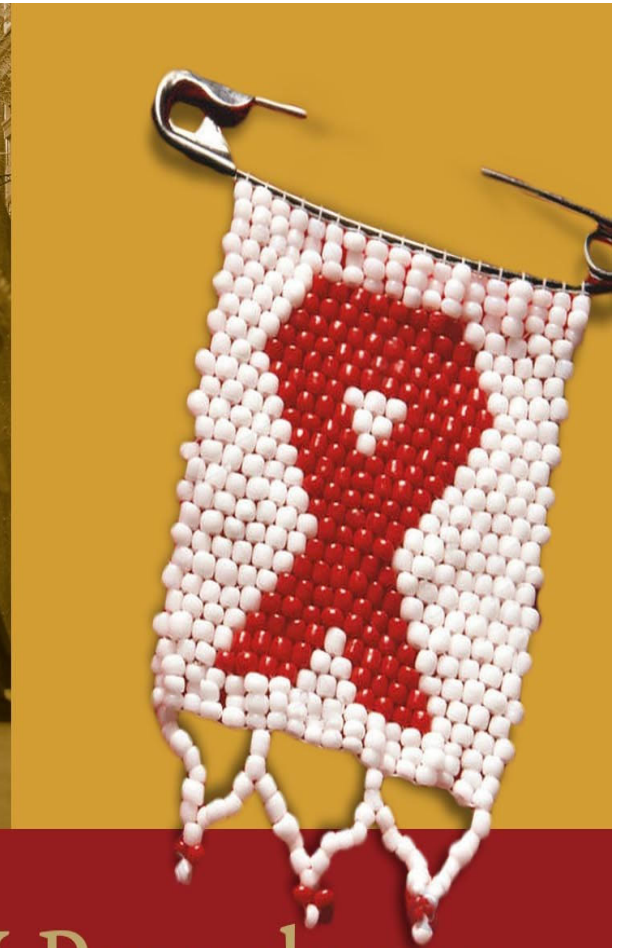


# HIV Drug Resistance among virally unsuppressed respondents in the 5<sup>th</sup> South African National HIV Prevalence, Incidence, Behaviour and Communication Survey, 2017

**#knowyourstatus**



South African National HIV Prevalence,  
Incidence, Behaviour and  
Communication Survey, 2017

- South Africa has the biggest HIV epidemic in the world, with an estimated 7.1 million people living with HIV (UNAIDS Data, 2017)
- The country has the largest ART programme in the world, which has undergone even more expansion in 2016 with the implementation of ‘universal test and treat’ policy
- HIV surveillance has been key in monitoring the response to the epidemic

- To date, the HSRC and its partners have undertaken five population-based HIV and behavioural surveys
- Previous surveys were conducted in 2002, 2005, 2008 and 2012
- These surveys have provided an important gauge of the HIV epidemic of South Africa
- HIV drug resistance (HIVDR) testing was included in the 2017 survey for the first time in the survey series

## Survey design

- A cross-sectional, population-based household survey was conducted using a multi-stage stratified cluster random sampling approach
- The study design was based on the methods used and validated in the four previous surveys carried out by HSRC in 2002, 2005, 2008 and 2012 including linked anonymous testing for HIV with informed consent

