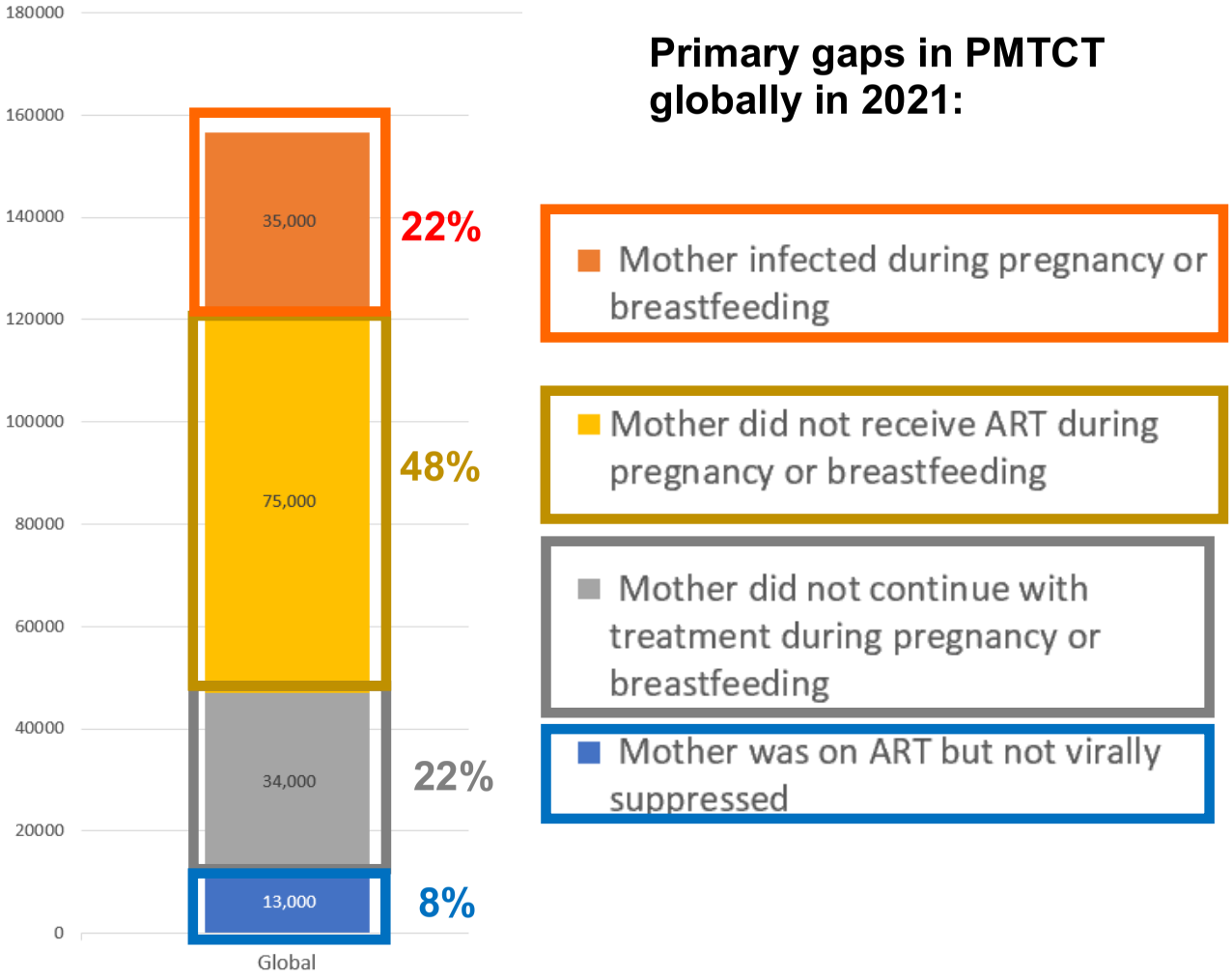
Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

→ **160,000 new pediatric HIV infections** estimated in 2021

→ Minimal change in new infections since 2015 – **either no change or only 10,000 decline/year**

→ If assume only 10,000 decline/year, will take **14 years** (2035) to meet our **2020** target of 20,000 new infections

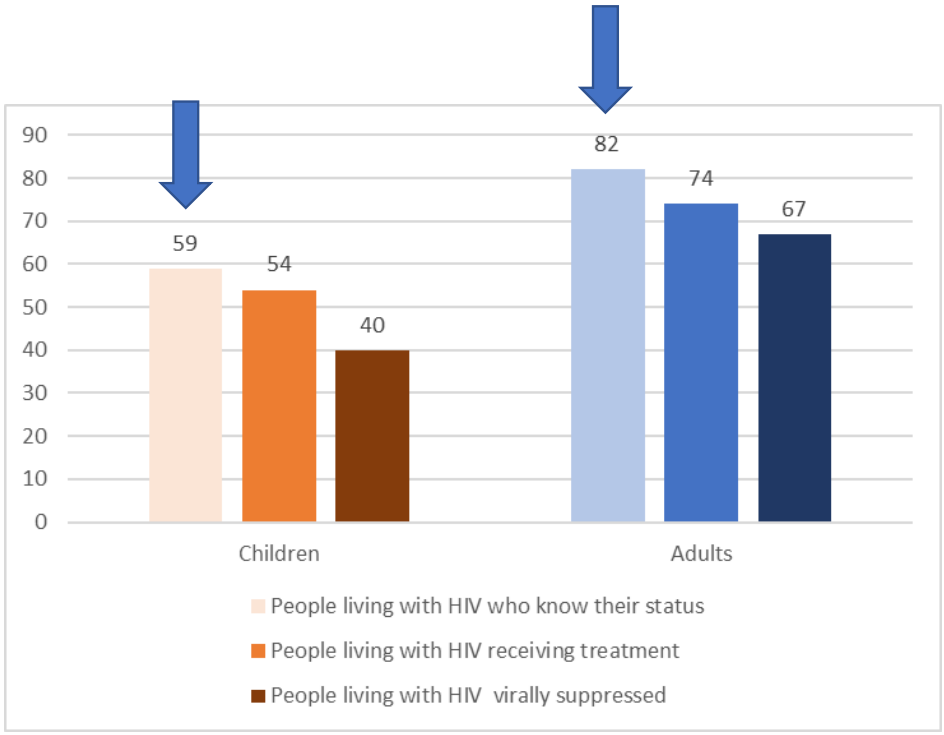
Causes of New Child Infections Globally 2021



Source: UNAIDS epidemiological estimates 2022: *aidsinfo.unaids.org*

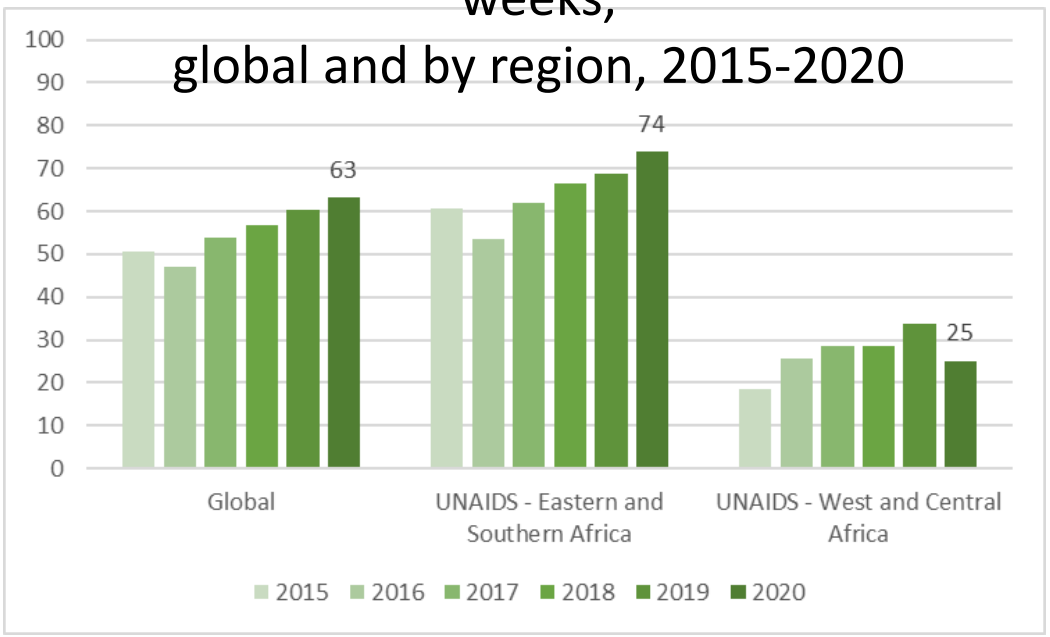
- Globally 75,000 new child infections still occur because **pregnant women are not diagnosed and started on treatment**
- Regional (and country) differences:
  - Almost half of those **not receiving treatment** are in **west/central Africa**
  - Over half of the **incident infections** that lead to vertical transmission are in **east/southern Africa**

