CROI 2020

Selected Pediatric, Adolescent, and Maternal/Adult Abstracts

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March 25 2020
Pregnancy, Viral Suppression, ARV Drugs
Acute Infection in Pregnancy Remains a Problem

HIV Seroconversion During Pregnancy at Routine ANC, Botswana

Ortblad KF et al. CROI, 2020 Boston Abs. 779

- Program data from routine ANC HIV testing of women at 139 ANC sites Botswana, Jan 2018-Sept 2019.
- Among women without known HIV infection who were tested at first ANC visit, 2.9% tested newly HIV+.
- Evaluated seroconversions in 7,940 women who tested HIV-negative at first ANC and repeat test HIV+:
  - 17 seroconversions; HIV incidence of 8/1,000 PY, above the incidence levels needed for HIV epidemic control of \( \leq 1/1,000 \) PY

Median time to HIV re-testing: 92 days (IQR 70-11)
Detectable VL in the **Early PP Period** Signals Risk of Ongoing Viremia and Risk for Infant Transmission, Malawi

*Landes M et al. CROI, 2020 Boston Abs. 765*

- Data from 425 HIV+ mothers on ART (median 30.1 mo) in Malawi HIV clinics, enrolled at 1-6 mo PP and VL at enrollment, 12 and 24 mo PP.

### 12- and 24-Month Suppression in 359 Women on ART With Enrollment VL <40

- **VL <40 enroll (N=359)**
  - 98.3%
  - 1.7%
  - 3.6%

- Majority of women with 1st PP VL <40 remained suppressed

### 12- and 24-Month Suppression in 66 Women on ART with Enrollment VL >40

- **VL >40 enroll (N=66)**
  - 45.5%
  - 54.5%
  - 42.4%
  - 57.6%

- Over half of women with 1st PP VL >40 stayed unsuppressed

→ Unsuppressed viral load at 24 months only associated with prior undetectable VL in adjusted analysis

<table>
<thead>
<tr>
<th>VL &gt;40 vs those with VL &lt;40</th>
<th>OR (95%CI)</th>
<th>p-value</th>
<th>OR (95%CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>53/442</td>
<td>12.8</td>
<td>NS</td>
<td></td>
</tr>
<tr>
<td>Mother's age in years</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;24</td>
<td>11/104</td>
<td>10.6</td>
<td>0.8 (0.4-1.9)</td>
<td>0.60</td>
</tr>
<tr>
<td>≥25</td>
<td>42/306</td>
<td>12.5</td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>0/2</td>
<td></td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Parity, %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1-2</td>
<td>15/141</td>
<td>10.6</td>
<td>0.8 (0.4-1.5)</td>
<td>0.55</td>
</tr>
<tr>
<td>≥3</td>
<td>38/301</td>
<td>2.6</td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Level of Education</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None or primary education</td>
<td>29/272</td>
<td>10.7</td>
<td>0.7 (0.4-1.3)</td>
<td>0.28</td>
</tr>
<tr>
<td>Secondary or post-secondary education</td>
<td>24/179</td>
<td>14.1</td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Mother's reported disclosure of her HIV status to her partner at any time during the study</td>
<td>43/400</td>
<td>12.0</td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Yes, partner knows her HIV-positive status</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No partner throughout study period or mother never disclosed during study period</td>
<td>5/42</td>
<td>12.2</td>
<td>1.6 (0.6-4.6)</td>
<td>0.98</td>
</tr>
<tr>
<td>Maternal ART Initiation</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-conception (started ART before last pregnancy)</td>
<td>24/203</td>
<td>11.8</td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Post-conception (started ART during last pregnancy or post-partum)</td>
<td>27/222</td>
<td>12.2</td>
<td>1.0 (0.6-1.9)</td>
<td>0.91</td>
</tr>
<tr>
<td>New infections/not on ART at enrollment</td>
<td>2/17</td>
<td>11.2</td>
<td>0.99 (0.2-4.6)</td>
<td>0.99</td>
</tr>
<tr>
<td>Other</td>
<td>37/358</td>
<td>10.3</td>
<td>2.1 (1.1-3.9)</td>
<td>0.03</td>
</tr>
<tr>
<td>Combined Self-reported adherence at 12 and 24 month (among those on ART)</td>
<td>16/63</td>
<td>19.3</td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Fully optimal* adherence over time</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>At least one sub-optimal** adherence measure</td>
<td>19/91</td>
<td>19.1</td>
<td>ref</td>
<td></td>
</tr>
<tr>
<td>Missing (data available for 1 visit only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cumulative detectable VLs</th>
<th>OR (95%CI)</th>
<th>p-value</th>
<th>OR (95%CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 previous detectable (≥40) VL</td>
<td>10/355</td>
<td>2.8</td>
<td>9.0 (3.5-23.0)</td>
<td>0.0001</td>
</tr>
<tr>
<td>1 previous detectable (≥40) VL</td>
<td>10/49</td>
<td>20.8</td>
<td>9.1 (3.6-23.0)</td>
<td>0.0001</td>
</tr>
<tr>
<td>2 previous detectable (≥40) VL</td>
<td>33/39</td>
<td>94.6</td>
<td>159.8 (64.8-650.0)</td>
<td>0.0001</td>
</tr>
<tr>
<td>3 previous detectable (≥40) VL</td>
<td>32/4</td>
<td>100</td>
<td>529.4 (73.0-7018)</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

*Reported to have missed ART or 1 day in the last month in 3 patients (2.3% of women enrolled).
**Reported to have missed ART 2 or more days in the last month in 1 or more previous visits.

MTCT → No infections in 345 (0%) with women with all VL <40
→ 10.9% MTCT (7/64) in women with ≥1 VL >40
→ 12.1% MTCT (4/33) in women with all 3 VL >40
Detectable VL in the Antepartum Period Signals Risk for Postpartum Viremia, South Africa

Odayar J et al. CROI, 2020 Boston Abs. 766

- S Africa: 322 HIV+ women starting EFV ART with VL test in pregnancy (median 33 wks), and in those with initial VL <400, repeat VL c/in 10 wk PP (median 9 d).
  - For those with initial VL <400: 89.1% <100, 10.9% 100-400.

→ AP VL <100 highly predictive of PP VL <100
→ AP VL 100-400 predicts PP VL >100

Ability of AP VL to predict postpartum VL was similar across strata of gestation at antenatal VL testing & history of ART use.

Performance characteristics of antenatal VL testing to predict postpartum viraemia in a routine care setting

<table>
<thead>
<tr>
<th></th>
<th>Sensitivity (95% CI)</th>
<th>Specificity (95% CI)</th>
<th>Positive Likelihood Ratio</th>
<th>Negative Likelihood Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>All women</td>
<td>0.95 (0.92-0.97)</td>
<td>0.71 (0.51-0.87)</td>
<td>3.32</td>
<td>0.07</td>
</tr>
<tr>
<td>Antenatal VL &lt;32 weeks</td>
<td>0.94 (0.88-0.98)</td>
<td>0.70 (0.35-0.93)</td>
<td>3.14</td>
<td>0.08</td>
</tr>
<tr>
<td>Antenatal VL &gt;32 weeks</td>
<td>0.95 (0.91-0.98)</td>
<td>0.72 (0.47-0.90)</td>
<td>3.43</td>
<td>0.06</td>
</tr>
<tr>
<td>History of previous ART use</td>
<td>0.98 (0.93-0.995)</td>
<td>0.80 (0.44-0.97)</td>
<td>4.89</td>
<td>0.03</td>
</tr>
<tr>
<td>No history of previous ART use</td>
<td>0.93 (0.87-0.96)</td>
<td>0.67 (0.41-0.87)</td>
<td>2.78</td>
<td>0.11</td>
</tr>
</tbody>
</table>
Compared community-based vs facility-based care for postpartum women who started ART in pregnancy and were “stable” (suppressed viral load) and seen within 70 d of delivery; with FU through 24 months postpartum.

412 PP women starting EFV ART during pregnancy and clinically stable with VL <400 c/mL (88% <50)

**AC: Community-Based Adherence Club (lay worker led, 20-30 pt with q 2-4 mo ART dispensing community location)**

**PHC: Standard of Care Primary Health Facility Care**

<table>
<thead>
<tr>
<th>Venue</th>
<th>Offsite community hall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modality of care</td>
<td>Group-based</td>
</tr>
<tr>
<td>Attending staff</td>
<td>Community health workers supported by nurse</td>
</tr>
<tr>
<td>Eligibility criteria</td>
<td>“Stable” patients</td>
</tr>
<tr>
<td></td>
<td>• VL &lt;400 copies/mL</td>
</tr>
<tr>
<td></td>
<td>• No comorbidities requiring regular follow-up</td>
</tr>
<tr>
<td>Lab testing</td>
<td>Annually</td>
</tr>
<tr>
<td>Visit duration</td>
<td>Standard visit: 1 hour clinical visit: ~4 hours</td>
</tr>
<tr>
<td>Prescription frequency</td>
<td>2 monthly (4m over holidays)</td>
</tr>
</tbody>
</table>

**PHC Clinic**

- ART clinic
- Individualized clinician (nurse or doctor)
- All patients

- 6-12 monthly
- 3 hours to the whole day
- 1-2 monthly (3m over holidays)
- Local “well-baby” clinic

**Group counselling session facilitated by community health worker**

**Pre-packed medication**

**Medication being distributed by community health workers**

**Viral load is done annually**
In Suppressed Women, Community-Based Adherence Clubs Result in Lower Viral Rebound PP Compared to Facility Care

Odayar J et al. CROI, 2020 Boston Abs. 131LB

- Attendance at allocated service within 3 mo of referral was higher with AC (77%) vs PHC (68%); 90% completed 24 mo PP both arms.

