





#### Content

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# Knowledge of HIV status, antiretroviral therapy coverage and viral suppression among people living with HIV, eastern and southern Africa, 2016







#### South Africa treatment cascade

90-90-90 Cascade - Total Population (Jun 2017 - South Africa)







#### South African National HIV Prevalence, Incidence, Behavior and Communication Survey

Progress to UNAIDS 90-90-90 Targets (15-64 years of age)



Source: 2017 South African National HIV Prevalence, Incidence, Behavior and Communication Survey





#### There has been progress toward reaching epidemic control

(15-64 years of age)



Source: 2017 South African National HIV Prevalence, Incidence, Behavior and Communication Survey

Source: COP18





#### Individuals currently on treatment in SA







### South Africa HIV Treatment Surge Proposal

- A plan has been developed to fast-track epidemic control by aiming to have a 6.1 million individuals on ART in the public health system by December 2020.
  - Treatment Surge plan includes interventions aimed at:
  - improving health care service delivery in the 27 priority districts
  - These priority districts account for 82% of the HIV burden in SA





#### Adult & child deaths due to AIDS | 1990–2016





#### There has been a decline in AIDS related deaths in sub-Saharan Africa, 1990-2017







#### **Causes of mortality**





# Persistent challenge of advanced HIV disease in SA



#### IeDEA and COHERE, CID 2017





### Persistent challenge of advanced HIV disease



Carmona S et al, CID 2018

IeDEA and COHERE, CID 2017







# What about Viral Load testing in SA?

Logistics ? Differential care?



#### Viral load testing network in South Africa





Note: Red- NHLS CD4 / VL lab ; Blue- DoH clinic





### What about Viral Load Testing in SA?





#### The Viral Load laboratory network





Viral load testing continues to scale up in LMICs, with over 50% coverage in 2017. However, a few high-volume countries such as South Africa and Kenya make up a large portion of the current global demand



Source: CHAI projections of 19 high-burden countries (81% of people on ART in LMICs), supplemented by linear extrapolations of "Rest of World" by Avenir Health.

Need is estimated using projected ART patient numbers and testing guidelines. Where national guidelines are unknown, the WHO's recommendations of 2 tests for new patients and 1 test for existing patients is used.





#### Viral Load projections + Surge



Baseline + As Is Baseline + Acceleration/ Surge Baseline + Acceleration/ Surge + Private sector

Data credit to: Meyer-Rath, Katja Gesine and Naseem Cassim











#### NHLS Viral Load testing volumes from 2010 to date







#### NHLS -> 5,62 Million VL - Sep 17 to Sep 18



### 

NATIONAL HEALTH

## Viral loads below 1000 copies/mL: Require careful consideration



Lucas E Hermans, Michelle Moorhouse, Sergio Carmona, Diederick E Grobbee, L Marije Hofstra, Douglas D Richman, Hugo A Tempelman, Willem D F Venter, Annemarie M J Wensing

#### Summary

**Background** Antiretroviral therapy (ART) that enables suppression of HIV replication has been successfully rolled out at large scale to HIV-positive patients in low-income and middle-income countries. WHO guidelines for these regions define failure of ART with a lenient threshold of viraemia (HIV RNA viral load  $\geq$ 1000 copies per mL). We investigated the occurrence of detectable viraemia during ART below this threshold and its effect on treatment outcomes in a large South African cohort.

Methods In this observational cohort study, we included HIV-positive adults registered between Jan 1, 2007, and May 1, 2016, at 57 clinical sites in South Africa, who were receiving WHO-recommended ART regimens and viral load monitoring. Low-level viraemia was defined as the occurrence of at least one viral load measurement of 51–999 copies per mL during ART. Outcomes were WHO-defined virological failure (one or more viral load measurement of ≥1000 copies per mL) and switch to second-line ART. Risks were estimated with Cox proportional hazard models.