Paediatric HIV Treatment Cascade: 95:95:95



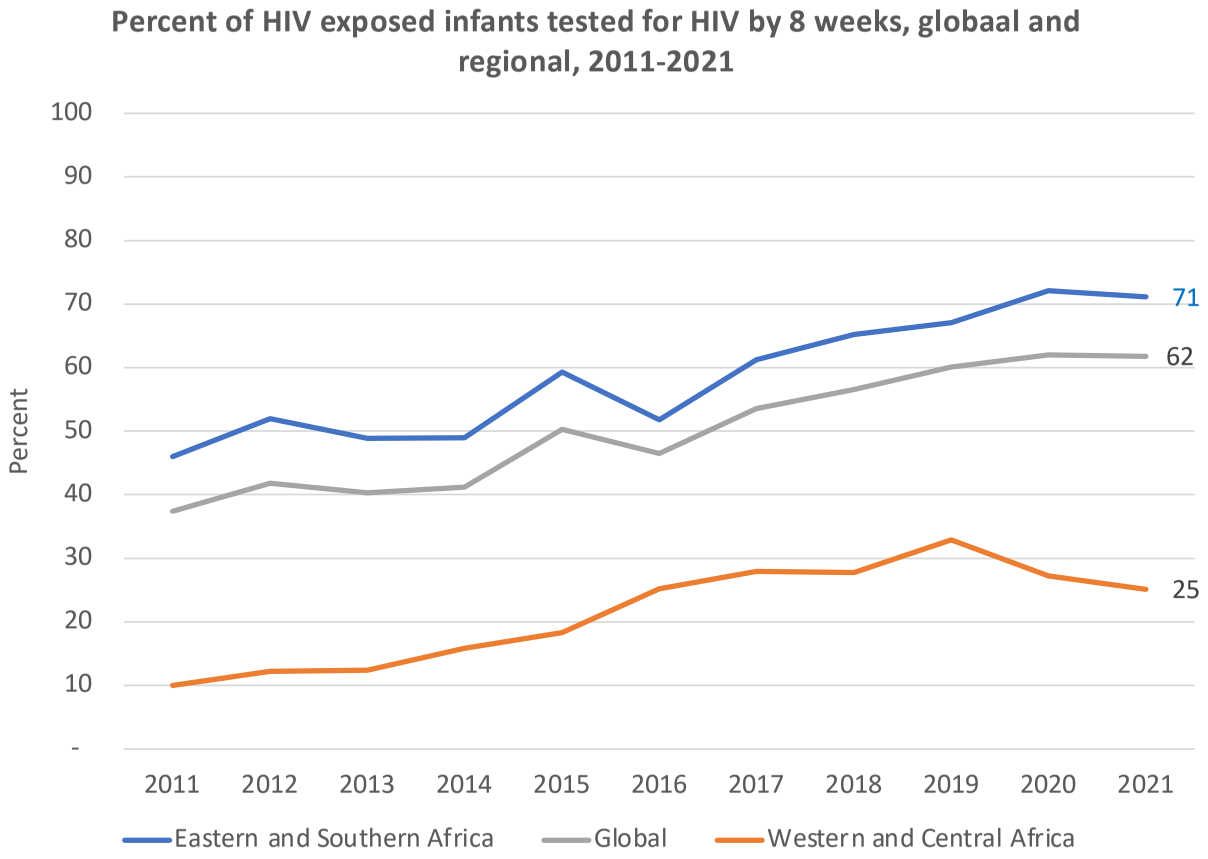
Treatment cascade for children and adults, global, 2020

Percent of HIV exposed children tested by 8 weeks,
global and by region, 2015-2020



Source: UNAIDS 2021 epidemiological estimates
Slide courtesy of Mary Mahy

Early Infant Diagnosis Declined Slightly Globally from 63% in 2020 to 62% in 2021

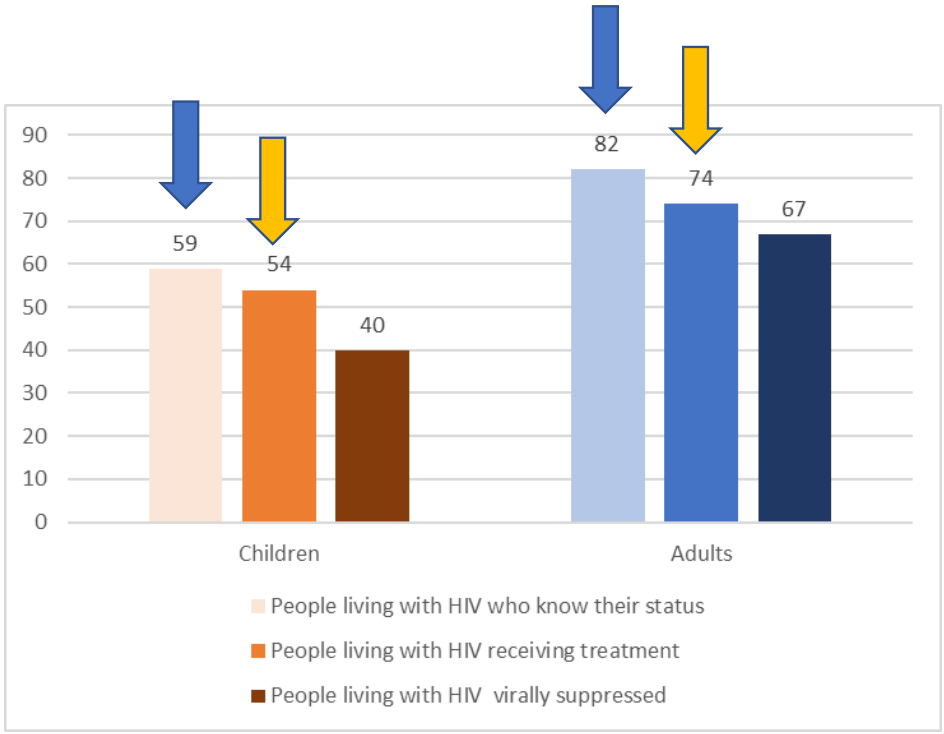


→ **Globally, 62% of infants had EID by 8 week in 2021**, a **slight decrease** from 63% in 2020

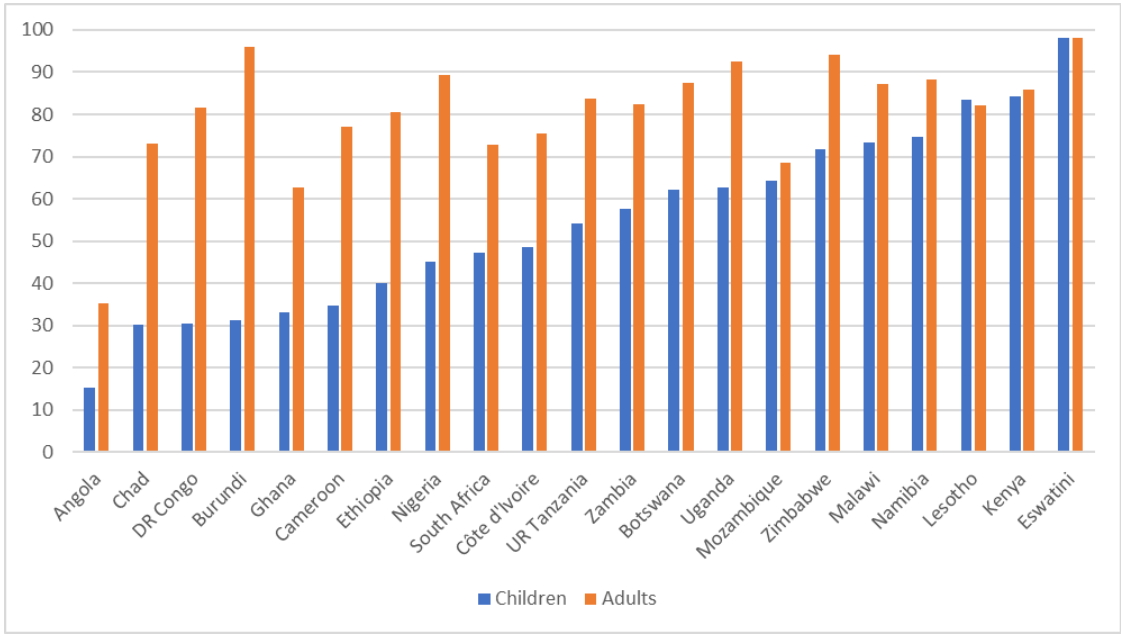
→ **EID in west/central Africa remains at 25%,** having actually **decreased** between 2019 and 2020