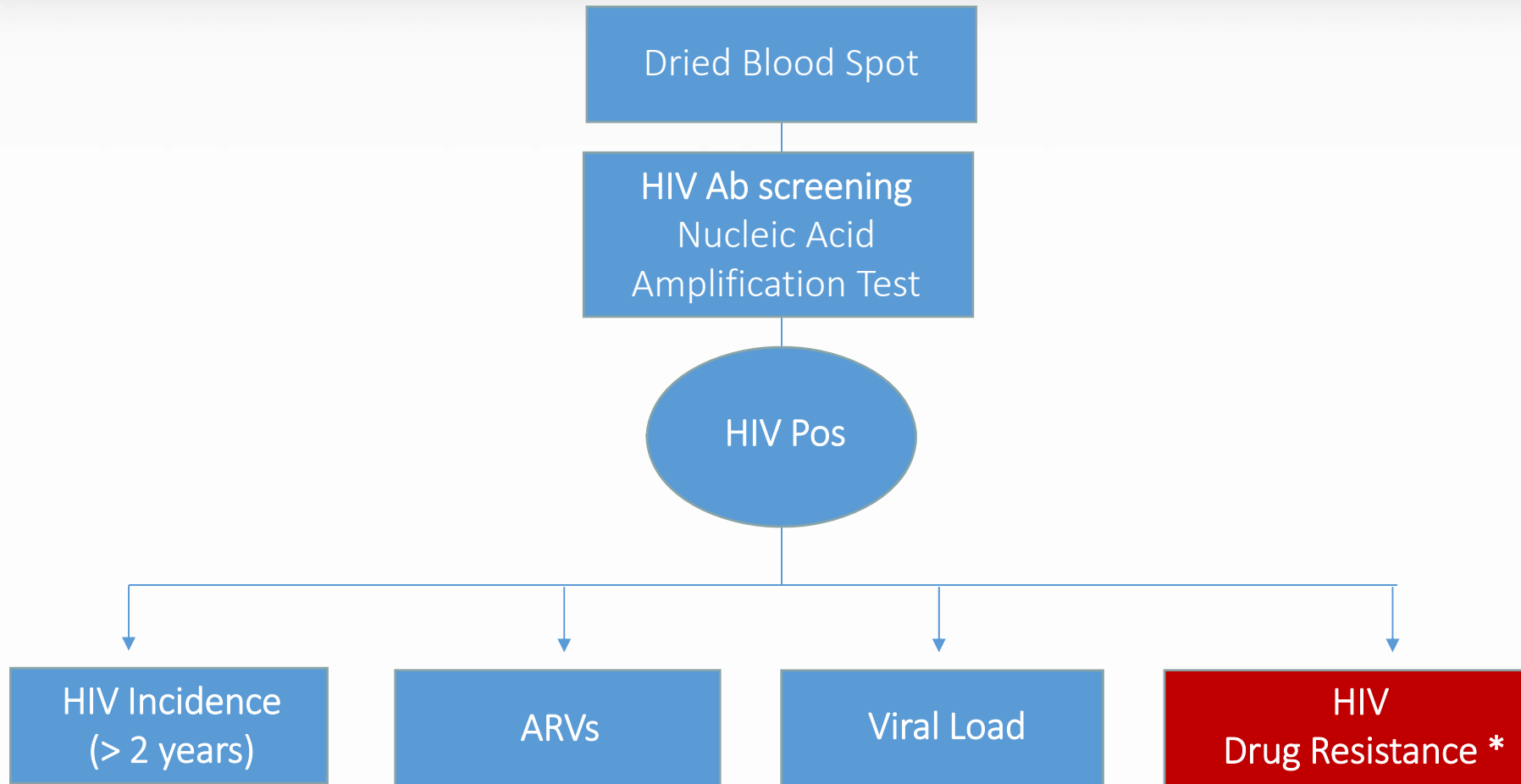
## Survey population

- This survey included persons of all ages living in South Africa.
- All members of the selected households were invited to participate, including those living in hostels



- Household Questionnaire
- Questionnaire for parent/guardian of children aged 0 to 11 years
- Questionnaire for children aged 12 to 14 years
- Questionnaire for persons aged 15 years and older
  
- Questionnaires focused on HIV knowledge, attitudes and behaviour, tuberculosis (TB), Inter-partner violence and exposure to various HIV communication campaigns
  
- Dried blood spot samples collected by finger prick (heel-prick in infants)