→ ~30% reduction viral rebound in women in community Adherence Club compared to primary health facility at 24 mos (even so, 29% VL >1000, 44% VL >50!)

→ Although there was a significant reduction in postpartum rebound viremia, there were no significant differences in other maternal and child health outcomes.
Phase 2/3 study data on long-acting CAB/RPV in 13 women who became pregnant while on study (9 on CAB LA, 4 while oral CAB lead-in dosing).

Following pregnancy confirmation, all women stopped CAB/RPV oral dosing/injections and went on alternative ART.

Outcomes:
- 4 live births (no defects)
- 1 possible early miscarriage
- 2 spontaneous abortions (prior history)
- 6 induced abortions
- PK data: pre-pregnancy CAB levels (range 2.4-4.6 ug/mL) in expected range.
- After CAB d/c, residual CAB levels remained measurable throughout pregnancy in 2 of 3 pt.
- CAB levels remained measurable PP (range 2-23 wk) in 2/3 women.

→ Rate of decline of CAB levels during the PK tail in pregnancy was within the expected range for non-pregnant women.

→ CAB levels declined mono-exponentially during pregnancy (predicted CAB level $3 \times$ protein adjusted-IC90 at time of delivery [8-9 mos after stopping] in 2 of 3 women with live births).
Dolutegravir in Pregnancy
Superior Viral Response at Delivery with DTG (with TDF or TAF) vs EFV ART in Pregnancy

Chinula L et al. CROI, 2020 Boston Abs. 130LB

- Comparison of DTG/TDF/FTC, DTG/TAF/FTC, and EFV/TDF/FTC ART initiated after 14 weeks gestation in HIV+ pregnant women.

- DTG ART (with TAF or TDF) associated with significantly higher viral suppression (VL <200) at delivery than EFV ART.

<table>
<thead>
<tr>
<th></th>
<th>Combined DTG Arms</th>
<th>EFV/TDF/FTC</th>
<th>Estimated risk difference (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery RNA &lt;200 c/mL, <em>ITT</em></td>
<td>395/405, <strong>97.5%</strong></td>
<td>182/200, <strong>91.0%</strong></td>
<td>6.5% (2.0, 10.7%)</td>
<td><strong>0.005</strong></td>
</tr>
<tr>
<td>Delivery RNA &lt;200 c/mL, <em>per protocol</em></td>
<td>389/399, <strong>97.5%</strong></td>
<td>171/187, <strong>91.4%</strong></td>
<td>6.0% (1.6, 10.3%)</td>
<td><strong>0.008</strong></td>
</tr>
</tbody>
</table>

Median GA at enrollment: **21.9 weeks** (similar btn arms)
Fewer Adverse Pregnancy Outcomes/Neonatal Death with DTG-TAF Than EFV ART

Chinula L et al. CROI, 2020 Boston Abs. 130LB

- DTG-TAF was associated with significantly fewer adverse pregnancy outcomes (driven by lower preterm rates) than DTG-TDF and EFV/FTC/TDF, which were similar.

- No difference in adverse events between study arms.

- Fewer neonatal deaths with DTG-TAF and DTG-TDF than EFV/FTC/TDF.

- 2 infant infections, both in DTG arms, 1 maternal delivery VL 58,000, 1 delivery VL <40.
Weekly Weight Gain *During Pregnancy* Highest with DTG-TAF compared to DTG-TDF and EFV

Chinula L et al. CROI, 2020 Boston Abs. 130LB

- Weekly maternal weight gain significantly higher in DTG-TAF arm than DTG/TDF or EFV/FTC/TDF arm.
- However, weekly weight gain was less than recommended for the general population.
  - All regimens showed high efficacy (>90%) & safety similar to or better than that observed in other studies of ART in pregnancy.
  - DTG-containing ART had superior viral efficacy at delivery vs EFV ART.
  - DTG-TAF fewer adverse pregnancy outcomes (driven by lower preterm) and DTG (TAF or TDF) had fewer neonatal deaths than EFV.
  - Affirm WHO recommendation to use DTG in all populations, including during pregnancy, and suggest that TAF may be preferable to TDF in pregnancy.
DTG ART is Associated with Higher Postpartum Weight Gain than EFV ART, Botswana

Jao J et al. CROI, 2020 Boston Abs. 772

- Pregnant HIV+ women on DTG (n=170) or EFV (n=114) and HIV- (n=122) women followed in Tshilo Dikotla study Botswana.
- Assessed the association of DTG with PP weight over 18 mos PP comparing DTG to EFV and to HIV- women.

\[ \text{HIV+ women on DTG had persistently higher weight gain (~5 kg) through 18 mos PP than those on EFV, even after adjustment for CD4, VL, and ART at conception.} \]
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→ However, compared to HIV- women, HIV+ women on DTG had similar PP weight gain.
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- HIV+ women on DTG had persistently higher weight gain (~5 kg) through 18 mos PP than those on EFV, even after adjustment for CD4, VL, and ART at conception.
- However, compared to HIV-women, HIV+ women on DTG had similar PP weight gain.
- HIV+ women on EFV had lower weight gain PP compared to HIV-women and HIV+ women on DTG.
Changes in DTG Use After NTD Safety Signal, Botswana

Zash R et al.  CROI, 2020 Boston Abs. 792

- In country guidance following DTG-NTD report May 2018:
  - *Individualized counseling for pregnant women who had already conceived and those desiring pregnancy; continued use of DTG ART for new ART starts.* But did not specifically mention what to do with ART starting in pregnancy.

- Secondary analysis of data Aug 2016-Sept 2019 Tsepamo Study: 20,245 HIV+ women delivered – 65% on ART at conception; 28% started during pregnancy, 4.5% no ART in pregnancy, 2.1% unknown timing.

### ART regimen at conception by month of delivery before and after DTG safety warning Botswana

- Program guidance on individualized counseling regarding pregnancy intention had *no apparent effect* on DTG exposure at conception.
- After the guidance, *pregnant women* frequently initiated non-DTG ART but did so after the NTD risk period was over.
- Clearer public health guidance needed when signals occur.

### ART regimen started during pregnancy by month of delivery before and after DTG safety warning Botswana

- Before May 2018, 97% of women starting ART were on DTG ART (1.6% <6 wk GA)
- After May 2018, 43% of starts were DTG and 56% were EFV ART (1.6% <6 wk GA)
Multi-cohort European observational study of DTG use in pregnant women; birth outcomes through February 2019 analyzed.

- 453 pregnancies (443 singleton, 10 twins).
  - 18 induced abortions: 1 defect – neuronal migration disorder, preconception DTG
  - 23 spontaneous abortions (all preconception DTG)
  - 5 stillbirths (all preconception DTG, no birth defects)
  - 400 live-born singleton (no defects in twins), 266 with preconception DTG

<table>
<thead>
<tr>
<th></th>
<th>Earliest Dolutegravir exposure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total (n=463&lt;sup&gt;1&lt;/sup&gt;)</td>
</tr>
<tr>
<td>Induced abortion</td>
<td>18 (3.8%)</td>
</tr>
<tr>
<td>Spontaneous abortion</td>
<td>23 (5.0%)</td>
</tr>
<tr>
<td>Stillbirth</td>
<td>5 (1.1%)</td>
</tr>
<tr>
<td>Live birth</td>
<td>417 (90.1%)</td>
</tr>
<tr>
<td>Singleton live birth</td>
<td>400</td>
</tr>
<tr>
<td>Preterm delivery (&lt;37 weeks)</td>
<td>51/385 (13.2%)</td>
</tr>
<tr>
<td>Low birth weight (&lt;2500g)</td>
<td>48/390 (12.3%)</td>
</tr>
<tr>
<td>Infant with birth defect *</td>
<td>17/400 (4.3%)</td>
</tr>
</tbody>
</table>

<sup>1</sup> Includes outcomes from 10 twin pregnancies

<sup>2</sup> Periconception: up to 6 completed gestational weeks; Later T1: 7-12 weeks; T2/T3: from 13 weeks

* No NTD or other CNS defect reported; defects were GU (7), cardiac (3), limb (3), GI (2), other (3) (1 infant had GU and limb)
Infant Prophylaxis, HIV Testing of Children, Early Infant HIV Diagnosis
Maternal HIV Risk Stratification to Identify High-Risk Infants for HIV Birth Testing, Zimbabwe

Cohn J et al. CROI, 2020 Boston Abs. 782

- HIV testing at birth in Zimbabwe is offered to “high-risk” infants, defined as: HIV diagnosed in L/D; started ART >32 wk GA; VL >1,000 c/mL; seroconversion; ART non-adherence.