→ **EID in east/southern Africa is 71%**, but this is a **slight decrease** from 74% in 2020

Paediatric HIV Treatment Cascade: 95:95:95



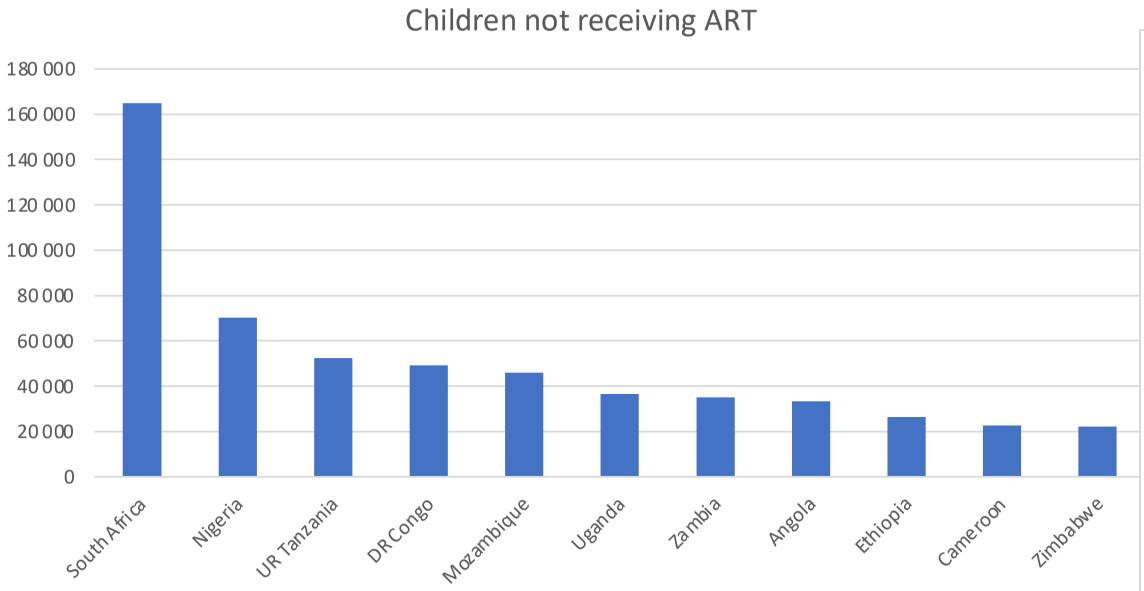
Treatment cascade for children and adults, global, 2020

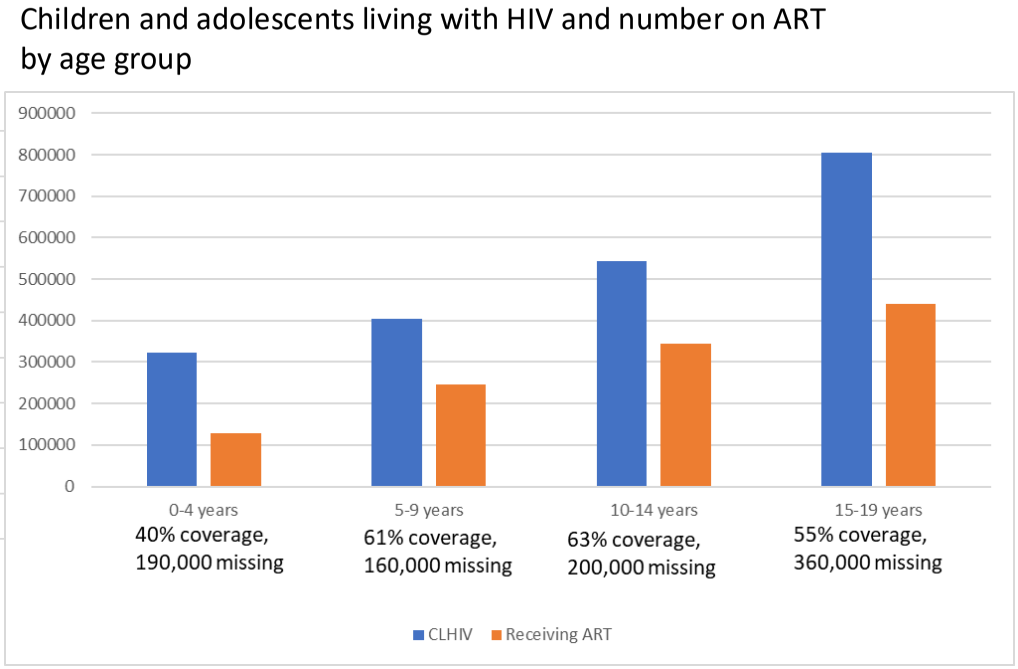


Percentage of people living with HIV receiving treatment, by age, focus countries, 2020

Source: UNAIDS 2021 epidemiological estimates
Slide courtesy of Mary Mahy

Paediatric Treatment Cascade: ART Treatment

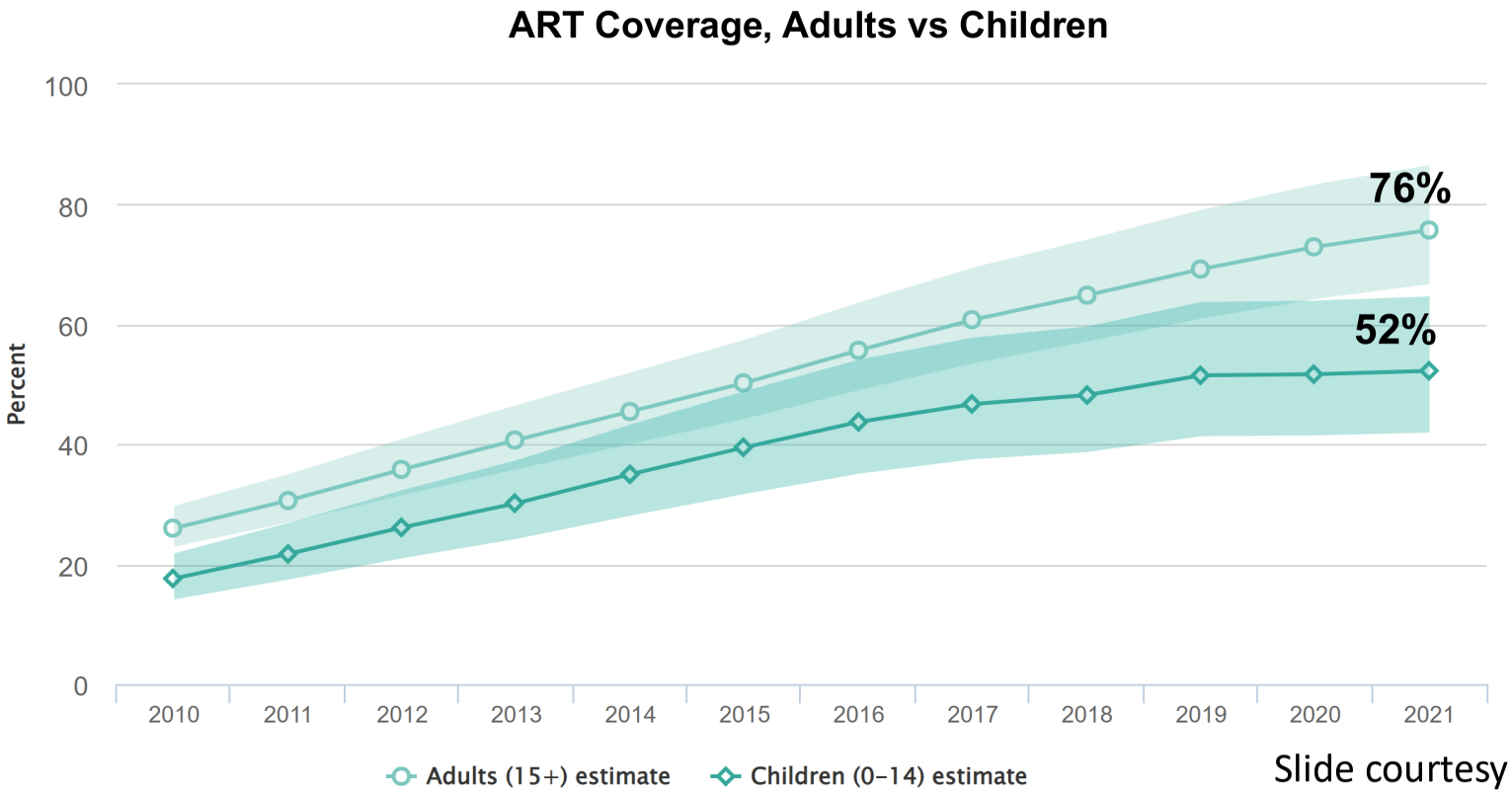




Source: Special analysis of UNAIDS 2021 epidemiological estimates. Data based on 19 of the 21 AIDS Free focus countries in sub-Saharan Africa.
Slide courtesy of Mary Mahy