# Laboratory Testing: National HIV Household Survey South Africa 2017



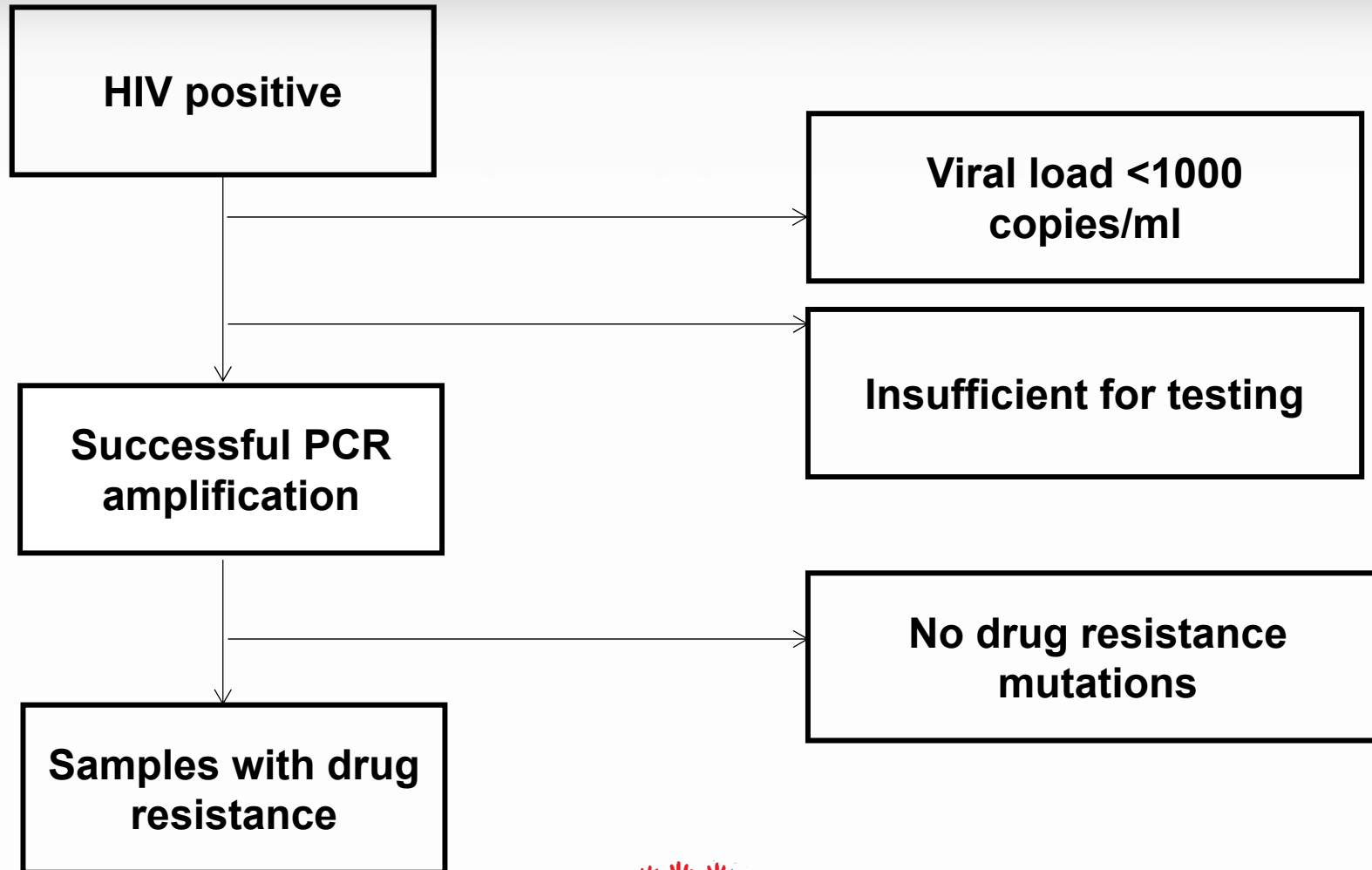
# Rationale for including HIV drug resistance testing

- With the expanding roll-out of antiretroviral therapy (ART), it is critical to understand the levels of HIVDR
- HIVDR associated with poor virologic outcomes, increased mortality, reduced durability & effectiveness of treatment regimens
- The HIVDR estimates from this survey are unique
  - they are based on population level data
  - include people who are not accessing care and those accessing private care
- Results form baseline for such population wide testing in the future



- Testing conducted at accredited laboratory (NICD)
- Testing was conducted on HIV-positive samples that were virally unsuppressed (viral load  $\geq 1000$  copies/ml) and were successfully amplified
- Next generation sequencing was performed