- At 10 study sites Nov 2018-July 2019, POC birth HIV testing was done on 1,970 HIV-exposed infants (HEI) irrespective of risk (29 HIV+, 1.5%).

- 5-item maternal risk screening tool given to mothers of all HEI (high risk defined as yes to ≥1 question).

### Sensitivity, Specificity, PPV and NPV of Maternal Risk Screening Tool

<table>
<thead>
<tr>
<th>Risk-Strata</th>
<th>Infant HIV</th>
<th>Total</th>
<th>Predictive Value (PV)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Positive</td>
<td>Negative</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>18</td>
<td>248</td>
<td>266</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Positive PV</strong> 6.8%</td>
</tr>
<tr>
<td>Average</td>
<td>11</td>
<td>1693</td>
<td>1704</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>Negative PV</strong> 99.4%</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>1941</td>
<td>1970</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>62.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specificity</td>
<td>87.2%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- “Yes” answer to starting ART >32 wk gestation had highest sensitivity in predicting HIV infection (59%), while not adhering to ART least (7%).

- Requiring ≥2 “yes” to define high-risk ↓ sensitivity to 59%; requiring ≥3 “yes” ↓ sensitivity to 3%.

→ 38% of *in utero* infected infants missed if birth testing was based solely on positive risk screen
CEPAC- Pediatric model simulated 2 cohorts of children from birth in South Africa:
- HE: All children identified as HIV-exposed
- HR-HE: HIV-exposed and high-risk (defined as mothers ≥1,000 c/mL within 4wk of delivery, or incident HIV in pregnancy)

For each cohort, compared 4 strategies; outcomes: life expectancy, lifetime HIV-related costs, and total perinatal/postnatal infection

1. SOC infant oral ARV prophylaxis for 6-12 weeks
2. SOC + 1 dose of bNAb: at birth (1d bNAb)
3. SOC + 2 doses of bNAb: at birth & 3 m (2d bNAb)
4. SOC + bNAb dose q3 m while breastfeeding (Extended bNAb)
Extended bNAb was the preferred strategy for both HE and HR-HE.

For all HE, extended bNAb remained the preferred strategy unless bNAb efficacy <60% or cost >$100/dose.

For high risk HE, extended bNAb remained the preferred strategy unless bNAb efficacy was <40% or costs exceeded $120/dose.
Children are Less Likely to be an Index Testing Contact Compared to Adults – But Have High Testing Yield

Wolf HT et al.  CROI, 2020 Boston Abs. 815

- PEPFAR data from 8 sub-Saharan countries: assessed # new HIV+ patients who accepted index testing; then evaluated # pediatric/adult contacts elicited & % children receiving an HIV test and were seropositive (yield).

→ Each index case elicited more adult than ped contacts; % ped ranged from 12-40%.

→ Despite lower # tested, high HIV+ yield among pediatric contacts, ranging from 1.3-10.1%, with mean 5.0% across the 8 countries.
Stepped wedge implementation of POC 4-8-week EID with pre-(standard central lab test=control) vs post-(POC intervention) comparison in 36 sites in Zimbabwe (18) and Kenya (18).

Proportion of Infant HIV Test Results Returned to Caregiver Within 12 Weeks of Age with Standard of Care vs POC by “Step” Period

<table>
<thead>
<tr>
<th>Step</th>
<th>SOC</th>
<th>POC</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>76.0%</td>
<td>99.3%</td>
</tr>
<tr>
<td>1</td>
<td>91.7%</td>
<td>100%</td>
</tr>
<tr>
<td>2</td>
<td>43.1%</td>
<td>79.6%</td>
</tr>
<tr>
<td>3</td>
<td>21.1%</td>
<td>93.4%</td>
</tr>
</tbody>
</table>

Mean TAT: POC 2.6 d, SOC 32.0 d

Mean TAT: POC 4.4 d, SOC 67.0 d

HUB and SPOKE sites performed similarly for key clinical outcomes (return by caregiver by 12 wk, start HIV+ on ART by 60 d) compared to SOC

<table>
<thead>
<tr>
<th>Country</th>
<th>Step 0</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kenya</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOC</td>
<td>POC</td>
<td>LR (95% CI)</td>
<td>P value</td>
<td></td>
</tr>
<tr>
<td>% result to caregiver by age 12 wk</td>
<td>76.0%</td>
<td>99.3%</td>
<td>1.29 (1.3, 1.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% HIV+ infants start on ART within 60 d</td>
<td>91.7%</td>
<td>100%</td>
<td>1.09 (0.99, 1.2)</td>
<td>0.095</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Zimbabwe</strong></th>
<th>Step 0</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Step 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOC</td>
<td>POC</td>
<td>LR (95% CI)</td>
<td>P value</td>
<td></td>
</tr>
<tr>
<td>% result to caregiver by age 12 wk</td>
<td>21.1%</td>
<td>93.4%</td>
<td>4.56 (4.5, 4.6)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>% HIV+ infants start on ART within 60 d</td>
<td>43.1%</td>
<td>79.6%</td>
<td>1.81 (1.3, 2.5)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

LR=likelihood ratio
CEPAC-Pediatric model to simulate infants getting EID at age 6 wk in Zimbabwe, 3 strategies:
- Standard of care lab-based EID (LAB) (Zimbabwe data)
- Strengthened lab-based EID (S-LAB) (improved transport, ↑ lab staff, SMS results) (Kenya data)
- POC EID (POC) (Zimbabwe data)

→ In Kenya, S-LAB gives results to 7% fewer infants, returns results ~50 d later, starts 15% less on ART, but costs $1.50 less per test.

Base Case Scenario

<table>
<thead>
<tr>
<th>EID strategy</th>
<th>One-year survival (%)</th>
<th>Life expectancy (years, undiscounted)</th>
<th>Lifetime undiscounted costs (2017 USD / person)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAB</td>
<td>67.3</td>
<td>21.77</td>
<td>$10,290</td>
</tr>
<tr>
<td>S-LAB</td>
<td>69.9</td>
<td>22.75</td>
<td>$10,820</td>
</tr>
<tr>
<td>POC</td>
<td>75.6</td>
<td>24.51</td>
<td>$11,730</td>
</tr>
</tbody>
</table>

II. Cost-effectiveness outcomes: Birth cohort of all children exposed to HIV

<table>
<thead>
<tr>
<th>EID strategy</th>
<th>Life expectancy (years, discounted)</th>
<th>Lifetime costs (2017 USD / person, discounted)</th>
<th>ICER ($ / YLS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAB</td>
<td>25.97</td>
<td>$200</td>
<td>--</td>
</tr>
<tr>
<td>S-LAB</td>
<td>25.99</td>
<td>$220</td>
<td>Weakly dominated*</td>
</tr>
<tr>
<td>POC</td>
<td>26.02</td>
<td>$240</td>
<td>870</td>
</tr>
</tbody>
</table>

USD: US dollar; ICER: Incremental cost-effectiveness ratio; YLS: Years of life saved. If a strategy has a higher ICER and lower cost than a competing strategy, it is "weakly dominated," reflecting an inefficient use of healthcare resources.

→ POC improved short-term survival, life expectancy, and was a more efficient use of resources than S-LAB.

→ In sensitivity analyses, POC remains more cost-effective than strengthened lab-based EID unless test turn-around time, % returned and % started on ART with strengthened lab-based EID can match that for POC at lower cost.

→ Lowered cost of POC will make POC even more CE in future.
Randomized 4,000 HIV-exposed infants age 4-12 wks (median 6 wks) to POC testing (n=1,989) vs “safety net” central lab SOC off-site testing (n=2,011) (tested archived specimen if no result by 4 weeks) at 6 clinics in Lusaka Zambia, with primary outcomes being alive, in care and VL <200 at 12 months.

→ All infants in POC received results same day, while SOC was 36 days (most relying on safety net test)

→ For the 81 HIV+ children (2%), ART start high in both arms but more rapid with POC

→ Despite rapid dx & ART start in HIV+, adverse LT outcome common.

→ In 81 HIV+ infants: 15 deaths (19%), 15 LTFU (19%), 30 (38%) VF.

→ By 12 mos, only 20 (25%) HIV+ infants were alive, in care and suppressed:
  - 13/43 (30%) POC arm
  - 7/38 (19%) SOC arm
HIV-Free Survival and HIV- and ARV-Exposed Uninfected Children
32 communities rural Uganda and Kenya received population-level HIV testing (coverage 90%) and randomized to:

→ **Intervention** (immediate ART, annual population testing, patient-centered streamlined care [flexible hours, facilitation ANC-HIV clinic])
→ **Control** (HIV care per national guidelines).

At year 3, 1,417 births to 1,332 women known HIV+; infant outcomes ascertained in 76% intervention, 78% control.

→ Universal testing and patient-centered care reduced 3-year population-level infant HIV infection/mortality by 50% and reduced MTCT to 0.5% in women with known HIV infection.