Lancet Infect Dis 2017

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See Online/Comment http://dx.doi.org/10.1016/ S1473-3099(17)30680-1

Translational Virology, Department of Medical Microbiology (L E Hermans MD, L M Hofstra MD, A M J Wensing MD) and Clinical









#### Viral load suppression (Feb 2018) by district





### **OPPORTUNITIES**





# Plasma is the predominant sample used. Specimen collection using DBS could be implemented to increase coverage









Plasma is the predominant sample used. Specimen collection using Plasma Separation Cards could be implemented to increase coverage







## Evaluation of new technologies and support Prequalification of devices







# Some POCT to be considered for Viral Load testing where impact is high enough to make it worthwhile

Alere Q HIV-1/2 VL

Cepheid Xper HIV-1 VL







#### Increase utilization of data to monitor programme performance and allocation of resources accordingly











#### Enhance utilization of Viral Load Results for Action Report (RfA)

1	Province	District	Sub District	Facility	Ward	Folder Number	Patient Surname	Patient Name	Patient DOB	Patient Address	Patient Tel No	Patient Age	Take n Date	Review ed Date	Episode No	CDW Identifier	HIV VL Result (Detected VL)	Total No. of Previous Consecutive VL >1000
2	Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 33	*****	******	*****	DD-MMM-YY			5 months 4 days	DD- MMM- YY	20-OCT- 2016	*****	*****	9 411 750	
3	Gauteng	City of Johannesburg Metro	Johannesburg F	Charlotte Maxeke Hospital	Unknow n	*****	******	*****	DD-MMM-YY			23 years 8 months 24 days	DD- MMM- YY	17-OCT- 2016	*****	*****	8 816 930	
4	Gauteng	City of Johannesburg Metro	Johannesburg E	Edenvale Hospital	Ward 3	******	******	EXEXEXEXEX	DD-MMM-YY			Unknown	DD- MMM- YY	21-OCT- 2016	*****	*****	7 760 220	
5	Gauteng	City of Johannesburg Metro	Johannesburg B	Helen Joseph Hospital	Ward 9	******	NURSERIES	*****	DD-MMM-YY			35 years 1 month 5 days	DD- MMM- YY	17-OCT- 2016	*****	****	7 410 000	
6	Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 20	******	NURMERINEN	*****	DD-MMM-YY			Unknown	DD- MMM- YY	17-OCT- 2016	*****	XXXXXXXXXX	6 590 000	
7	Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 20	******	NURSERSES	*****	DD-MMM-YY			32 years 14 days	DD- MMM- YY	17-OCT- 2016	*****	XXXXXXXXXX	6 550 000	
8	Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 15	******	*******	*****	DD-MMM-YY	**		Unknown	DD- MMM- YY	21-OCT- 2016	*****	****	6 460 000	
9	Gauteng	City of Johannesburg Metro	Johannesburg A	Diepsloot South Clinic	Arv Clinic	*****	******	*****	DD-MMM-YY			41 years 8 months 14 days	DD- MMM- YY	21-OCT- 2016	*****	*****	6 300 000	
10	Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 20	*****	******	*****	DD-MMM-YY			28 years 7 months 9 days	DD- MMM- YY	17-OCT- 2016	*****	*****	6 200 000	
11	Gauteng	City of Johannesburg Metro	Johannesburg D	Mandela-Sisulu Clinic	Arv Clinic	*****	*****	******	DD-MMM-YY			22 years 1 month 2 days	DD- MMM- YY	20-OCT- 2016	*****	*****	6 080 000	1
12	Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hani Baragwanath Hosp	Ward 20	******	******	XXXXXXXXXX	DD-MMM-YY			Unknown	DD- MMM- YY	23-OCT- 2016	*****	*****	5 860 000	
13	Gauteng	City of Johannesburg Metro	Johannesburg D	Chris Hapi Baragwanath Hosp	Waluzo		*****	XXXXXXXXXX	DD-MMM-YY			25 years 17 days	DD- MMM- YY	20-OCT- 2016	*****	*****	5 830 000	
H	H 4 + H Terms & Conditions Cover Page VL Results for Action Previous >1000 / 🖓 /														•			

#### "VL Results for Action" worksheet:

All VL results > 1000 are reported by the NHLS laboratories in the past 7 days are recorded.

The VL results are highlighted in red.

The last column "Total No. of Previous Consecutive VL >1000" indicates how many previous consecutive VL results were >1000 cps/ml for a particular patient.





### Viral Load scale up will require improving the coverage to populations left behind.

#### 12 populations being left behind



Source: UNIVDS Gap report

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#### Conclusion

- NHLS provides the largest VL service WW
- Current lab capacity sufficient to support Surge 2020
- NHLS without improvements in SCM and Pre-analytics runs the risk of not delivering
- Opportunities to implement DBS / PSC or POCT where necessary and cost effective (impactful) should be considered.





#### Conclusions



Increasing coverage of VL to achieve the 90-90-90 will require extending lab capacity (improve utilisation of platforms) and # sites (decentralisation – mix model) and to increase service to key populations.

3

The last "90" requires a broader systems approach to ensure those on ART are accessed and result utilisation is improved





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