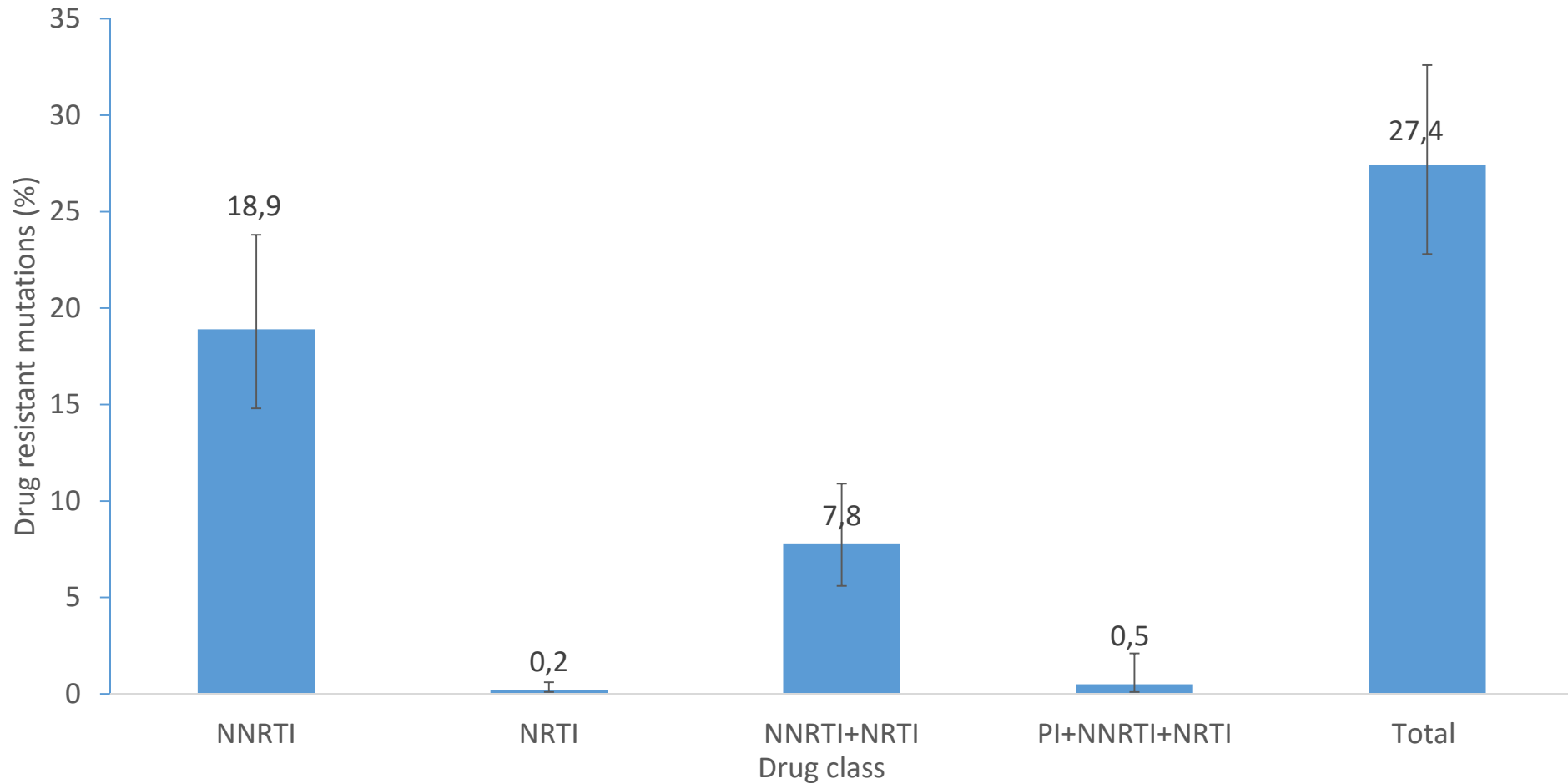
# HIV drug resistance testing flow diagram