ART Coverage in Children in 2021 Has Not Improved; Consistently Lower ART Coverage in Children vs Adults

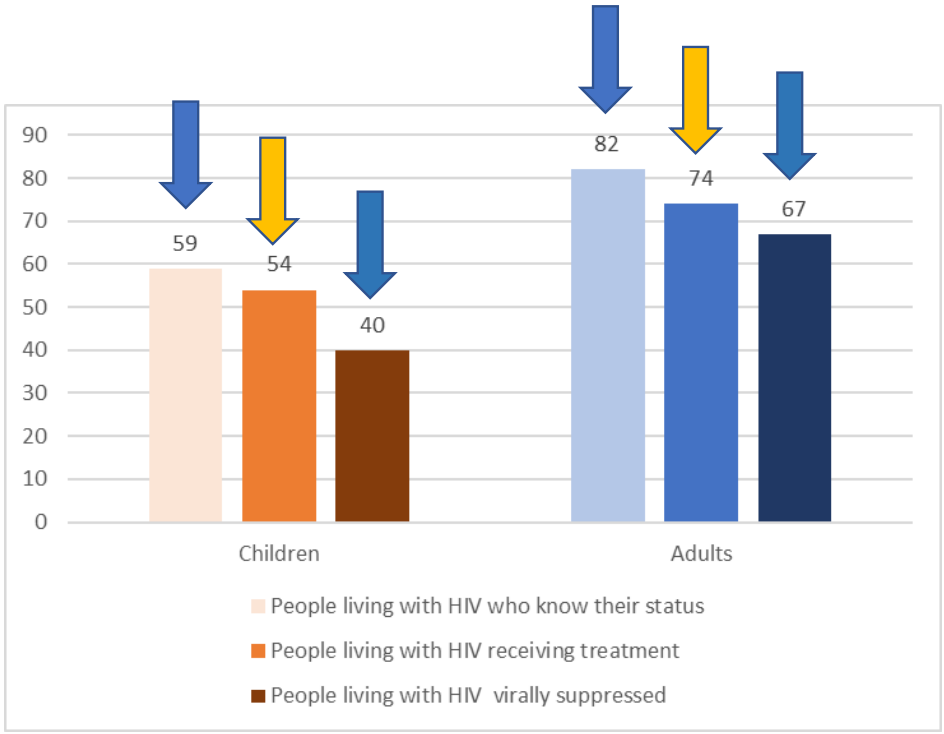
- ART coverage in children 0-14 years **remain 52%**, consistently lower than in adults which increased to 76% from 74% in 2020 .



- 60% of children <u>not</u> on ART are **aged 5-14 years**
- EID is not enough; need for home-testing and/or self-testing to identify older children living with HIV

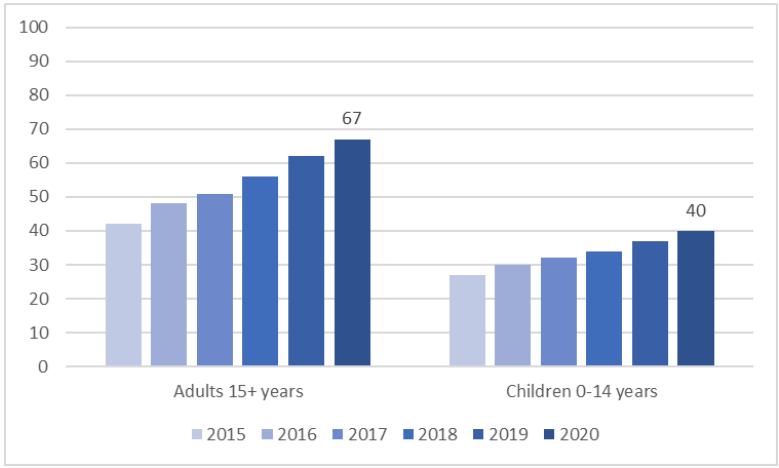
Slide courtesy of Mary Mahy/Lynne Mofenson

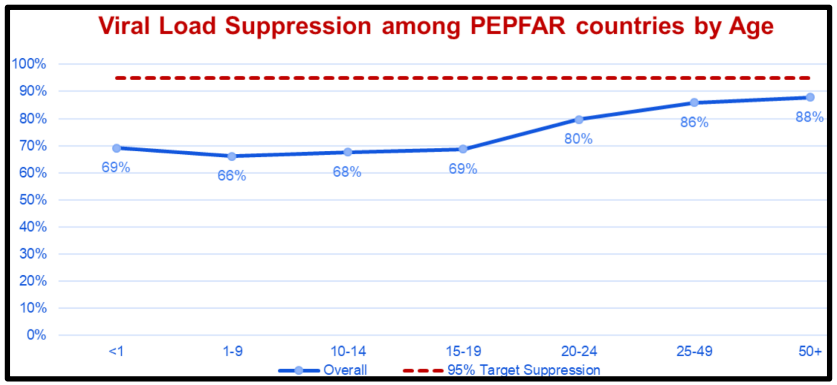
Paediatric Treatment Cascade: Viral Suppression



Treatment cascade for children and adults, global, 2020

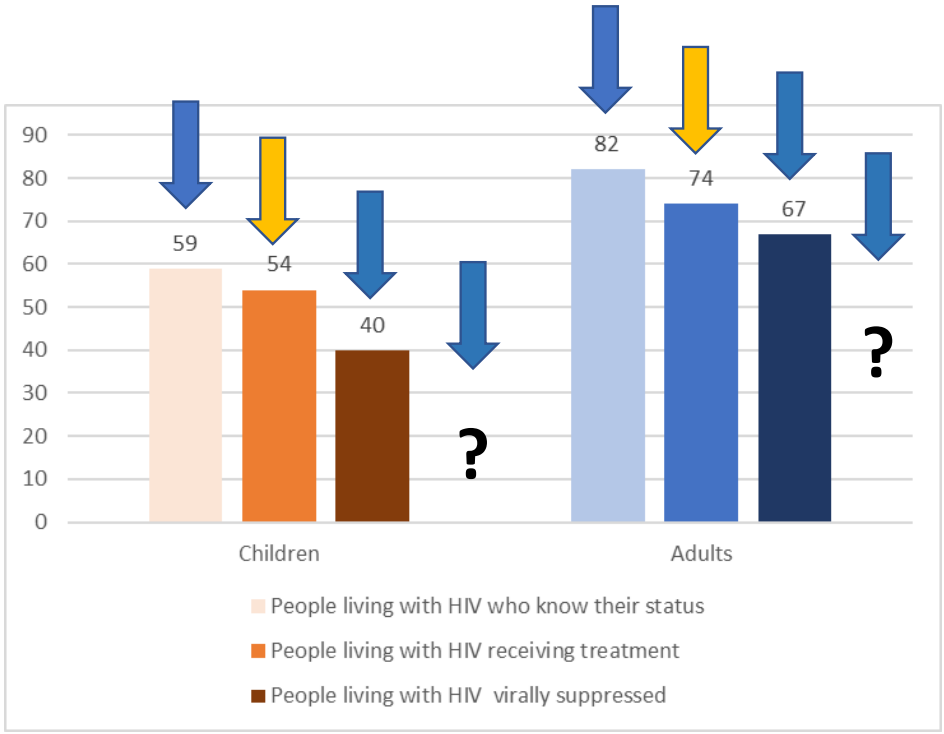
Percentage of people living with HIV with suppressed viral load, by age, Global, 2015-2020





Source: UNAIDS 2021 epidemiological estimates.