→ Higher maternal viral suppression at year 3 in mothers.

**Gupta S et al. CROI, 2020 Boston Abs. 134LB**
ANRS 12174 PROMISE-PEP trial in Africa compared 50 weeks of infant LPV/r vs 3TC as prophylaxis against postnatal infection; both equally effective and safe but slower growth in those on LPV/r through 50 weeks. Compared growth, neuropsychologic and clinical data on 553 uninfected children (50.2% of those eligible), 274 LPV/r and 279 3TC, at age 5-7 yrs.

No difference in growth, neuropsychologic testing, mental health or clinical outcomes in HIV-exposed uninfected infants who had prolonged infant prophylaxis exposure to LPV/r or 3TC.
Malnutrition in HIV-Exposed Uninfected Children in Long-Term Follow-Up from PROMISE Trial

Stranix-Chibanda L et al. CROI, 2020 Boston Abs. 800

- Evaluation of rate of severe growth faltering and correlates stunting in 1,459 HIV-exposed uninfected children age 2-5 yr from PROMISE trial followed from birth in 4 African countries.

<table>
<thead>
<tr>
<th></th>
<th>Malawi</th>
<th>S Africa</th>
<th>Uganda</th>
<th>Zimbabwe</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td># children</td>
<td>514</td>
<td>375</td>
<td>240</td>
<td>330</td>
<td>1,459</td>
</tr>
<tr>
<td>Mean WAZ</td>
<td>-0.7</td>
<td>-0.2</td>
<td>-0.5</td>
<td>-0.6</td>
<td>-0.5</td>
</tr>
<tr>
<td>Mean HAZ</td>
<td>-1.6</td>
<td>-0.7</td>
<td>-1.2</td>
<td>-1.0</td>
<td>-1.2</td>
</tr>
<tr>
<td>% Underweight</td>
<td>7.1%</td>
<td>3.7%</td>
<td>3.2%</td>
<td>4.9%</td>
<td>5.1%</td>
</tr>
<tr>
<td>% Wasted</td>
<td>1.1%</td>
<td>3.0%</td>
<td>0.4%</td>
<td>2.5%</td>
<td>1.8%</td>
</tr>
</tbody>
</table>

- Mean z-scores were below population height and weight norms across 4,094 repeated measurements in the 1,459 infants.
  - Stunted: 22.9%
  - Underweight 5.1%
  - Wasted 1.8%

- Associations with stunting: Malawi vs S Africa (aOR 2.5, 1.7-3.6); mother who didn’t complete secondary school (aOR 1.47, 1.1-2.0); age (older age, lower odds aOR 0.96, 0.95-0.96).
More Severe Disease in Hospitalized HIV-Exposed Uninfected (HEU) than HIV-Unexposed Neonates (HUU)

Anderson K et al. CROI, 2020 Boston Abs. 803

- Cohort of HIV+ on ART and HIV- pregnant women and their infants (457 HEU, 475 HUU) followed from birth in South Africa.
- Medical records reviewed for hospitalization neonatal period.
- Similar rates of **neonatal hospitalization**: 13% HEU, 16% HUU, p=0.21.

<table>
<thead>
<tr>
<th>Hospitalization duration (days): median (IQR)</th>
<th>CHEU</th>
<th>CHUU</th>
<th>Total</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 (5-28)</td>
<td>52/59 (88%)</td>
<td>64/75 (85%)</td>
<td>116/134 (87%)</td>
<td>0.637</td>
</tr>
<tr>
<td>7 (5-17)</td>
<td>43/59 (64%)</td>
<td>81/134 (60%)</td>
<td>124/269 (46%)</td>
<td>0.406</td>
</tr>
<tr>
<td>ICU admission</td>
<td>32/59 (54%)</td>
<td>21/75 (28%)</td>
<td>53/134 (40%)</td>
<td>0.002</td>
</tr>
<tr>
<td>Low birthweight (&lt;2500g)</td>
<td>33/59 (56%)</td>
<td>40/75 (53%)</td>
<td>73/134 (55%)</td>
<td>0.764</td>
</tr>
<tr>
<td>Very low birthweight (&lt;1500g)</td>
<td>21/59 (36%)</td>
<td>12/75 (16%)</td>
<td>33/134 (25%)</td>
<td>0.009</td>
</tr>
<tr>
<td>Premature birth (gestational age &lt;37 weeks)</td>
<td>36/59 (61%)</td>
<td>40/75 (53%)</td>
<td>76/134 (57%)</td>
<td>0.373</td>
</tr>
<tr>
<td>Very premature birth (gestational age &lt;32 weeks)</td>
<td>16/59 (27%)</td>
<td>7/75 (9%)</td>
<td>23/134 (17%)</td>
<td>0.007</td>
</tr>
<tr>
<td>Diagnosis of infection^</td>
<td>22/59 (37%)</td>
<td>26/75 (35%)</td>
<td>48/134 (36%)</td>
<td>0.099</td>
</tr>
<tr>
<td>Congenital abnormalities^</td>
<td>8/59 (14%)</td>
<td>6/75 (8%)</td>
<td>14/134 (10%)</td>
<td>0.296</td>
</tr>
</tbody>
</table>
| Death during hospitalization                 | 4/59 (7%) | 6/75 (8%) | 10/134 (8%) | -

**Hospitalized CHEU vs CHUU:**
- Very preterm birth RR=2.64 (95% CI 1.15-6.08)
- Very low birthweight RR=2.04 (95% CI 1.05-3.99)
- ICU admission RR=1.95 (95% CI 1.41-2.70)
- ICU adjusted for VPT birth RR=1.65 (95% CI 1.05-2.60)

- No significant difference in overall hospitalization rate or frequency infectious events.
- However, hospitalized HEU had 2-2.6-fold increased risk **very early PTD and very LBW**, indicating increased severity of adverse birth outcomes.
- HEU had 2-fold higher risk of **ICU admission**, indicating increased disease severity in neonatal period.

*excluding 9 second-born twins and 3 neonates with life-threatening congenital anomalies*
Cohort of 459 HIV+ women starting ART in pregnancy and 410 HIV- pregnant women with 12 mo FU infant postpartum, evaluated infection-related hospitalizations.

- HEU had 3.5-fold ↑ infection-related hospitalizations **age 8 d-3 mo** (43% LRTI, 37% diarrhea); similar at other ages.
- Between birth-6 mo, HEU had 4.7-fold ↑ in LRTI and 2.9-fold ↑ diarrhea reported by mothers, which resolved after 6 mo.
- Conclude: Interventions to improve maternal HIV early diagnosis, early ART, viral suppression and EBF and timely vaccination may decrease this early increased morbidity.
Early Treatment, Cascade of Care, ARV Drugs in Children
Predictors of Persisting Viral Reservoir in Very Early Treated HIV+ Infants, South Africa

Paximadis M et al. CROI, 2020 Boston Abs. 135

- Evaluated HIV reservoir in 63 HIV+ neonates who had been identified <48 hours after birth; PBMC were collected pre-treatment and 1, 3, 6 and 12 months after ART started.
- 31 infants started ART <48 hrs and remaining 32 at median age 7 d.
- 75% were infected despite maternal ART, 25% no maternal ART.

→ Infant HIV DNA significantly correlated with concurrent HIV viral load, lowest with undetectable VL.

<table>
<thead>
<tr>
<th>HIV VL</th>
<th>Median DNA log copies</th>
<th>% with &lt;10 DNA copies detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>VL not detected</td>
<td>1.56</td>
<td>23.1%</td>
</tr>
<tr>
<td>VL &lt;50</td>
<td>1.83</td>
<td>17.7%</td>
</tr>
<tr>
<td>VL 50-399</td>
<td>2.38</td>
<td>10%</td>
</tr>
<tr>
<td>VL 400-999</td>
<td>2.83</td>
<td>10.0%</td>
</tr>
<tr>
<td>VL &gt;1000</td>
<td>3.15</td>
<td>0%</td>
</tr>
</tbody>
</table>

→ Multivariate analysis of factors associated with DNA copies in first year post-ART: age start ART, pre-treatment CD4, maternal ART, duration ART.

<table>
<thead>
<tr>
<th></th>
<th>Parameter co-efficient</th>
<th>95% Confidence Interval</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start ART &lt;48 hours after birth vs later (median 7 days) [ref]</td>
<td>-0.488</td>
<td>-0.938, -0.037</td>
<td>0.033</td>
</tr>
<tr>
<td>Pre-ART CD4+ T-cell percentage &gt; 30 vs. &lt; 30 [ref]</td>
<td>-1.286</td>
<td>-1.79, -0.778</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Mother had no ART prior to delivery vs had ART [ref]</td>
<td>-1.124</td>
<td>-1.594, -0.654</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Months after ART start</td>
<td>-0.033</td>
<td>-0.064, -0.003</td>
<td>0.031</td>
</tr>
</tbody>
</table>
Earth is multi-center cohort in Mozambique and S Africa enrolling HIV+ infants starting ART in first 3 mo life in Africa, enrolling since May 2018.