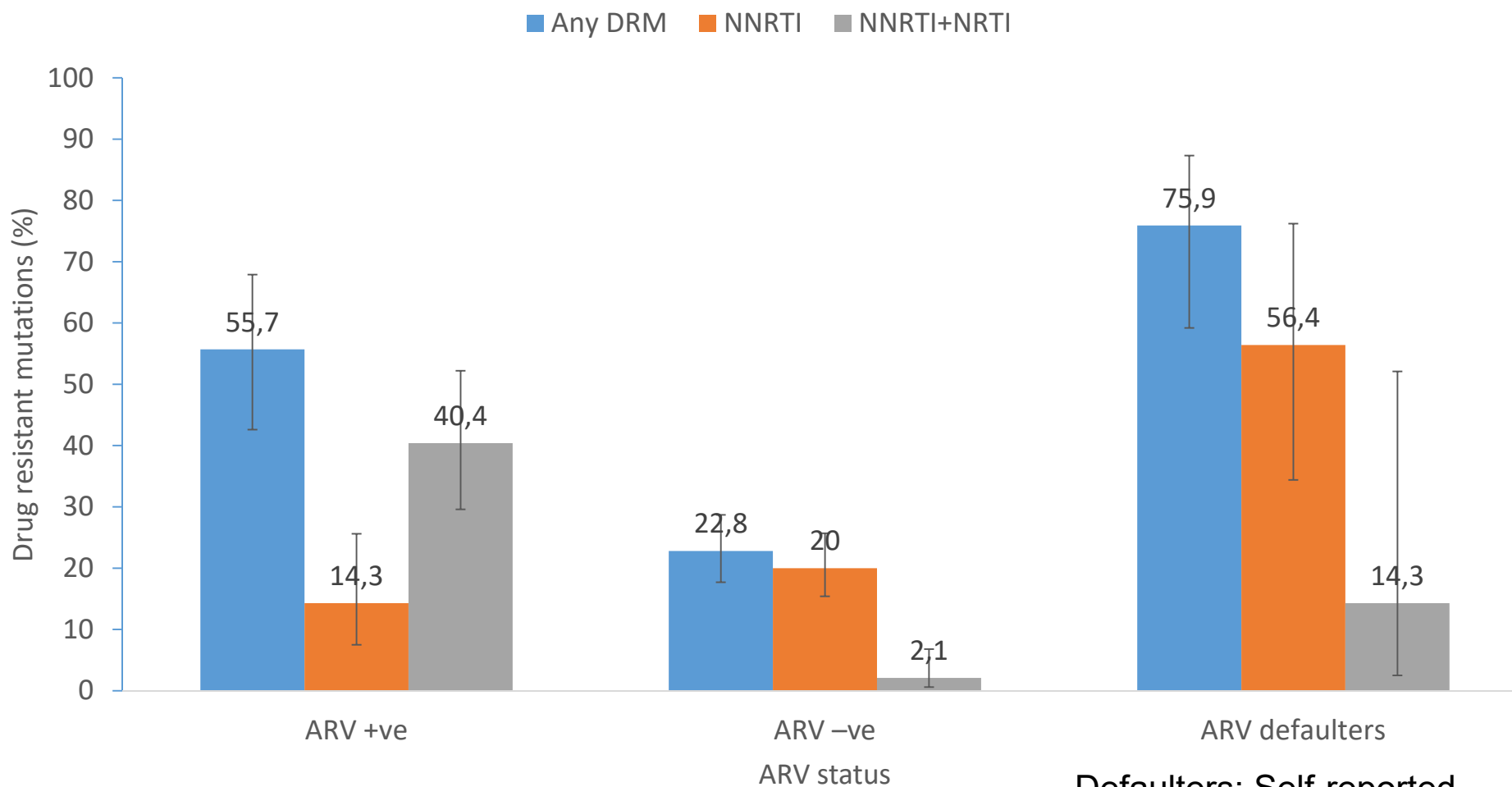
# Results



# Overall HIV drug resistance , South Africa, 2017