Paediatric Treatment Cascade: 4th 95%



Treatment cascade for children and adults, global, 2020

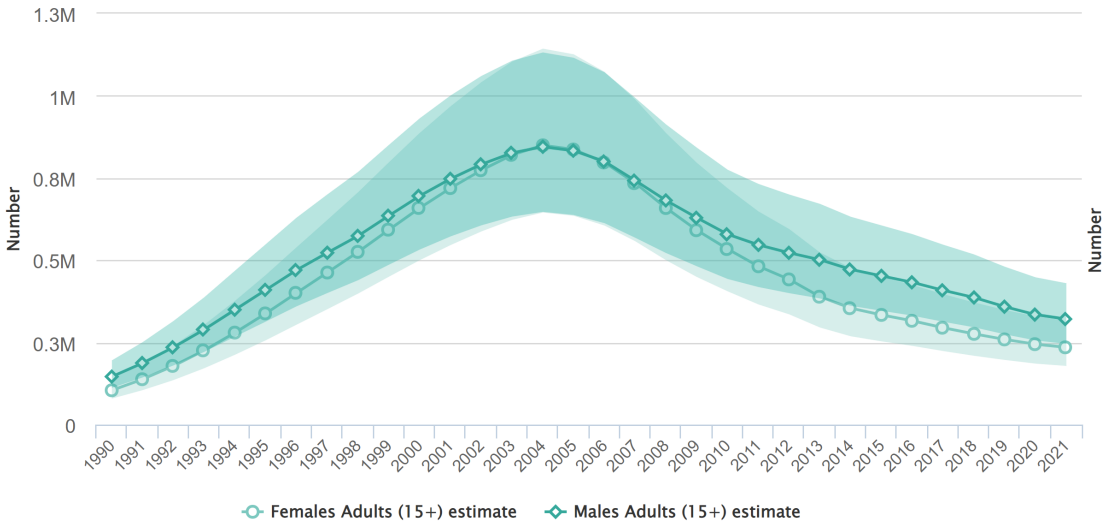
Living Healthy, productive and full life with HIV

Source: UNAIDS 2021 epidemiological estimates.

Despite New, More Potent ARV Availability, Decline in Deaths Among Young People Age15-24 Years Has Slowed

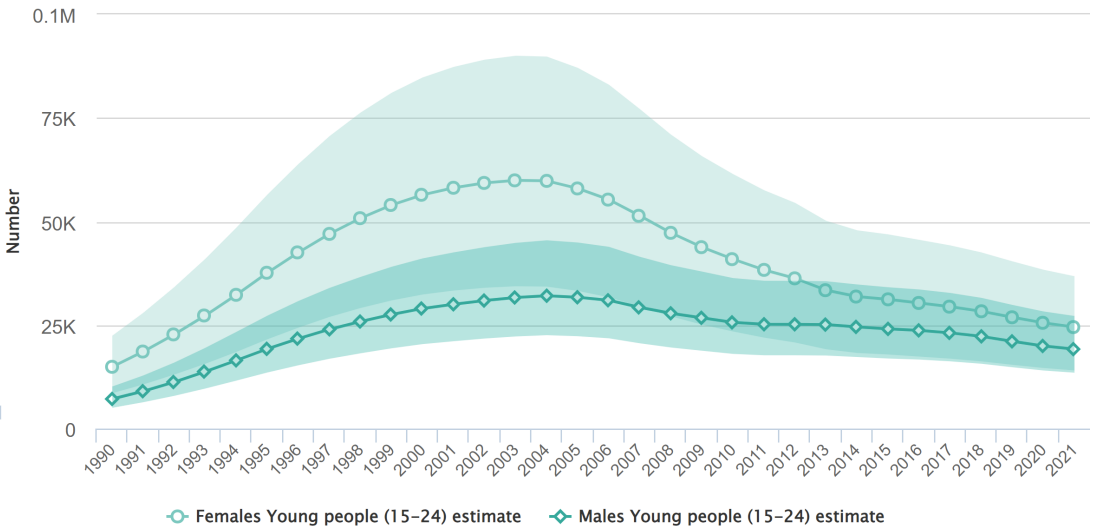
- AIDS-related mortality in adults continues to **decrease**, higher in **males** than females

AIDS-Related Deaths in Adults ≥15 Years by Sex



- AIDS-related mortality in young people has **minimal decline** since 2013, higher in **females** than males

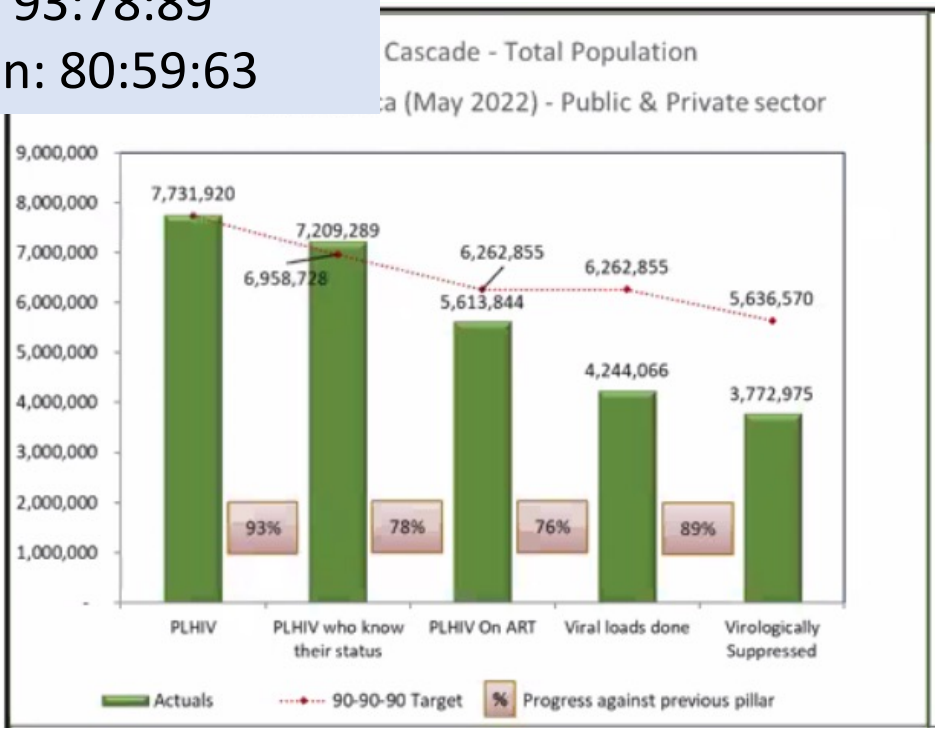
AIDS-Related Deaths in Young People 15-24 Years by Sex

