

Kirby Institute



ACCELERATING THE UPTAKE OF INNOVATIVE APPROACHES FOR THE DETECTION AND MONITORING OF HIV IN INFANTS AND CHILDREN (<15 YEARS) IN PAPUA NEW GUINEA

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Background



HIV IN PAPUA NEW GUINEA

PNG has the highest rate of HIV in the Pacific region

- HIV case infections have increased 45% in the last decade.
- 1% population (15-49) have HIV
- 11- 20% in Female Sex Workers Kelly-Hanku et al, 2018.
- ~2 % in antenatal care.

National estimate of vertical HIV transmission is 28% (down from ~35% in 2021)

PNG is far from eliminating mother-to-child transmission of HIV and ending AIDS in children.

The scale up of paediatric HIV Viral load testing has lagged behind adult VL testing programs.

ACTUP-PNG Primary Investigators



Dr Janet Gare



Associate Prof.
Angela Kelly-Hanku



Dr Steven Badman

Methods



ACTUP-PNG PROJECT

Invested in accelerating the uptake of innovations to improve HIV diagnostics, monitoring and management.

For paediatric HIV care, ACTUP provides-

- POC Infant Diagnosis (ID) for HIV-exposed infants
- POC HIV Viral load testing for paediatrics including the only low volume POC HIV Viral Load in PNG.
- HIV drug resistance (DR) testing surveillance on diagnosis of HIV and HIVDR testing for children[^] with persistently high viral load.



Mt Hagen Lab: Joseph, Selina and Doris

[^]UNAIDS defines an adult from age 15 years and children aged 0–14 years.

Methods



STRENGTHENING LABORATORY SUPPORT

Two Point of Care labs established (Mount Hagen Provincial Hospital and Port Moresby General Hospital)

GeneXpert™ platform

- HIV-1 Viral Load testing for children[^]; 10 – 15yrs
- HIV-1 qual testing for HIV-exposed infants; 6 weeks to 18 months

m-PIMA™ analyser

- HIV 1 & 2 Viral Load testing for children; < 10yrs
- 50µL of plasma needed for quantification.

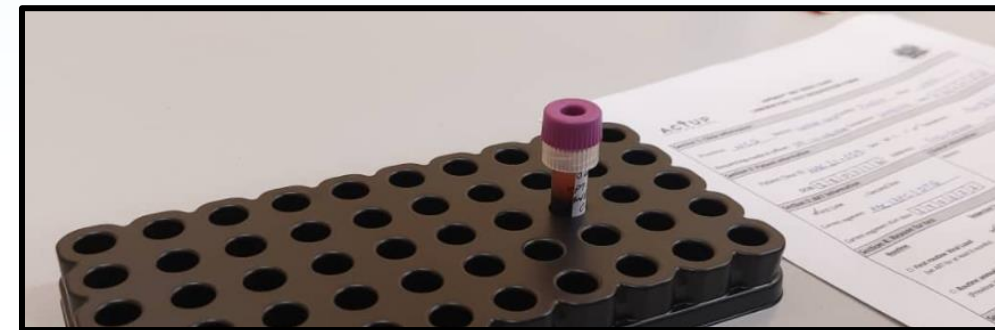
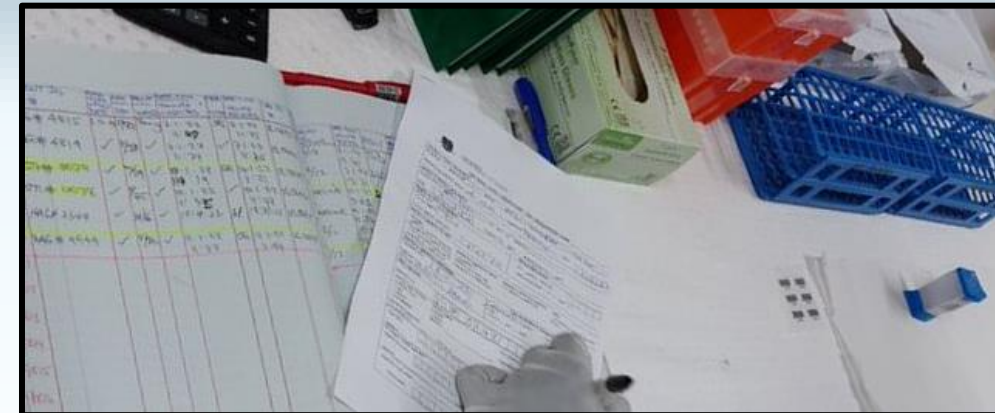


Port Moresby Lab: Helen, Julie,
Hethy and Joshua

Infant Diagnosis of HIV



Demographics overview				
All ID testing			HIV Detected	
Age	Total		Total	
Less than 6 weeks	1	0.1%	0	0.0%
6-8 weeks	497	55.1%	31	35.6%
3 months – 6 months	159	17.6%	21	24.1%
7 months – 12 months	139	15.4%	23	26.4%
13 months – 18 months	93	10.3%	9	10.3%
>18 months	9	1.0%	2	2.3%
Not stated	4	0.4%	1	1.2%
Sex				
Female	440	48.8%	43	49.4%
Male	462	51.2%	44	50.6%