Evaluated risk factors for poor outcome (death or progression to WHO Stage 3/4 or CD4 <25%) in 135 enrolled infants to date (median age at ART start 38 d, median FU 5.5 mo)

→ 32 infants (24%) had poor outcomes
→ 12 (9%) infants died
→ 7 (5%) progressed to WHO Stage 3 or 4
→ 16 (12%) had CD4 <25%

Determinants of poor outcome (adjusting for site, baseline WAZ and ART regimen) were:

- VL during follow-up (not baseline): 
  2.7-fold ↑ risk for each log ↑ VL in FU
- Age at start of ART: 
  1.5-fold ↑ risk for each month delay
Problems in the Cascade of HIV Care for Children and Adolescents in West African Cohorts

Dahourou DL et al. CROI, 2020 Boston Abs. 816


- Continued holes in the pediatric HIV care cascade for children and youth:
  - 22% attrition before ART started (3% died, 19% LTFU before starting ART)

- Significantly lower ART access in children <5 yrs compared to those age 10-15 yr):
  - Age <2 yrs, 41% less likely start ART (aHR 0.59, 95% CI 0.54-0.64)
  - Age 2-4 yrs, 16% less likely start ART (aHR 0.84, 95% CI 0.77-0.92)

- Low access to VL testing (only 65% had >1 VL test)

- Suboptimal viral suppression (<500 c/mL) in those tested (53% suppression)
Long-Term Treatment Outcomes in Immediate vs Deferred ART, PREDICT Trial*  

- PREDICT study in Thailand/Cambodia: ART-naïve HIV+ children age 1-12 years with CD4 15-24% (median baseline 21%) randomized to immediate ART vs deferred (until CD4 <15%); found no difference AIDS-free survival but better CD4 at 3 years FU.

- 10 yr FU in Resilience Study to evaluate LT outcomes (77% participation).

Immediate ART resulted in 10-year superior immune status: CD4 >500 immediate 88%, deferred 76%.

Immediate ART had trend at 10-years toward higher rate of undetectable VL (<50 c/L) compared to deferred (86% immediate, 78% deferred) and lower risk of viral failure (22.8% immediate, 34.3% deferred).

No difference growth by timing ART but below HEU and HUU children.
PK of Raltegravir in HIV/TB Co-Treated Infants and Children Age 4 Wk to <2 Yr
Krogstad P et al. CROI, 2020 Boston Abs. 846

- P1101 is dose finding study of RAL chewable tablet at 12 mg/kg/dose twice daily (twice approved pediatric dose) in 13 children age 4 wk-2 yr (median 12.3 months) receiving rifampin-containing TB therapy in 4 African sites.

- Double-dose of RAL (chewable tab crushed and dispersed in water) for TB-HIV coinfected very young children achieved adequate PK levels (as already shown in children 2-<12 yrs) and found to be safe.

→ PK targets met
→ No treatment-related AE
Adolescents and HIV
**Age-Specific HIV Incidence Patterns Among Population Cohorts in Sub-Saharan Africa**

*Risher KA et al. CROI, 2020 Boston Abs. 851*

- Used Bayesian model to construct age-specific HIV incidence and mortality by age and sex from population-based sero-survey and HIV survival data collected in rural population cohorts in Tanzania, Uganda (2 communities), Malawi, Zimbabwe and South Africa.

Age-specific incidence patterns vary by site. Women tend to become infected at younger age than men in each site. While average age at infection has slightly increased in most sites since 2000, there were minimal changes over time.

In all sites in most recent 2015 estimate, about **half** (38-63%) of all women’s new infections were in adolescent girls and young women (age 15-24), and about a **quarter** (19-39%) of all men’s new infections were in adolescent boys and young men (age 15-24).
Botswana Combination Prevention RCT demonstrated 30% ↓ in community HIV incidence through expanded HIV testing, linkage to care and universal ART.

30% residents received HIV testing ≥ twice; this report evaluated incident infection rate /100 PY (IR) in these repeat testers; overall, there were 195 infections in 18,957 persons over 27,517 PY at risk.

<table>
<thead>
<tr>
<th></th>
<th>Incidence Rate/100 PY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>0.17</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td></td>
</tr>
<tr>
<td>16-24 yr</td>
<td>1.87</td>
</tr>
<tr>
<td>25-34 yr</td>
<td>1.24</td>
</tr>
<tr>
<td>35-64 y</td>
<td>0.41</td>
</tr>
<tr>
<td><strong>Males</strong></td>
<td></td>
</tr>
<tr>
<td>25-34 yr</td>
<td>0.56</td>
</tr>
<tr>
<td>35-64 yr</td>
<td>0.20</td>
</tr>
</tbody>
</table>

→ Overall IR 0.17/100 PY.

→ **Females** had higher IR than **males** (1.01 vs 0.35/100 PY).

→ Highest IR in females aged 16-24 yr (1.87/100 PY) while highest IR in men aged 25-34 yr (0.56/100 PY).

→ Gender and age both significantly associated with HIV incidence.

→ 7-fold (95% CI 4-15) increased hazard incident infections in young women aged 16-24 yr.
Used population-based data from girls age 15-24 years who participated in Rakai community cohort study survey June 2018-August 2019, where reported on HIV risk behavior and were tested for HIV, to evaluate participation in any DREAMS program: Stepping Stones (SS) participatory intervention for HIV prevention, combined social economic approaches (SES), and HIV testing (HTC).

- Of 979 age 15-19 yrs, 31% participated in SS, 24% in SES and 39% in HTS
- Of 966 age 20-24 yrs, 17% participated in SS, 16% in SES, and 23% in HTS

- Of 303 girls 15-19 yrs who participated in SS, 46% completed ≥10 sessions
- Of 164 young women age 20-24 yrs who participated, 32% completed ≥10 sessions
PEFPAR DREAMS Intervention in Adolescent Girls and Young Women, Rakai, Uganda

Nakawooya H et al. CROI, 2020 Boston Abs. 94

→ Girls age 15-19 yrs participating in SS, significant ↓ in all sexual risk behaviors among those completing 10 SS sessions.

→ Young women age 20-24 yrs participating in SS, no significant difference in sexual risk behaviors.

→ No effect of social economic strengthening in either age group on sexual risk behavior.

→ Similarly, no effect of HTS in either age group on sexual risk behavior (not shown)

Overall viral suppression 73%; only 14% clinics had suppression >80%.

Viral suppression was lower:
- Younger age (<19 yrs)
- Male sex

Only 14% of clinics had >80% suppression.

Clinic factors associated with poor suppression:
- Long turn-around time for test
- Not mission/faith clinic setting
- No social worker
- Not having “adolescent space”
- Residing in a low/medium HIV burden county of country
Data from Rakai Community Cohort Study, comparing data on HIV testing and ART initiation for 1,669 HIV+ youth (15-24yr) to 9,158 adults (25-49 yr) after initiation of the “test and start” program”.

→ No significant difference in % youth and adults receiving HIV testing.

→ However, despite ↑ in ART over time, lower uptake in youth than adults (2018, 49.7% vs 71.2% respectively).

### Adjusted Relative Risk for Not Starting ART in youth

<table>
<thead>
<tr>
<th>Youth Characteristic</th>
<th>Adjusted RR</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>1.21 (1.01, 1.44)</td>
<td>0.04</td>
</tr>
<tr>
<td>Never married</td>
<td>1.19 (0.99, 1.41)</td>
<td>0.05</td>
</tr>
<tr>
<td>Don’t use alcohol</td>
<td>0.63 (0.53, 0.75)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>1 sexual partner (vs none)</td>
<td>1.39 (1.00, 1.95)</td>
<td>0.05</td>
</tr>
<tr>
<td>2 sexual partners (vs none)</td>
<td>1.50 (1.07, 2.11)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

→ *Increased* risk of youth **not** starting ART associated with male sex, not married, and currently sexually active, and *decreased* risk of not starting ART if doesn’t use alcohol.
Enrolled 50 HIV+ youth 15-20 yr (median 15.8 yr), wt >40 kg, Tanner 4, VL <100 (76% <50) that switched from ABC- to TDF-based ART.

Evaluated BMD by DXA, bone formation/resorption markers, and renal function 24 weeks post switch.

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Switch, Mean (SD)</th>
<th>24 Weeks, Mean (SD)</th>
<th>P-value (paired t-test)</th>
<th>Change (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS BMD Z-score</td>
<td>-1.22 (1.36)</td>
<td>-1.24 (1.30)</td>
<td>0.48</td>
<td>-0.03 (0.25)</td>
</tr>
<tr>
<td>TB BMD Z-score</td>
<td>-1.02 (1.09)</td>
<td>-0.99 (1.08)</td>
<td>0.50</td>
<td>0.02 (0.24)</td>
</tr>
<tr>
<td>Serum creatinine (μmol/L)</td>
<td>46.2 (10.2)</td>
<td>50.7 (10.2)</td>
<td>&lt;0.0001</td>
<td>4.5 (6.4)</td>
</tr>
<tr>
<td>eGFR (mL/min)</td>
<td>132.2 (29.3)</td>
<td>120.4 (25.3)</td>
<td>0.0003</td>
<td>-11.9 (21.6)</td>
</tr>
<tr>
<td>CTX (ng/ml)</td>
<td>1.12 (0.72)</td>
<td>1.09 (0.74)</td>
<td>0.64</td>
<td>-0.03 (0.46)</td>
</tr>
<tr>
<td>P1NP (ng/ml)</td>
<td>165.0 (83.8)</td>
<td>158.2 (82.5)</td>
<td>0.40</td>
<td>-6.8 (56.6)</td>
</tr>
</tbody>
</table>

→ Bone: no significant overall change in BMD or markers bone formation/resorption 24 wk post switch.