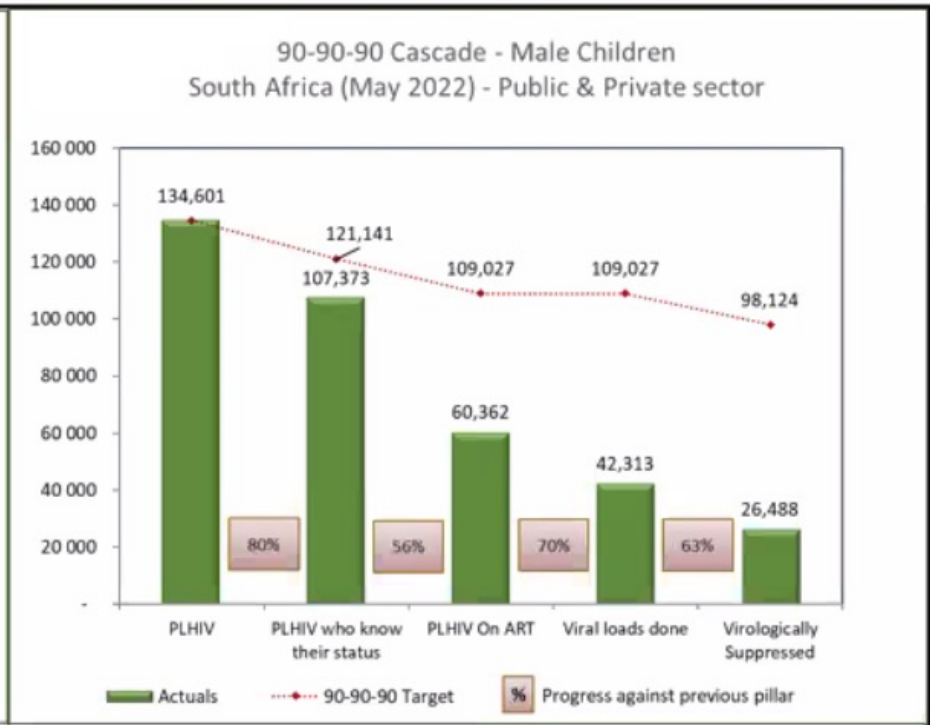


Slide courtesy of Mary Mahy/Lynne Mofenson

Paediatric Treatment Cascade: SA

Cascade - South Africa
Adults: 93:78:89
Children: 80:59:63





In patients where VL were performed children <5years are the most vulnerable

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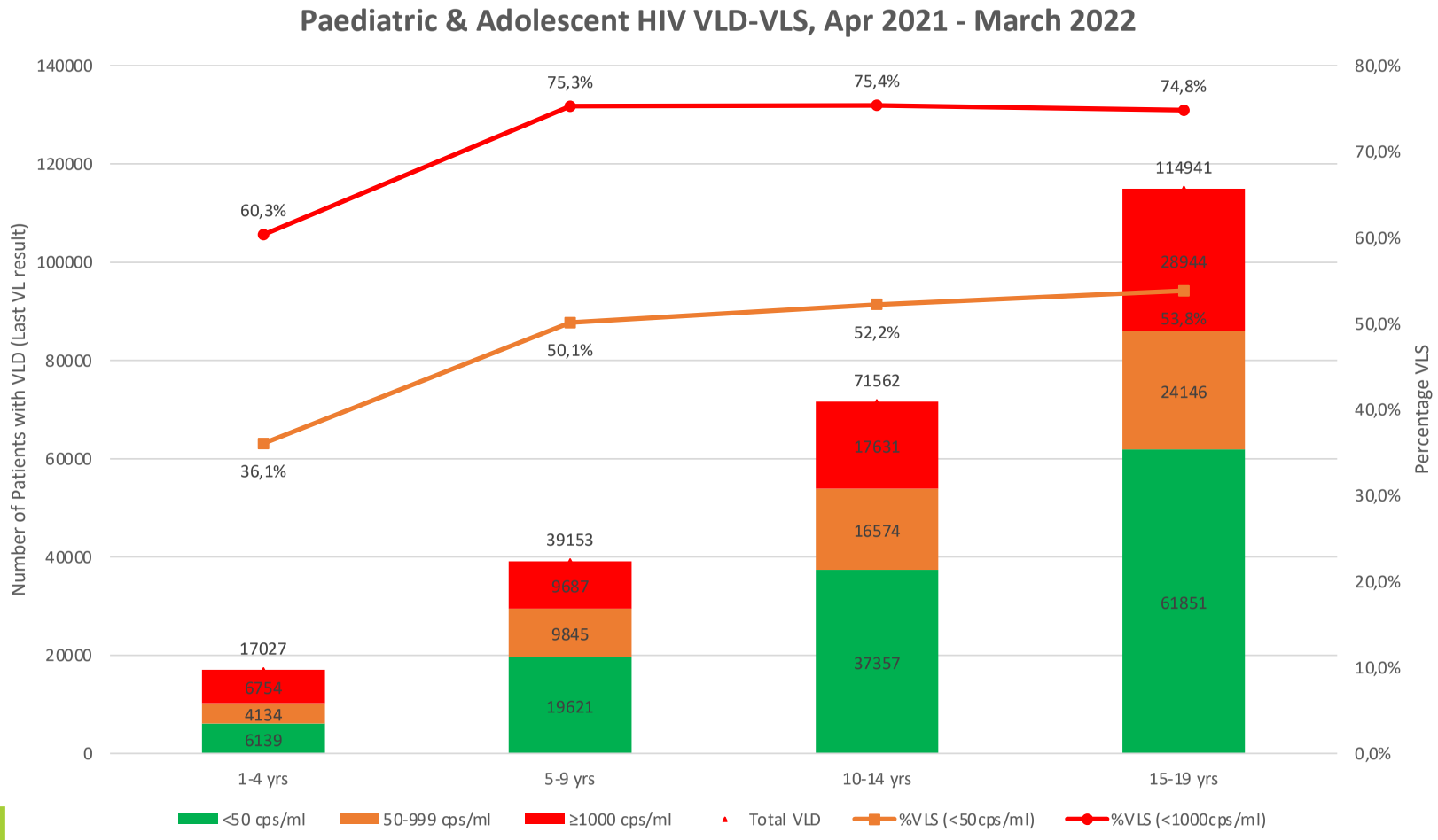
Viral Suppression: SA



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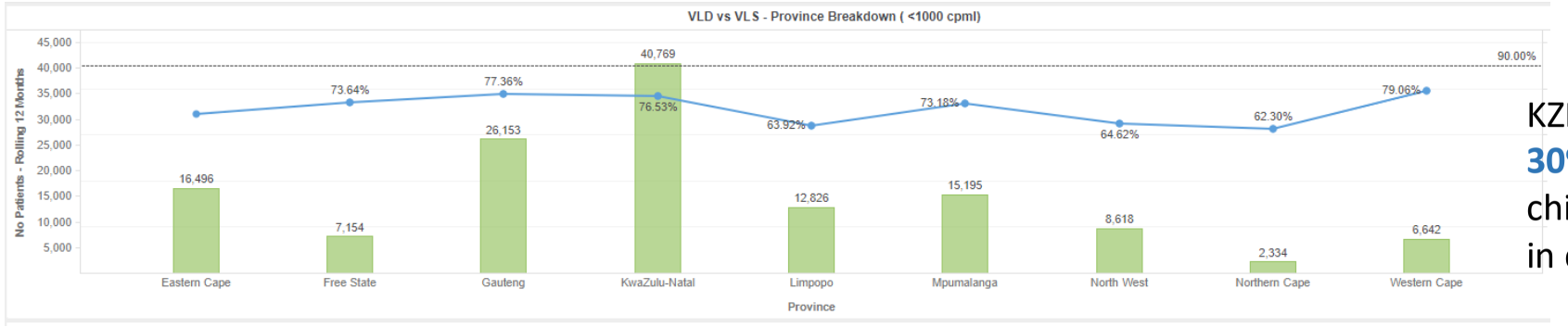
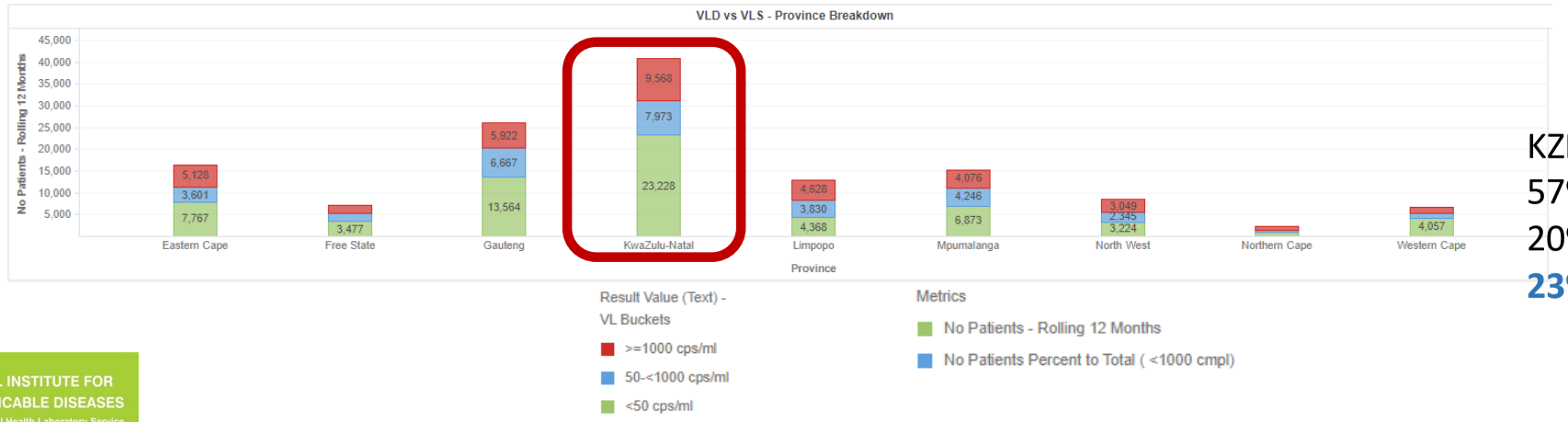
Viral Suppression: Provincial Breakdown