Infant Diagnosis of HIV



Qualitative HIV testing- GeneXpert platform	
Total number of ID tests conducted*	927
Total number of unique patients tested for HIV	902
Positivity rate	9.6%

Note regarding repeat ID testing



Well Baby Clinic nursing staff- Port Moresby General Hospital

Mount Hagen Provincial Hospital		
ID* total unique patients tested	360	
HIV detected/ HIV Positive	44	12.2%
HIV not detected/ HIV Negative	316	87.8%

Port Moresby General Hospital		
EID* total unique patients tested	542	
HIV detected/ HIV Positive	43*	7.9%
HIV not detected/ HIV Negative	499	92.1%

*Error & invalid test results not included

Active case management



Lost to follow up overview



Punia, Julie, Helen Keno and Dr Vali- PMGH Well Baby clinic



Petrus, Dr Ripa, Jacob and Hellen Mt Hagen Provincial Hospital

Paediatric Viral Load analysis



HIV Viral load Testing- GeneXpert platform N 271*

Female	121	44.6%
Male	150	55.4%

*GeneXpert testing Apr 2021 – Jan 2023

HIV Viral load Testing- m-PIMA™ platform N 70*

Female (0-10yrs)	31	44.3%
Male (0-10yrs)	39	55.7%

*m-PIMA testing from Nov 2022 – Jan 2023



m-PIMA™ Viral Load testing at Tininga lab, Mt Hagen

Clinic of presentation



HIV Viral load Testing*	N 417	
Tininga STI/HIV Clinic	16	3.8%
Hillary Clinic	116	27.8%
Mt Hagen TB Clinic	1	0.2%
PMGH Antenatal clinic	1	0.2%
PMGH Well Baby clinic	269	64.6%
Heduru STI/HIV Clinic	14	3.4%



PMGH Well Baby, Antenatal and Heduru HIV clinic staff

PMGH= Port Moresby General Hospital

*Error & invalid test results not included. GeneXpert & m-PIMA data combined

Reason for Testing



Paediatric HIV Viral Load Testing Totals		N 347	
6-month follow-up after ART initiation	199	57.34%	
Yearly review after > 1yr on ART	93	26.80%	
Clinical discretion	1	0.28%	
3-month follow-up after High VL and adherence counselling	54	15.56%	

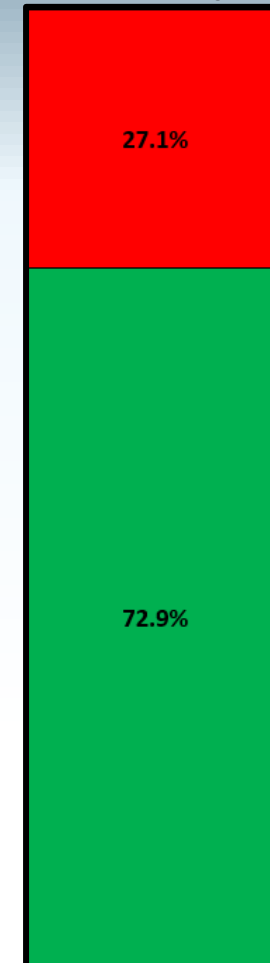


*Error & invalid test results not included. GeneXpert & m-PIMA data combined

Paediatric Suppression

Paediatric HIV Viral load Testing	
Mount Hagen Provincial Hospital	133
Virologically suppressed	101
Virologically unsuppressed	32
Average VL of those suppressed	184# copies/mL
Average VL of those unsuppressed	124,216 copies/mL
Port Moresby General Hospital	284
Virologically suppressed	203
Virologically unsuppressed	81
Average VL of those suppressed	259# copies/mL
Average VL of those unsuppressed	250,639 copies/mL

THIRD 90 (95)



*This excludes rejected samples and VL testing as part of HIV-DR baseline surveillance. All data related to VL report here & below relates only to people on ART.

#Suppressed average from GeneXpert, GeneXpert & m-PIMA data combined

Paediatric ART Resistance

HIVDR DBS tested	Total	Adults	%	Children	%
Total number of people tested for HIVDR ¹	163	135	82.8	28	17.2

¹Excluding 21 people that DBS samples that contained >1000copies/mL of HIVRNA

Rates of drug resistant HIV in Children 0-14years		
Reason for HIV DR testing category	Total tested	Total with HIV DR (%)
Baseline - pre-ART initiation	23	7 (30.4%)
Baseline - ART re-initiation	1	0 (0.0%)
High VL post-adherence counselling	4	3 (75.0%)
Sub-total	28	10 (35.7%)





Key messages

- Paediatric HIV remains high in PNG
 - ~10% positivity rate
 - ↑ Risk of HIVDR transmission
- Virological suppression is unacceptably low in children in PNG.
- Health literacy & Viral load test demand must increase.
- Clinicians receive 90% of test results on the same day; however, getting clients to wait for a same day viral load result is a challenge.

Thank you



ACTUP staff and collaborators