→ 32% of youth had no change or decrease in LS BMD (at time when should be ↑), with mean change -1.6%; of these, 93% were female.

→ Renal: Statistically significant change in serum creatinine and eGFR, but not viewed as clinically significant.

→ TAF – better bone/renal but has issues with weight gain/lipids.
Promising Data on Pilot RCT Mental Health Intervention for HIV+ Youth: Sauti ya Vijana (SYV) - The Voice of Youth

Dow DE al.  CROI, 2020 Boston Abs. 836

- Tanzania stepped wedge evaluation of pilot mental health and life skills intervention designed with HIV+ youth, consisting of 10 group sessions (2 joint with caregivers) and 2 individual sessions held weekly and delivered by group leaders 24-30 yr.

- Data on 93 youth (mean age 18 yr, 84% perinatal infection, 51% female) who have had 6 mo FU visit included.

  → Improvement mental health symptoms and internal stigma both groups (no difference).
  → Self-reported adherence improved by 7.3 percentage points, more in SYV.
  → Standardized levels of ART levels in hair increased by 0.17 ng/mg, more in SYV.
  → Viral suppression <400 c/mL at baseline was 65% in both arms, but increased to 75% with SYV and did not change in SOC.
InSTI and Weight Gain in HIV+ Youth, DC Cohort

Dirajlal-Fargo S et al. CROI, 2020 Boston Abs. 826

- 69 HIV+ youth age ≤24 yr (median 18 yr, 75% perinatal) enrolled in DC Cohort who initiated InSTI regimen between Jan 2011-Mar 2019 and had ≥2 BMI recorded at ≥6 mo apart and within 2 years pre- and post-InSTI start; compared trajectory of BMI pre and post InSTI.

Compared to pre-InSTI period, during post-InSTI initiation period, HIV+ youth had trend to increase in BMI and significantly higher rates increase in BMI-for-age z-score.

### Rate BMI Change Youth 0-24 Years

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rate of BMI change (kg/m²/year, 95 C.I.)</th>
<th>Adjusted p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean rate pre-INSTI</td>
<td>+0.58 (0.28, 0.89)</td>
<td>0.0003</td>
</tr>
<tr>
<td>Mean rate post-INSTI</td>
<td>+1.04 (0.67, 1.41)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Post- vs pre-INSTI initiation</td>
<td>+0.45 (-0.04, 0.95)</td>
<td>0.072</td>
</tr>
</tbody>
</table>

### Rate BMI Z-Score Change Youth 0-19 Yrs

<table>
<thead>
<tr>
<th>Variable</th>
<th>Rate of BMI-for-age z-score change (units/year, 95 C.I.)</th>
<th>Adjusted p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean rate pre-INSTI</td>
<td>+0.02 (-0.09, 0.13)</td>
<td>0.71</td>
</tr>
<tr>
<td>Mean rate post-INSTI</td>
<td>+0.21 (0.08, 0.35)</td>
<td>0.0027</td>
</tr>
<tr>
<td>Post- vs pre-INSTI initiation</td>
<td>+0.19 (0.01, 0.37)</td>
<td>0.035</td>
</tr>
</tbody>
</table>
PrEP in Pregnant Women and Adolescents
Intracellular TFV-DP in DBS measured weekly in 20 HIV-pregnant youth (age 16-24 yr) 14-24 wk GA and 20 at 6-12 wk PP following daily TDF/FTC PrEP x12 wk under direct observation (99% doses).

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Pregnant (N=20) median (IQR)</th>
<th>Postpartum (N=20)* median (IQR)</th>
<th>Difference (p Wilcoxon)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed TFV-DP (fmol/punch)</td>
<td>965 (691, 1166)</td>
<td>1406 (1053, 1859)</td>
<td>31% (p=0.0064)</td>
</tr>
<tr>
<td>Modeled TFV-DP (fmol/punch)</td>
<td>890 (704, 1143)</td>
<td>1418 (1179, 2139)</td>
<td>37% (p&lt;0.0001)</td>
</tr>
<tr>
<td>Modeled T-1/2 (days)</td>
<td>14 (10.6, 17.6)</td>
<td>16.5 (13.7, 21.2)</td>
<td>ND</td>
</tr>
</tbody>
</table>

Intracellular TFV-DP in DBS was 31-37% lower in pregnant vs PP women, consistent with increase in renal output and lower Hb in later pregnancy (TFV-DP measured in RBC).

Clinical significance unclear as no ‘protective TFV level’ is known.
Would Double Dose TDF/FTC for PrEP in Pregnancy Lead to Improved Levels?

*Chaturvedula A et al. CROI, 2020 Boston Abs. 458*

- Used population PK modeling to evaluate TFV levels in pregnancy receiving standard 300 mg TDF/FTC dosing vs double 600 mg TDF/FTC dosing during pregnancy.

→ Simulation showed that 47.2% and 62.6% of pt on standard 300 mg TDF/FTC PrEP dosing will have 2nd and 3rd trimester trough plasma TFV concentrations, respectively, below levels associated with protection.

→ The simulation indicates doubling the daily PrEP dose to 600 mg TDF/FTC results in <15% of pregnant women falling below protective levels.

→ Suggests a study of double TDF/FTC dosing in pregnancy may be warranted.
4,451 women enrolled in PrIMA study evaluating 2 strategies of PrEP counseling in ANC

→ No significant difference in birth outcomes/adverse birth outcomes between infants born to mothers on PrEP or not on PrEP.

### Birth Outcomes by PrEP Exposure Status

<table>
<thead>
<tr>
<th></th>
<th>Median (IQR)</th>
<th>Coeff (95% CI)</th>
<th>p-value</th>
<th>Adjusted Coeff (95% CI)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gestational age at birth (weeks)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PrEP Unexposed</td>
<td>38 (37, 40)</td>
<td>0.22 (-0.63, 0.67)</td>
<td>0.95</td>
<td>0.11 (-0.84, 1.06)</td>
<td>0.81</td>
</tr>
<tr>
<td>PrEP Exposed</td>
<td>38 (38, 40)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Birthweight (kg)</strong></td>
<td>3.5 (3.1, 3.8)</td>
<td>-0.01 (-0.10, 0.08)</td>
<td>0.81</td>
<td>0.04 (-0.04, 0.13)</td>
<td>0.32</td>
</tr>
<tr>
<td><strong>Birth length (cm)</strong></td>
<td>50 (50, 53)</td>
<td>0.30 (-0.63, 1.23)</td>
<td>0.11</td>
<td>-0.40 (-2.03, 1.23)</td>
<td>0.61</td>
</tr>
</tbody>
</table>

~Adjusted for maternal age, partner HIV status (negative or positive/unknown), syphilis status
High Risk Young Kenyan Women Have Low Objectively Measured PrEP Adherence

Haberer JA et al. CROI, 2020 Boston Abs. 1030

- Open-label PrEP study enrolled 347 women age 18-24 yr at high risk for HIV in Kenya, FU 618 PY; monitored adherence by daily electronic monitoring Wisepill device. Participants randomized to receive SMS reminders (study arms combined for analysis).

  - High-risk was defined as a VOICE risk score ≥4 points (Balkus et al, JAIDS 2016). Points were assigned as follows:
    - Age ≤25 (2 pts)
    - Being single or not living with a sexual partner (1 pt)
    - A sexual partner having or potentially having other sexual partners (2 pts)
    - Alcohol use (1 pt)

  → Novel approaches needed to help young women understand risk and how to achieve effective HIV prevention
  → Long-acting PrEP may be preferable to daily medication?

  - Interest in PrEP was high but objectively measured adherence was modest and decreased over time.
  - Only baseline factor significantly associated with high adherence (≥85%) was VOICE risk score, with lower adherence in those with higher risk score: R 0.53 (95% CI 0.33, 0.85)
TB and HIV

- Pediatrics
- Pregnancy
Rifapentine (RPT) PK/Safety in HIV+ and HIV- Pregnant Women on 3 Mo INH-RPT (3HP): IMPAACT 2001
Mathad JSet al. CROI, 2020 Boston Abs. 144LB

- Multi-country, enrolled 50 pregnant women (HIV+ on EFV ART)
  - Cohort 1 GA 14-<28 wk (n=25, 10 HIV+; median GA 20 wk)
  - Cohort 2 GA 28-<34 wk (n=25, 10 HIV+; median GA 30 wk)

  → No RPT dose change needed in pregnancy.
  → In HIV+ on EFV, CL higher than expected in pregnancy but levels in therapeutic range (need to evaluate with DTG).