Provincial NHLS VLD & VLS <15yrs, Apr 2021 – March 2022



KZN accounts for **30% of 136 187** children <15 years in chronic care



KZN
57% - < 50 c/ml
20% - 50-1000 c/ml
23% - > 1000 c/ml

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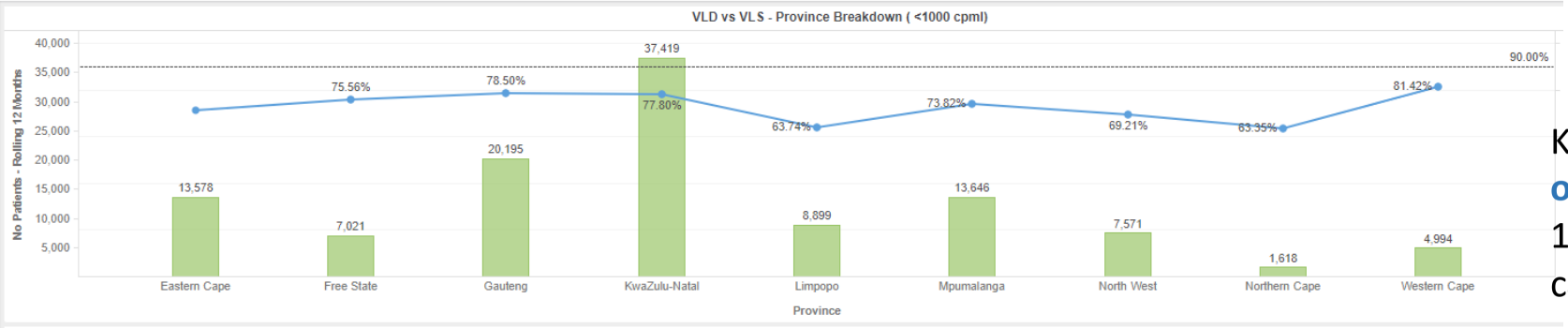
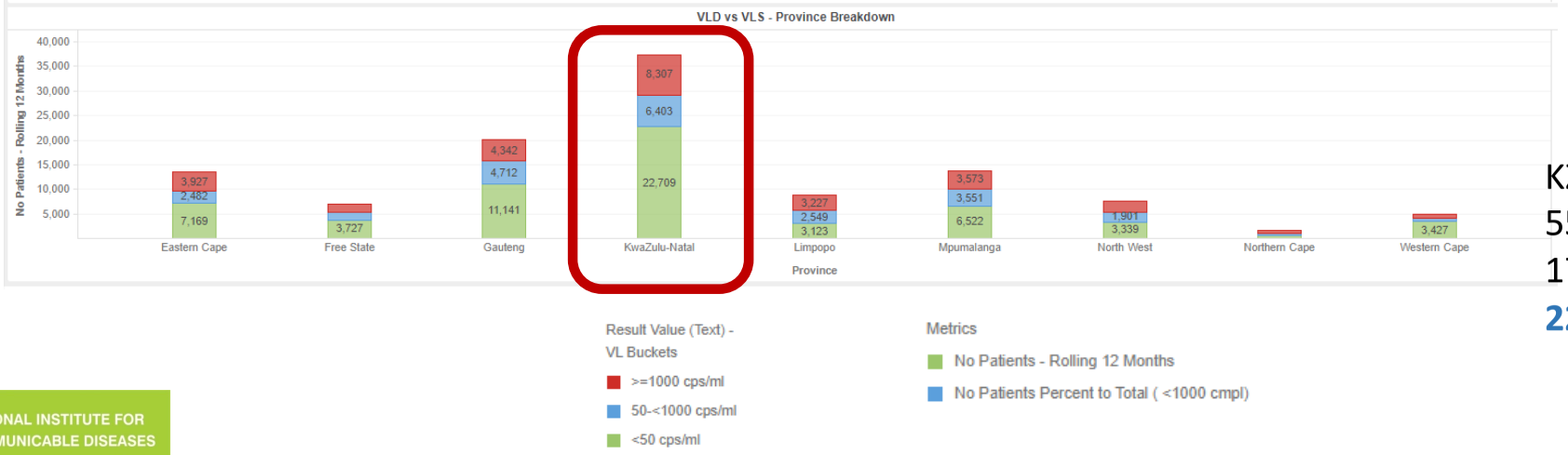
Viral Suppression: Provincial Breakdown

Provincial NHLS VLD & VLS 15-<19yrs, Apr 2021 – March 2022



KZN accounts for **33% of 114 941 adolescents** 15-19 years in chronic care



KZN
55% - < 50 c/ml
17% - 50-1000 c/ml
22% - > 1000 c/ml

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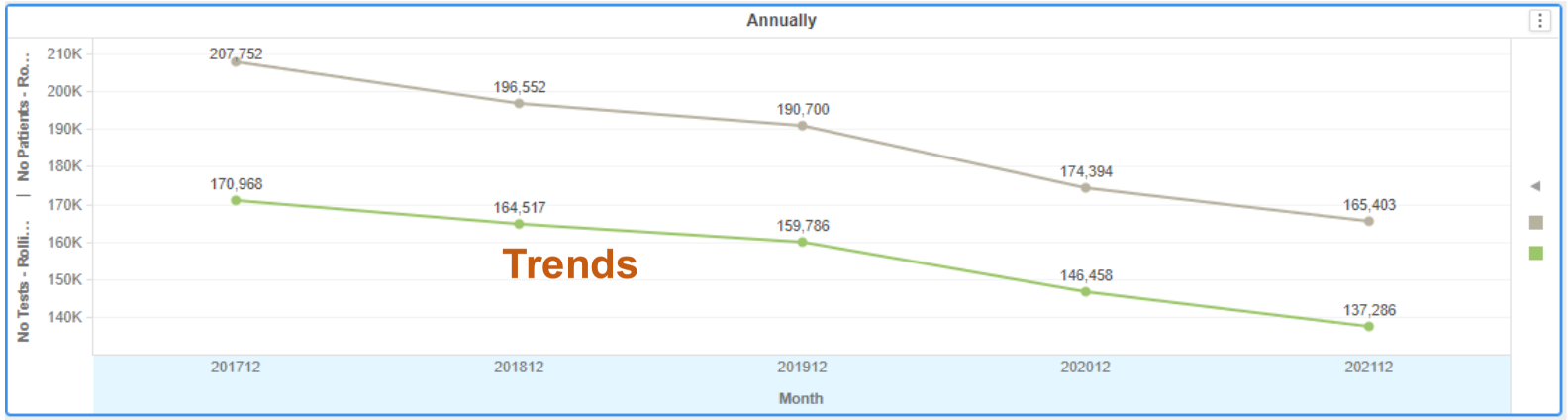
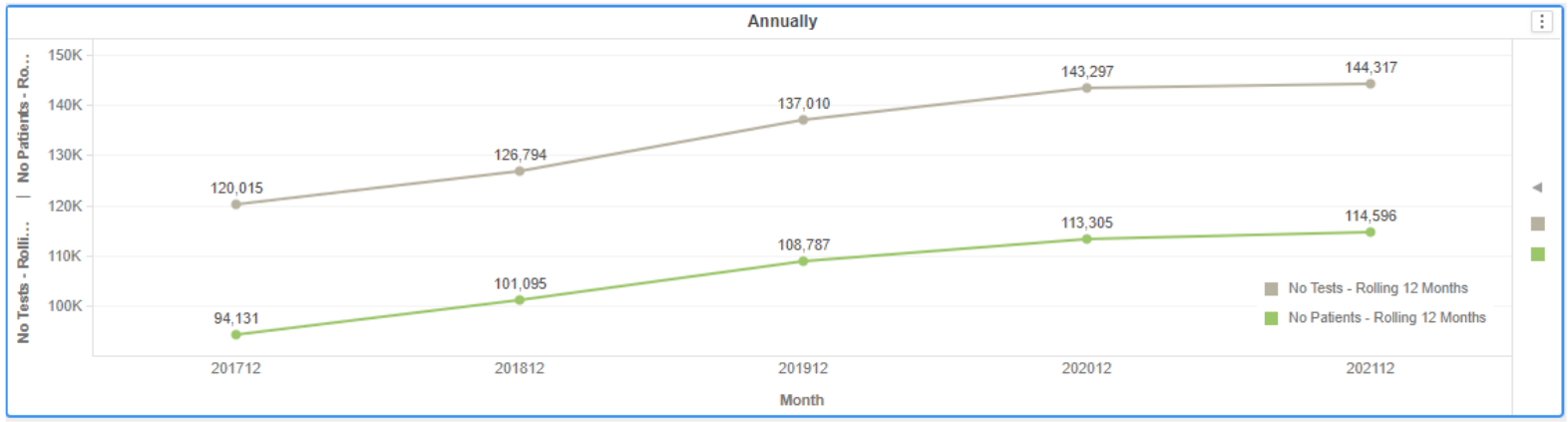
Trends in Viral Loads Done (VLD)