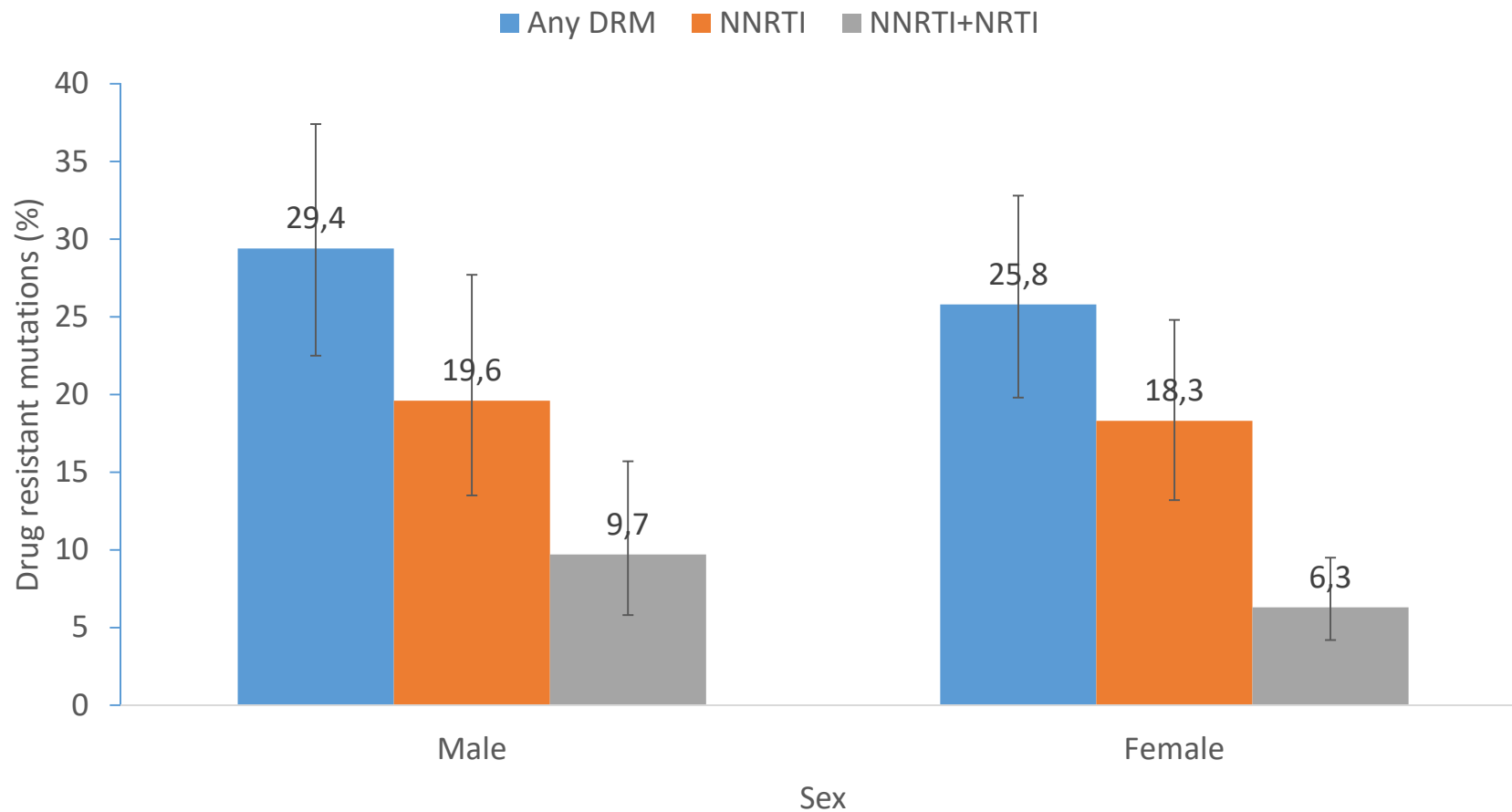


# HIV drug resistance by ARV status, South Africa, 2017