<table>
<thead>
<tr>
<th>HIV+</th>
<th>HIV-</th>
<th>% vs HIV-</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearance (L/hr)</td>
<td>1.60</td>
<td>1.24</td>
</tr>
<tr>
<td>AUC0-24 (mg/L/hr)</td>
<td>512</td>
<td>736</td>
</tr>
</tbody>
</table>

→ HIV+ higher CL, lower AUC than HIV- women, resulting in slightly lower RPT levels

<table>
<thead>
<tr>
<th>Antepartum</th>
<th>Postpartum</th>
<th>% vs HIV-</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV+</td>
<td>1.60</td>
<td>1.61</td>
</tr>
<tr>
<td>HIV-</td>
<td>1.24</td>
<td>1.68</td>
</tr>
</tbody>
</table>

→ PP clearance 35% higher than AP in HIV- resulting in slightly ↓ RPT level in HIV- PP, but not HIV+ women

→ Safety: No TB or SAE related to RPT mothers or infants
TB Infection & Disease in HIV- and Perinatal HIV+ Adolescents on ART, South Africa

Frigati LJ et al. CROI, 2020 Boston Abs. 819

- 496 perinatal HIV+ youth age 9-14 yr on ART for >6 mo (76% VL <40) and 103 age-matched (median 12 yr) HIV- youth enrolled 2013-2015 in Cape Town Adolescent ART Cohort, FU Oct 2018
- Annual screening for TB; examined incidence of QuantiFERON (QFT) conversion and TB disease
- More HIV+ hx TB disease before enrollment (61% HIV+ vs 3% HIV- p<0.01)
- No difference QFT positivity at enrollment (31% HIV+, 24% HIV-, p=0.05)

For HIV+ Youth: Cumulative Prevalence QFT + and TB Incidence by Age

- For HIV+ youth, both QFT + and TB disease increased with age of HIV+ youth; TB disease peaked at age 17-19 yr (8/100 PY), despite being on ART.

Relative Hazard QFT Conversion Comparing HIV+ & HIV- Youth by VL Strata

Relative Hazard Incident TB Disease Comparing HIV+ & HIV- Youth by VL Strata

→ Adjusted analysis, no significant difference in QFT conversion (latent TB) by HIV status/viral strata, but somewhat higher rate incident TB in HIV+ youth with VL >1000.
Test and Treat, Community-Based Services, Viral Suppression,
Population-Level Viremia and Non-Suppression in PLHIV Predict High HIV Incidence Across Universal Test & Treat Trials

Peterson M et al. CROI, 2020 Boston Abs. 47

- Used data from 4 large cluster randomized Universal Test and Treat Trials to evaluate relationship of viremia and HIV incidence.

N=105 communities
- HIV prevalence (in 257,929 persons): 2% to 40%
- Non-suppression in HIV+ (in 39,928 persons): 3% to 70%
- HIV incidence (in 345,844 persons): 0.03 to 3.4/100 person-years

- HIV incidence ↑ by 0.12/100 PY for each 10% absolute ↑ in non-suppression (95% CI 0.01, 0.23, p=0.03) in HIV+ population
- Cross-study heterogeneity (different slopes, intercepts)
- ↑ non-suppression associated with ↑ incidence in each study
Improved Viral Suppression in the Universal ART SEARCH Study, Kenya, Uganda
Hickey MD et al. CROI, 2020 Boston Abs. 45

- 32 communities rural Uganda and Kenya received population-level HIV testing (coverage 90%) and randomized to:
  - **Intervention** (immediate ART, annual population testing, patient-centered streamlined care [flexible hours, facilitation ANC-HIV clinic])
  - **Control** (HIV care per national guidelines).

**SEARCH Study: Cluster RCT in Kenya & Uganda**

- Evaluated viral suppression (RNA <500 c/mL) at 3 years in 4,390 HIV+ adults >15 yrs (35% men) in both arms (stratified by ART-experienced without [67%] or with baseline viremia [13%] or ART-naïve and CD4 <350 [20%]); all linked to care after baseline testing.

---

**Streamlined Care Interventions: HIV/NCD “Chronic Care Model”**

1. Efficient Visits for Patients and Staff
   - ART start at first clinic visit as indicated
   - Triage by nurse or other extender
   - Co-location of services
   - Clinic visits/ART dispensation every 3 months (rather than every 1-2 months)

2. Patient-centered approach to care
   - Welcoming environment
   - Fostering trust, connection, and a sense of investment in the patient
   - Flexible clinic hours
   - Tiered Tracking
   - Multi-disease chronic care model

3. Mobile phone hotline access for patients
   - Easy triage of medical questions
   - Appointment/scheduling logistics for retention

4. Appointment reminders by mobile phone/SMS
   - One week to few days in advance
   - Retention tool

5. Viral Load Counseling
   - Structured format for discussion of undetectable and detectable results

---

*Universal ART

Costs similar or lower than PEPFAR-supported care

Viral suppression improved with intervention both men and women.

Greatest improvement in ART-experienced with baseline viremia.

ART-experienced with baseline viremia had more time in care and fewer missed visits with intervention, similar by sex.

While few switched to 2nd line, more switch in intervention group and more viral suppression after switch.
RCT in 40 community clusters in fishing community in Rakai to assess impact of community health worker intervention using motivational interviewing strategies ("Health Scouts") and mHealth counseling support tools (20 clusters) vs SOC (20 clusters).

Community-wide surveys of 15-49 yr/o residents with VL testing if HIV+ conducted mid-study (~15 mos, n=2,533, 913 HIV+) and end-study (~39 mos, n=1,903, 679 HIV+).

At end of study, HIV care coverage and ART coverage improved with intervention, but not viral suppression or male circumcision coverage.
Community-Based Multi-Month Dispensing of ART is Non-Inferior to Facility-Based ART Dispensing, Lesotho
Tukey B et al. CROI, 2020 Boston Abs. 43

- RCT adult >18 yr in 30 health facility clusters stratified into rural and urban.
  - 3 mo ART supply at health facility (3MF, n=1,898)
  - 3 mo ART supply community ART groups (CAG) (3MC, n=1,558)
  - 6 mo ART supply community ART HCW distribution (6MC, n=1,880)

- 3MC and 6MC non-inferior to facility-based 3MF in terms of retention, viral suppression, mortality and LTFU
- 3MC and 6MC not significantly different
Community ART Increases Viral Suppression and Decreases Disparities Between Men and Women

Barnabus RV. CROI, 2020 Boston Abs. 49LB

- RCT of Delivery Optimization of ART (DO ART): community-based HIV testing (home or mobile van); 1,531 ART-naïve HIV+ CD4 >100 (46% male) randomized to ART start at clinic vs mobile van same-day start, and decentralized quarterly monitoring and ART refill at clinic or mobile van.

Uganda, South Africa

- Community ART resulted in superior viral suppression and eliminated disparities in viral suppression between men and women; hybrid ART was non-inferior to clinic ART.
PEPFAR data from 24 countries reporting ≥2,000 HIV+ tests/quarter.

Between 2018-2019, HIV test volume decreased from 92 million to 77 million (16% ↓) while yield increased by 12 % (from 3.4% to 3.9%).

Among adults, contact testing had highest yield of new HIV+ patients (12-22%) and was second highest contribution to HIV case finding.

### Table: Adult testing % Δ in # tests, 2018-2019

<table>
<thead>
<tr>
<th>Adult testing</th>
<th>% Δ in # tests, 2018-2019</th>
<th>2018 HIV+ yield</th>
<th>2019 HIV+ yield</th>
<th>% Δ yield 2018-2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>PITC in OPD</td>
<td>-23%</td>
<td>3.8%</td>
<td>3.8%</td>
<td>+1%</td>
</tr>
<tr>
<td>ANC</td>
<td>-3%</td>
<td>2.4%</td>
<td>2.6%</td>
<td>+7%</td>
</tr>
<tr>
<td>Voluntary testing</td>
<td>-37%</td>
<td>4.0%</td>
<td>4.7%</td>
<td>+5%</td>
</tr>
<tr>
<td>Mobile clinics</td>
<td>-13%</td>
<td>4.0%</td>
<td>4.7%</td>
<td>+16%</td>
</tr>
<tr>
<td>Contact testing</td>
<td>+4%</td>
<td>12.1%</td>
<td>22.0%</td>
<td>+69%</td>
</tr>
<tr>
<td>All other*</td>
<td>+72%</td>
<td>3.9%</td>
<td>3.4%</td>
<td>-12%</td>
</tr>
</tbody>
</table>
Data from Q4 2019 show high rates of acceptance of contact tracing in both men and women (85%).

19/24 (70%) countries achieved >70% acceptance rate.

Men elicited more contacts than women.

Contribution to HIV case finding from contacts was greater among men than women.

Male contacts of women index cases had highest HIV+ rate.