South Africa NHLS VLD <15yrs, 2017 – 2021



? Cause for the ↓ trend in VLD
↑ Loss to follow-up/death
Aging up of Paediatric patients

South Africa NHLS VLD 15-<19yrs, 2017 – 2021



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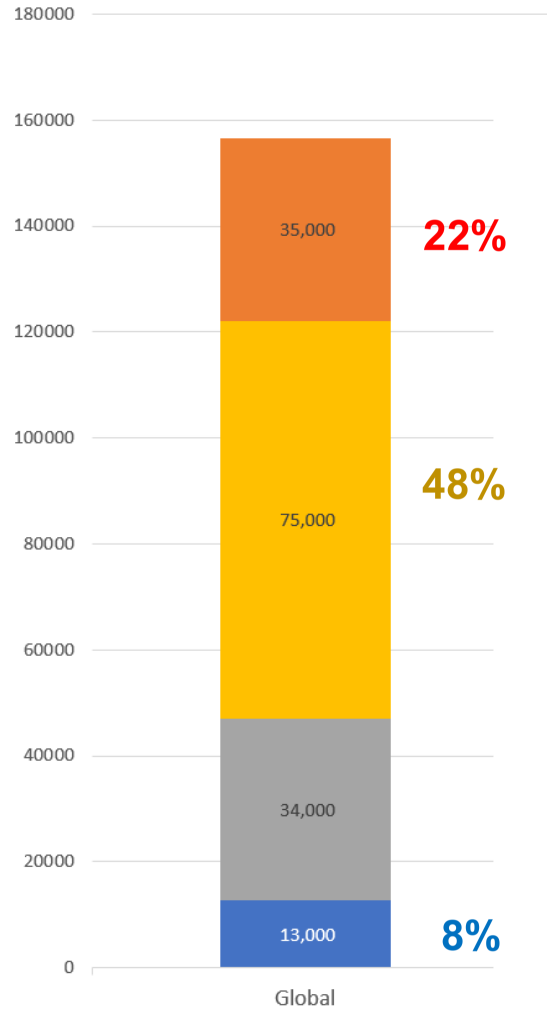
Strategies to Close the Gap

- Elimination of Vertical HIV Transmission
  - Preventing Incident HIV infection
    - U=U
    - PREP
    - Regular testing of pregnant and breastfeeding women – early ART initiation
  - Keeping PLHIV engaged in care and virally suppressed
    - Simpler regimens and delivery systems
    - Interventions to keep PLHIV in care eg Peer support



Strategies to Close the Gap

- Identification of Children and Adolescents with HIV
  - EID failures
    - Birth testing 👍🏽, 10 week 👍🏽 👎🏽, 6 months 👎🏽, 18 months 👎🏽 👎🏽
    - Active tracing of newly diagnosed children
    - Identifying incident HIV infections
    - POC EID
  - Is EID sufficient?
    - Community testing
    - Offering testing at every health interaction
  - ALHIV
    - Self testing
    - Peer support
    - Engaging outside of the health system

Strategies to Close the Gap

- Linkage to care
  - Same day ART start (esp in stable patients in an outpatient setting)

- Viral suppression
  - Keeping CLHIV/ALHIV engaged in care and virally suppressed
    - Simpler regimens and delivery systems
    - Interventions to keep PLHIV in care eg Peer support

Conclusions

- Massive strides in reducing the number of new infections in children through prevention of vertical transmission strategies
- Further reductions is only possible with reducing new infections in adults and keeping PLHIV in care and suppressed
- New HIV infections occur in the most vulnerable of our population requiring additional resources
- New simple, easy to use regimens will go a long way at improving the lives of the children we treat
- Guidelines need to be turned into practice – ensure that we have an accountable health system

Acknowledgements

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Division of the National Health Laboratory Service

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- Dr Ahmad Haeri Mazanderani

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NICD Data Warehouse

- Dr Trevor Bell and Team

- Lynne Mofenson (EGPAF)
- Mary Mahy (UNAIDS)
- Martina Penazzatto (WHO)

- A 3-year-old child has been on ART (ABC/3TC/LPV/r) for the last 2 years – has never been virally suppressed. Had been on TB treatment on diagnosis of HIV and completed 6 months of TB treatment (?boosting)
- Mother report good adherence to treatment and has always been on time at her clinic appointments
- Current VL: 85 000 copies/ml
- Current CD4: 340 cells/uL
- Previous VL: 3042(10/12/2021), 302391(7/6/2022)

- Weight:14 kgs

Switching Children on PI-containing Regimens to DTG-containing Regimens

Child (< 10 years, or weight < 30 kg) on a **PI-containing regimen**
(who have never used a DTG-containing regimen in the past)

On **PI f**or at least **2 years**

On PI for **less than** 2 years, irrespective of VL

Two or more **VLs ≥ 1000** c/mL taken two or more years after starting PI regimen

VL < 1000 c/mL

Adherence < 80% [1]

Adherence < 80% [1]

For children on LPV/r solution or pellets, consider switch to **4-in-1 ABC/3TC/LPV/r** capsules to improve tolerance/ adherence & **repeat VL** after 2-3 months

Children on other LPV/r formulations

VL ≥ 1000 c/mL

VL < 1000 c/mL

Discuss with an HIV expert [2] to authorise and interpret **a resistance test**

Individualised regimen as recommended by HIV expert

ABC + 3TC + DTG

If the most recent VL before their regimen change was > 50 c/mL,
repeat VL 3 months after starting the new regimen to confirm viral re-suppression

1. Although objective measures of poor adherence include pharmacy refills or attendance attendance of scheduled clinic visits in the previous 6-12 months of <80%, adherence difficulties in young children are often linked to poor tolerability of unpalatable formulations, particularly LPV/r solution. It is important to ask the caregiver about how the child tolerates the medication e.g., does the child refuse to swallow the medicine or spit out or vomit the medicine, and whether the caregiver has been able to overcome this. Considering these limitations, objective measures of good adherence could include one of the following:
   a. Pharmacy refills > 80% in the last 6-12 months (if this is known)
   b. Attendance of > 80% of scheduled clinic visits in the last 6-12 months (if this is known)
   c. Detection of current antiretroviral drug/s in the client's blood or urine, if available mentioned above should be considered
2. The following would qualify as HIV experts: the HIV Helplines, a paediatric infectious disease specialist or the paediatric Third line ART committee

- PI mutations: I54V, L76V, M46I, V82C, K20T, L10F, L24I, Q58E
- NRTI: L74V, M184V
- NNRTI: K103S, V179I/V
- **Standford Mutation Scoring**

	ABC	AZT	TDF	FTC	3TC	NVP	EFV	ETR	RPV	LIP	ATV	DRV
Tot score	60	-10	-10	60	60	65	45	0	0	115	75	25

High level resistance: Lip/r, ATV/r + ABC, 3TC, FTC + NVP

Intermediate resistance: EFV

Low level: DRV

Susceptible: AZT, TDF + ETR, RPV

PATIENT

- DOB: 10/04/2012 (10 y/o M)
- Weight: 30kg
- Current meds: ABC, 3TC, Lip/r syrup since (2014)
- Blood results (24/08/2022) CD4:33, VL:15244, ALT:11, Cr:<18 Hb:20.6, HepBsAg: Neg, CLAT: Neg
- Prev VL's/CD4 (date): 1544/13 (8/12/21), 21466/88 (14/09/2021), 2740/12 (29/11/2019)

HIV RESISTANCE PROFILE 22/08/2022

- PI mutations: None
- NRTI: M184V
- NNRTI: None
- **Standford Mutation Scoring**

	ABC	AZT	TDF	FTC	3TC	NVP	EFV	ETR	LIP	ATV	DRV
Tot score	15	-10	-10	60	60	0	0	0	0	0	0

High level resistance: 3TC, FTC

Intermediate “”: none

Low level: ABC,

Susceptible: AZT, TDF, + ALL NNRTI’s and PI’s

HIV RESISTANCE PROFILE 19/12/2019

- PI mutations: M46I, N88S, *F53L, K20T*
- NRTI: D67N, K219Q, K70R, M184V
- NNRTI: A98G, K103N, V108I
- **<u>Standford Mutation Scoring</u>**

	ABC	AZT	TDF	FTC	3TC	NVP	EFV	ETR	RPV	LIP	ATV	DRV
Tot score	60	55	15	70	70	105	85	10	15	10	85	-5

High level resistance: ABC, FTC, 3TC + NVP, EFV + ATV/r

Intermediate “”: AZT

Low level: TDF + ETR, RPV + Lip/r (potential)

Susceptible: DRV