

# **OVERVIEW OF HIV RESEARCH FINDINGS AT KCRI/KCMC**

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**TANZAMBO SCIENTIFIC MEETING**  
**23<sup>RD</sup> AUGUST 2012:**  
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**TANZANIA**

# HIV IN TANZANIA

- HIV was first reported in Tanzania in 1989
- The current HIV prevalence rate is 5.7%, with 6.6% for women and 4.6% for men
- Efforts to control and prevent transmissions
  - Public health education and information
  - PMTCT
  - VCT
  - ART
  - Integration of HIV and TB programmes
  - Research

## HIV RESEARCH ACTIVITIES AT KCRI

- 37 registered HIV research projects by IRB
- Collaborative studies on epidemiology, basic biomedical, prevention/control, therapy, diagnostics and social-behaviour
  - Site for HPTN, ISAAC, CHAVI, IMPAACT, VITA, PACTG and ACTG

# **Lopinavir/ritonavir monotherapy after virologic failure of first-line antiretroviral therapy in resource-limited settings.**

Bartlett et. al. AIDS. 2012 Jul 17;26(11):1345-1354

- Objective: To evaluate virologic response rates of LPV/r monotherapy as second-line antiretroviral treatment among adults in resource-limited settings
- Methods:
  - Participants recruited from 5 sites in Africa and Asia within AIDS Clinical Trials Group (ACTG) network.
  - All participants received LPV/r 400/100 mg twice daily
  - Primary end point was remaining on therapy without virologic failure at week 24
  - Participants with virologic failure were offered addition of emtricitabine/tenofovir (FTC/TDF) to LPV/r

- Results:
  - All screened individuals for the study had mutations associated with drug resistance
  - 122/123 completed 24 weeks on study and 87% remained without virologic failure
  - Individuals with virologic failure added FTC/TDF and at 48 weeks had HIV-1 RNA less than 400 copies/ml
- Conclusion: In this pilot study in diverse resource limited settings, LPV/r monotherapy as second-line ART demonstrated promising activity



# **Change in HIV behaviour and serocoineidence among clients presenting for repeat HIV counseling and testing in Moshi, Tanzania.**

Fiorillo SP et. al.

AIDS Care. 2012 Oct;24 (10): 1264-71.

- Objective: To evaluate behaviour changes and estimated HIV seroincidence rate among returning HIV counseling and testing clients
- Methodology: VCT clients were enrolled when reported repeat testing
- Results:
  - 1382 repeat testers were enrolled.
  - Repeat testers were more likely to be male, older, married or widowed with reason of unfaithfulness of partner or new partner
- Clients who intended to change behaviour were more likely to report having changed behaviour by remaining abstinent (OR 2.58;  $p < 0.0001$ ) or using condoms abstinent (OR 2.00;  $p < 0.006$ )



- HIV seroincidence was 1.49 cases/100 person-years
- Repeat testers reported reduction in risky behaviour and improved knowledge of sexual practices and HIV serostatus of their partners
- Conclusion: Promoting behaviour change through HCT should be a focus of HIV prevention efforts in Sub Saharan Africa

# **PMTCT Performance among HIV-Exposed Infants in Tanzania**

Analysis of Dried Blood Spot PCR Results for HIV-Exposed Infants from Tanga, Arusha, and Kilimanjaro Regions

Buchanan AM et. al. (Unpublished)

# Background

- Dried blood spot (DBS) PCR was first implemented in Tanzania in 2007 as part of its early infant diagnosis program
- The HIV early infant diagnosis was initiated in Kilimanjaro Region in September 2008
- The KCMC DNA PCR Lab serves 4 regions:
  - **Kilimanjaro**
  - **Arusha**
  - **Tanga**
  - **Manyara**

# Background

- In Tanzania, HIV prevalence among women of child-bearing age varies widely:
  - Kilimanjaro: 2%
  - Iringa: 17%
- In Tanzania, regimens for the prevention of mother to child transmission (PMTCT) vary widely
- Regimens may consist of any of the following:
  - ARV “prophylaxis” for mother and infant
  - Maternal HAART with ARV prophylaxis for infant
  - Single dose nevirapine only (sdNVP) for mother and/or infant
  - No treatment

# DNA PCR Lab at KCMC

- Renovation and equipping of DNA PCR Laboratory for early diagnosis of HIV in infants at KCMC started in year 2007





# DNA PCR Lab Service Implementation

- The lab has 2 trained laboratory technologists and 1 data clerk
- Currently processing an average of **300** DBS samples per month





By end of 2011, KCMC PCR Lab has received DBS  
from 7456 infants for testing from all 4 regions

YEAR	NUMBER OF SAMPLES
2008	329
2009	1849
2010	2156
2011	3122
<b>TOTAL</b>	<b>7456</b>

# RESULTS

- We enrolled 2191 mother-child pairs

## Regional Data Based on Test Result

	HIV Positive (%)	HIV Negative (%)	HIV Indeterminate (%)
<b>Kilimanjaro (n=1022)</b>	<b>75 (7.3)</b>	<b>940 (92.0)</b>	<b>7 (0.7)</b>
<b>Arusha (n=949)</b>	<b>57 (6.0)</b>	<b>887 (93.5)</b>	<b>5 (0.5)</b>
<b>Tanga (n=220)</b>	<b>9 (4.0)</b>	<b>210 (95.5)</b>	<b>1 (0.5)</b>
<b>Total (n=2191)</b>	<b>141 (6.4)</b>	<b>2037 (93.0)</b>	<b>13 (0.6)</b>

# Infant PCR Result Based on Year Test Performed

Test Result:	2008	2009	2010
<b>Positive</b> n=141 (6.4%)	<b>47</b> (15.3%)	<b>58</b> (7.0%)	<b>36</b> (3.4%)
Negative n=2037 (93.0%)	254 (82.5%)	765 (92.5%)	1018 (96.4%)
Indeterminate n=13 (0.6%)	7 (2.3%)	4 (0.5%)	2 (0.2%)
<b>Total = 2191</b>	<b>308</b>	<b>827</b>	<b>1056</b>

# Maternal ARV Regimen by Year of DBS PCR Result

Maternal ARV Regimen	2008 (%)	2009 (%)	2010 (%)
None (n=164)	9.4	7.3	7.1
sdNVP (n=786)	71.4	49.3	15.0
Combination Prophylaxis (n=933)	7.2	31.9	61.3
HAART (n=241)	5.8	8.2	14.6
Not Recorded/Other (n=68)	6.2	3.3	2.0
Total (n=2191)	100	100	100

# Conclusions

- We see a shift from a majority of women receiving sdNVP regimens in 2008 to a majority receiving ARV combination prophylaxis in 2010
- Proportion of early HIV infections decreased dramatically by year
  - 15% → 7% → 3%
- Number of infants being tested more than tripled over this 2.5 year time period (2008-2010)

# Challenges

- The number of women on HAART has increased by a factor of 2.5 from 2008-2010, but still represents <15% of all women in our cohort
  - Are we reaching all eligible women?
- Fifteen percent of women still receiving sdNVP *only* in 2010
- Even in 2010, there were still 7% of women who were receiving no regimen at all
  - How do we reach these women?



# SUMMARY

- PMTCT is achievable
- Promoting behavior change through utilization of HCT
- More to be studied on the promising Lopinavir/ritonavir monotherapy to be a send-line therapy



Thank you for listening