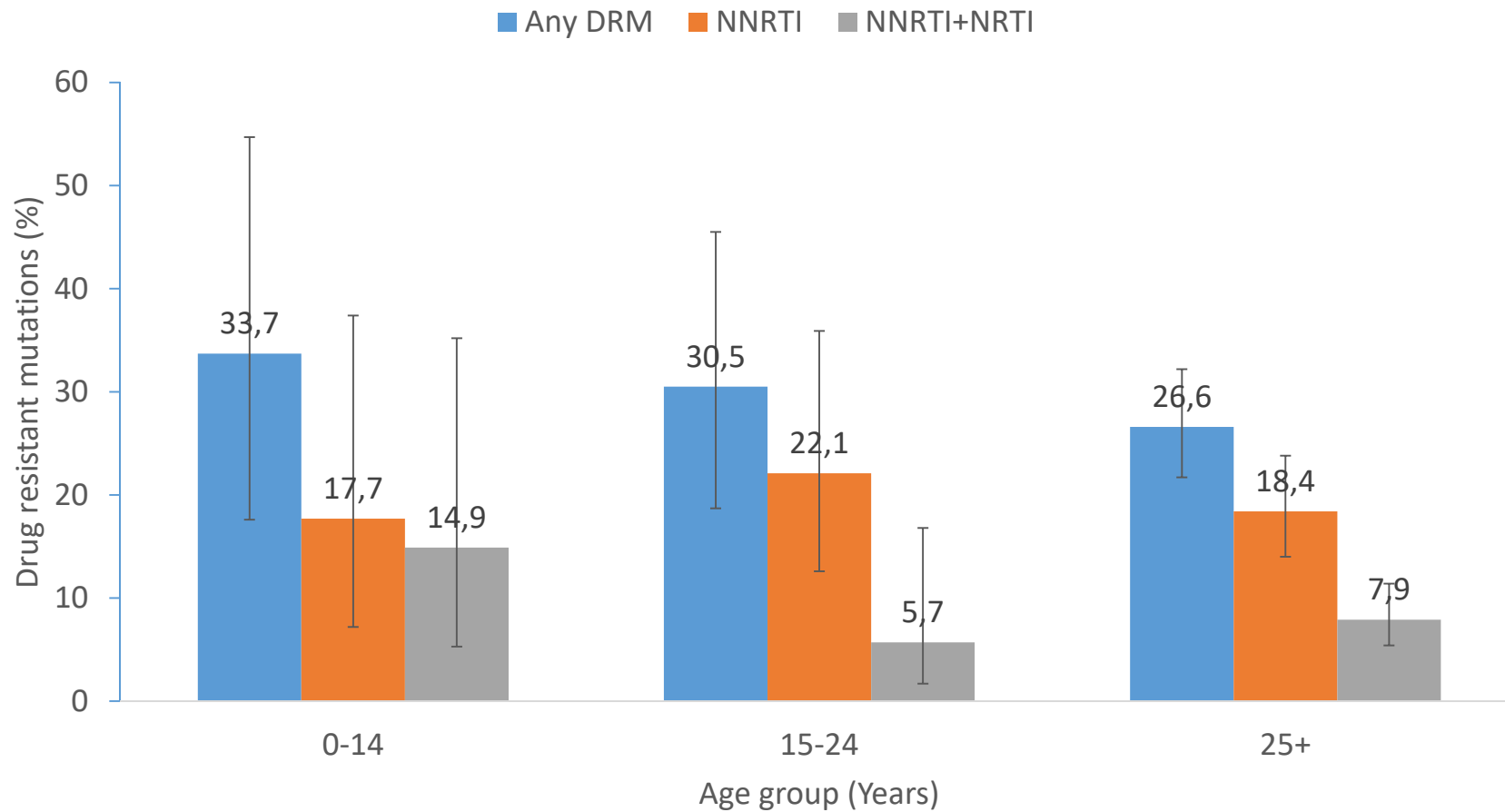
Defaulters: Self-reported taking ARVs but tested negative for ARVs

