Infant Postnatal Prophylaxis (PNP) following maternal viraemia during breastfeeding

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Background:
Increasingly, women living with HIV in resource-rich settings are choosing to breast feed but experience in managing maternal viraemia is limited.

Methods:
Case series from the Paediatric Virtual Clinic (PVC).

Results:
Case 1:
Term infant, mother suppressed on tenofovir disoproxil/emtricitabine, darunavir/ritonavir. Received 4 weeks of zidovudine(AZT); maternal and infant viral load(VL) at 0 and 6 weeks undetectable. At 3 months, maternal VL 760 copies/mL. Breastfeeding discontinued, infant started neonatal dose PNP (AZT 4mg/kg/BD, Lamivudine(3TC) 2mg/kg/BD, Nevirapine 4mg/kg/OD). Following PVC discussion, changed to treatment doses: dolutegravir(DTG 5mg/OD dispersible), 3TC(5mg/kg/BD), AZT(12mg/kg/BD) for one month.
Case 2:
Term infant, mother suppressed on DTG, abacavir, 3TC. Received 2 weeks of AZT; maternal and infant VL at 0 and 4 weeks undetectable. At 1 month, maternal VL 451 copies/mL. Breastfeeding discontinued and infant started PNP(dosing as above). Dispersible DTG unavailable; DTG half 10mg film-coated tablet administered. Following PVC discussion, increased to 10mg whilst dispersible DTG obtained.

Case 3:
Three-year old exclusively breastfed for 6 months, ongoing nocturnal breastfeeds. New maternal HIV diagnosis after prolonged febrile illness; VL 126,381 copies/mL. Antenatal serology negative, child VL undetectable and antibody negative. Breastfeeding discontinued with difficulty, despite behavioural support and cabergoline provision (with dosing for established lactation). PNP commenced with DTG, 3TC, AZT.

All children were confirmed HIV uninfected 12 weeks post-PNP.
Conclusions:
These cases highlight challenges surrounding PNP in infancy and early childhood following maternal viraemia during breastfeeding and the need for national guidelines. Case 1 shows the importance of establishing the correct drug regime. Neonatal PNP dosing is not appropriate after 4 weeks of age and dolutegravir is a

more appropriate third agent from this time. Case 2 highlights the difference in bioavailability between dispersible and film-coated tablet DTG formulations; with dosing ratio of ~1:1.6 respectively. Although the barrier to resistance of DTG is high, treatment failure is reported with suboptimal drug levels. Maternal seroconversion during breast feeding causes up to 50% of mother-to-infant transmissions worldwide; Case 3 highlights the difficulty of prompt cessation of established breastfeeding despite pharmacological and family support, and consideration of the risk of transmission in an older child.