Viral Suppression with Dolutegravir-Based Regimens in Children ≤5 Years Old in Southern Africa

Kim Anderson[1], Renee de Waal[1], Ethel Rambiki[2], Nicola van Dongen[3], Guy Muula[4], Frank Tanser[5,6], Linda Mandikiyana Chirimuta[7], Geoffrey Fatti[8], Nosisa Sipambo[9], Adrienne Guignard[10], Ana Puga[10], Annemiek de Ruiter[10], Vani Vannappagari[10], Mary-Ann Davies[1,11,12], on behalf of IeDEA Southern Africa

BACKGROUND

- Dolutegravir-based regimens (DBR) are currently the preferred first-line antiretroviral therapy (ART) for young children
- Real-world data on outcomes remain limited
- We evaluated virologic outcomes after DBR initiation and after switch to DBR

METHODS

- **Population**: children aged 0 to ≤5 years
- **Setting**: selected public-sector IeDEA-SA sites in South Africa, Zambia, Zimbabwe, Malawi, Mozambique and Lesotho
- **Exposure groups**:
  (A) ART initiation: Dolutegravir(DTG)- vs lopinavir/ritonavir(LPV/r)-based regimens
  (B) Switch to DBR (from any previous regimen): analysed by VL at switch (≤1000/>1000/unknown, within 6 months before to 2 weeks after switching)
- **Period**: DBR start/switch June 2021 to February 2025; LPV/r start June 2018 to February 2025
- **Inclusion criteria**: viral load (VL) result available at 6 months (3 to <9) or 12 months (9 to <18) after ART initiation or switch to DBR
- **Outcome**: viral suppression (VS) i.e. VL≤1000 copies/ml
- **Analyses**: logistic regression for VS (adjusted odds ratios, aOR, and 95% confidence intervals, CI), adjusted for age at ART start/switch, sex and country

RESULTS

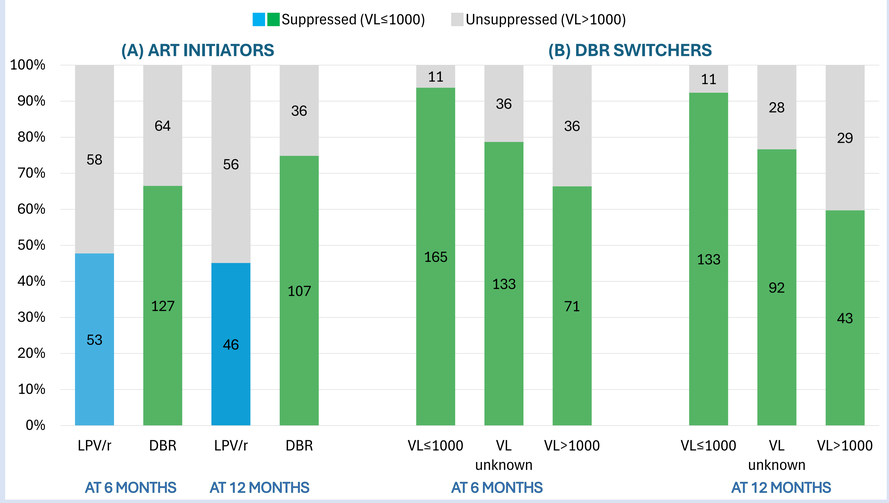
(A) ART INITIATORS

- N=424 ART initiators: 224 DBR & 200 LPV/r
- Median age at ART start: 20 months (IQR 7-36) for DBR and 16 months (IQR 5-27) for LPV/r
- VS was more likely after initiation with DBR than LPV/r
  At 6 months: aOR 2.8 (95% CI 1.3-6.3)
  At 12 months: aOR 5.1 (95% CI 1.5-18.2)

Viral suppression (VL≤1000 copies/ml) was more likely after ART start with DTG than LPV/r

- at 6 months: 66% vs 48%
- at 12 months: 75% vs 45%

Figure: Viral Suppression at 6 and 12 Months by Regimen and VL at DBR Switch



(B) SWITCH TO DBR

- N= 583 children switched (97% from LPV/r)
- Median age at switch was 51 months (IQR 33-63)
- VS: 82% at 6 months and 80% at 12 months
- VS strongly associated with VL at switch
- Compared to children with VL>1000 copies/ml at DBR switch:
  - ➡ Those with VL≤1000 copies/ml at switch were more likely to have VS after switching
    At 6 months: aOR 7.5, 95% CI 3.5-16.1
    At 12 months aOR 6.8, 95% CI 3.1-15.2
  - ➡ Those with unknown VL at switch had intermediate odds of VS
    At 6 months: aOR 1.8 (95% CI 0.9-3.3)
    At 12 months: aOR 2.4 (95% CI 1.2-4.7)

CONCLUSIONS

- Young children initiating DBR were more likely to achieve viral suppression than those starting LPV/r-based ART
- Among children who switched to DBR, VS after switch was more likely for those with VL≤1000 at switch

WHY THIS MATTERS

- Provides real-world evidence supporting DBR as first-line ART in young children
- Highlights the need for close monitoring and adherence support in those switching to DBR with unsuppressed VLs

PLAIN LANGUAGE SUMMARY



- In routine public-sector settings across Southern Africa, young children starting dolutegravir-based treatment were more likely to achieve low viral load levels than those starting older regimens.
- Children switching to dolutegravir did well overall, but outcomes were poorer among those with high viral load at the time of switch, emphasising the importance of monitoring and support.

ADDITIONAL INFORMATION

Author Contact Information: kim.anderson@uct.ac.zaa
Author Affiliations: 1. Centre for Integrated Data & Epidemiological Research, School of Public Health, University of Cape Town, SA 2. Lighthouse Trust, Lilongwe, Malawi 3. Empilweni Services & Research Unit, Department of Paediatrics & Child Health, Rahima Moosa Mother & Child Hospital, University of the Witwatersrand, SA 4. Centre for Infectious Disease Research in Zambia, Lusaka, Zambia 5. South African Centre for Epidemiological Modelling & Analysis, Centre for Epidemic Response & Innovation, School for Data Science & Computational Thinking, Stellenbosch University, SA 6. Africa Health Research Institute, KwaZulu-Natal, SA 7.Newlands Clinic, Harare, Zimbabwe 8. Division of Epidemiology & Biostatistics, Department of Global Health, Stellenbosch University, SA 9. Harriet Shezi Children's Clinic, Department of Paediatrics & Child Health, Chris Hani Baragwanath Academic Hospital, University of the Witwatersrand, SA 10. ViiV Healthcare, Durham, North Carolina, USA 11. Division of Public Health Medicine, School of Public Health, University of Cape Town, SA 12. Health Intelligence, Western Cape Department of Health & Wellness, SA
Acknowledgements: We acknowledge the children included in the study, their caregivers & healthcare providers.
Funding: ViiV Healthcare; Grant U01AI069924 (NIH). Research reported in this publication was supported by the U.S. National Institutes of Health's National Institute of Allergy & Infectious Diseases (NIAID), the Eunice Kennedy Shriver National Institute of Child Health & Human Development (NICHD), the National Cancer Institute (NCI), the National Institute on Drug Abuse (NIDA), the National Heart, Lung, & Blood Institute (NHLBI), the National Institute on Alcohol Abuse & Alcoholism (NIAAA), the National Institute of Diabetes & Digestive & Kidney Diseases (NIDDK) & the Fogarty International Center (FIC) under Award Number U01AI069924. The content is solely the responsibility of the authors & does not necessarily represent the official views of the National Institutes of Health.