### PEPFAR Data from Quarter 4, 2019, 24 Countries

<table>
<thead>
<tr>
<th>Adult testing</th>
<th>% accept APN (range)</th>
<th>Average # contacts (range)</th>
<th>% HIV+ among contacts (range)</th>
<th>Contribution APN to HIV cases found (range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>85% (41-97%)</td>
<td>1.4 (0.7-3.5)</td>
<td>24.4% (5-38%)</td>
<td>16% (5-31%)</td>
</tr>
<tr>
<td>Men</td>
<td>85% (42-98%)</td>
<td>1.9 (1.0-4.2)</td>
<td>22.8% (4-31%)</td>
<td>20% (7-36%)</td>
</tr>
<tr>
<td>Women</td>
<td>85% (40-97%)</td>
<td>1.1 (0.5-6.6)</td>
<td>26.7% (6-46%)</td>
<td>15% (4-35%)</td>
</tr>
</tbody>
</table>
Assisted Partner Notification (APN) Botswana, Uganda, Rwanda

- **Botswana (Golden M Abs. 939):** Consisted of counseling to encourage index cases to notify partners themselves and counselors offering to notify partners jointly with index cases (counselors did not directly notify); 28% elected joint notification.

- **Uganda (Namimbi F Abs 947):** HCW trained to ID HIV+ clients >15 yr with STD or non-suppressed VL and partners with unknown status. HCW contacted partners by phone or home visit, notified of exposure, offered HIV testing.

- **Rwanda (Remera E Abs. 942):** Active case-finding used 3 types of methods of referral for identified partners:

  - **Client referral** refers to self disclosure of status to partners and referral of partners for HTS: 40.8%
  - **Provider referral** refers to providers offering HTS directly to partners: 17.9%
  - **Dual referral** refers to both providers and new index cases disclosing HIV status to partners and offering HTS: 41.2%
Countries varied widely in all parameters.
Assisted Partner Notification (APN) Botswana, Uganda, Rwanda

Definitions

Reach: % new HIV+ who received APN

Contact index: # partners named/# index cases

Testing index: # partners tested/# index cases

Case-finding index: # partners HIV+/# index cases

→ Countries varied widely in all parameters.
→ Rwanda (3 types APN) had best parameters but low HIV prevalence, low #s tested and hence case-finding lowest.
→ Uganda (phone/home visit) had highest #s, HIV prevalence and case-finding but lowest reach.

<table>
<thead>
<tr>
<th>Country</th>
<th>% index that got APN</th>
<th>Reach (# getting APN/# index)</th>
<th>Contact index (#partners/#index)</th>
<th>Testing Index (# tested/#index)</th>
<th>Case-Finding Index (HIV+/#index)</th>
<th>HIV+/ HIV tested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>6,097</td>
<td>88%</td>
<td>0.85</td>
<td>0.56</td>
<td>0.12</td>
<td>22.1%</td>
</tr>
<tr>
<td>Uganda</td>
<td>35,704</td>
<td></td>
<td>1.4</td>
<td>0.54</td>
<td>0.16</td>
<td>29.7%</td>
</tr>
<tr>
<td>Rwanda</td>
<td>2,391</td>
<td>91%</td>
<td>1.6</td>
<td>0.93</td>
<td>0.08</td>
<td>9.0%</td>
</tr>
</tbody>
</table>

→ Countries varied widely in all parameters.
→ Rwanda (3 types APN) had best parameters but low HIV prevalence, low #s tested and hence case-finding lowest.
→ Uganda (phone/home visit) had highest #s, HIV prevalence and case-finding but lowest reach.
Special Session on Coronavirus – COVID-19

Tuesday March 10 noon
http://www.croiwebcasts.org/y/2020/10?link=nav&linkc=date

For more information: www.cdc.gov/COVID19
Scientific Data Are Rapidly Changing Every Day

COVID-19 and Therapeutics

Fauci A, Director NIAID

March 10 2020

Therapeutics for SARS-CoV-2 (COVID-19)

- Antivirals, monoclonal antibodies and other agents are being tested
  - Remdesivir (nucleotide analogue), has shown promise against coronaviruses in animal models
  - Kaletra (lopinavir/ritonavir) (protease inhibitors) and interferon-beta have been used investigatively for other coronaviruses
  - Other broad-spectrum antivirals
  - Chloroquine
  - Drug screening and targeted drug design
  - Monoclonal antibodies being isolated and tested

March 18 2020

A Trial of Lopinavir–Ritonavir in Adults Hospitalized with Severe Covid-19


CONCLUSIONS

In hospitalized adult patients with severe Covid-19, no benefit was observed with lopinavir–ritonavir treatment beyond standard care. Future trials in patients with severe illness may help to confirm or exclude the possibility of a treatment benefit.

Will very briefly present the limited data on COVID-19 disease in pregnant women and children, some just off press data on shedding and ongoing therapeutic clinical trials.
Two recent reviews of published data on 32 and 38 cases, respectively (which overlap, come from below references).

The clinical characteristics of COVID-19 pneumonia in pregnant women were similar to those reported for non-pregnant adult patients who developed COVID-19 pneumonia.

Pregnancy and childbirth did not aggravate the course of symptoms or CT features of COVID-19 pneumonia, although severe morbidity can occur.

Unclear if adverse pregnancy outcome more frequent.

No confirmed cases of intrauterine transmission of SARS-CoV-2 from 38 mothers with COVID-19 to their fetuses. All neonatal specimens tested, including in some cases placenas, were negative by rt-PCR for SARS-CoV-2.
COVID-19 and Children

Epidemiological Characteristics of 2143 Pediatric Patients With 2019 Coronavirus Disease in China.

731 confirmed, 1,412 suspected. Children of all ages susceptible (median 7 y, IQR 2-13 y); no gender difference. Majority (>80%) of children have only mild-moderate disease; minority (4-13%) asymptomatic. Infants (<1yr) were at greatest risk of more severe disease.


Report of 10 cases in children; **20% no fever**, and those with fever had only 1 day; **prolonged respiratory shedding 5-22 days**; CoV +PCR in stool 5/6 patients but significance not clear.
16 adults with COVID-19 from Beijing China

All had throat swabs qod until PCR negative (d/c after 2 negative PCR)

~half the patients were shedding virus for up to 8 days (median 2.5 d) after symptoms had resolved
Focus has been on potential use of already existing drugs.

- **Approaches include:**
  - Targeting *replication* of virus (e.g., remdesivir, chloroquine, lopinavir/ritonavir, nitazoxanide)
  - *Prevent viral entry* (COVID-19 monoclonal antibodies; angiotensin receptor blockers)
  - *Stimulate innate immune response* (e.g., Interferon beta, alfa-2b)
  - *Adjunctive anti-cytokine* storm agents (e.g., tocilizumab and sarilumab used to treat rheumatoid arthritis [monoclonals that are IL-6 receptor antagonists])
As of March 25, 158 “COVID-19” studies in clinicaltrials.gov (include observational, most in China).

US, trials are adults >18 yrs, most specifically exclude pregnant women:

- NIAID trial of remdesivir (NCT04280705) hospitalized pt at 20 centers in US, Korea, Singapore
- Gilead trial (NCT04292899) of remdesivir with severe and (NCT04292730) with moderate COVID-19 at 17 centers US, Korea, Singapore, Hong Kong, Taiwan
- U. Minnesota trial of PEP with hydroxychloroquine (NCT04308668) and treatment with Losartan (angiotensin type 1 antagonist) in pt requiring (NCT04312009) and not requiring (NCT04311177) hospitalization
- Columbia U (NCT04318444) hydroxychloroquine PEP for household contacts
- U MD trial of CD24Fc monoclonal (anti-inflammatory) (NCT04317040)
- NY Regeneron Pharmaceutical trial of Sarilumab monoclonal (anti-IL-16R alpha, used in rheumatoid arthritis) (NCT04315298)

WHO multicountry adaptive study of remdesivir, lopinavir/ritonavir, IFN-beta-1A vs SOC (NCT04315948) in hospitalized adults
COVID-19 and HIV

- Does not appear to be increased risk/severity with HIV. The risk from immune suppression is not known, but with other viral respiratory infections, the risk for people with HIV getting very sick is greatest in people with low CD4 cell count and/or who are not on ART.
- While data to date do not indicate increased risk of COVID-19 with HIV, disease has been in low HIV prevalence countries, not (yet) in areas with high HIV prevalence. However, it is starting, and we need to monitor.

March 25 2020 9:00am
WHO African Region
- 37 countries affected
- 1,529 confirmed cases reported to WHO

Some Resources
WHO: https://www.who.int/news-room/q-a-detail/q-a-on-covid-19-hiv-and-antiretrovirals
Pediatric Infectious Disease Society (links to other resources): https://www.pids.org/resources/covid-19.html
Questions?

Lynne Mofenson MD email: Mofensol@gmail.com
THANK YOU

Join the Children and AIDS Community of Practice
www.knowledge-gateway.org/childrenandaids/join

The presentations and recording will soon be available on www.childrenandaids.org/webinar

Questions or feedback?
Contact Rikke Le Kirkegaard (rlekirkegaard@unicef.org)