# HIV drug resistance by sex, South Africa, 2017

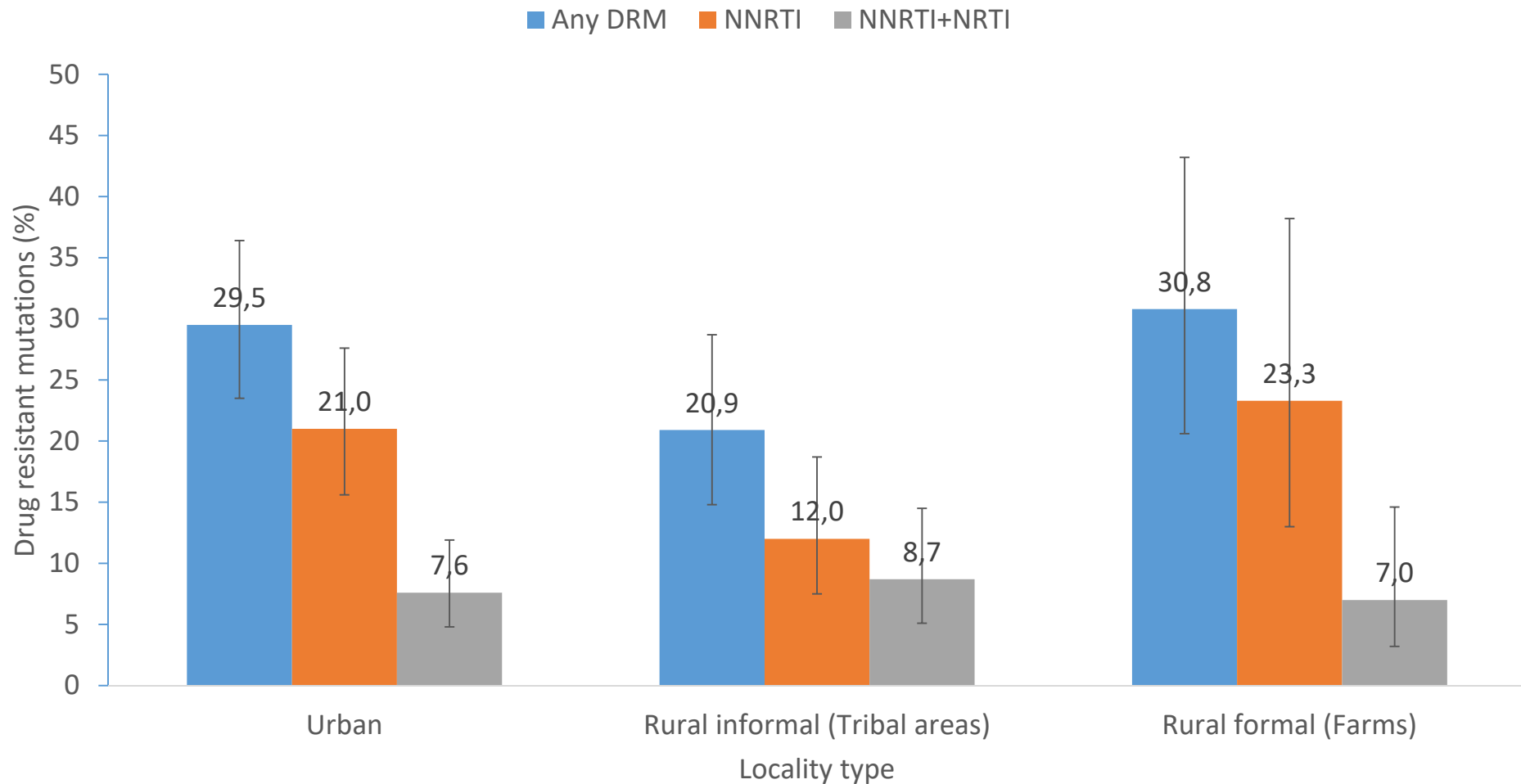




# HIV Drug resistance by age group, South Africa, 2017



# HIV Drug resistance by Locality type, South Africa, 2017



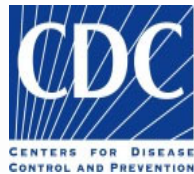
- Drug resistant mutations in more than 25% of virally unsuppressed HIV-infected persons in South Africa
- Drug resistant mutations in more than half of those on treatment
- High proportions of HIV-infected persons that are no longer in care have resistance
- Low levels of resistance among those on second line drugs
- No significant differences by sex, age, and locality type

- Findings consistent with those reported in the 2017 World Health Organization HIV Drug Resistance report
  - resistance to first-line treatment between 50 - 90%
  - resistance in more than 10% in persons starting first-line treatment in Southern African countries
  - Higher levels of resistance in those that are no longer in care

- Stronger adherence support to reduce defaulting from ART
- Strengthened first line ART regimens by including integrase strand transfer inhibitors (INSTIs) as a part of first line treatment
- Switching of failing patients to alternative regimens more quickly
- Continued monitoring of HIVDR levels

- Dr Gillian Hunt
- Prof Thomas Rehle
- HSRC Survey team
- All partners/ collaborators





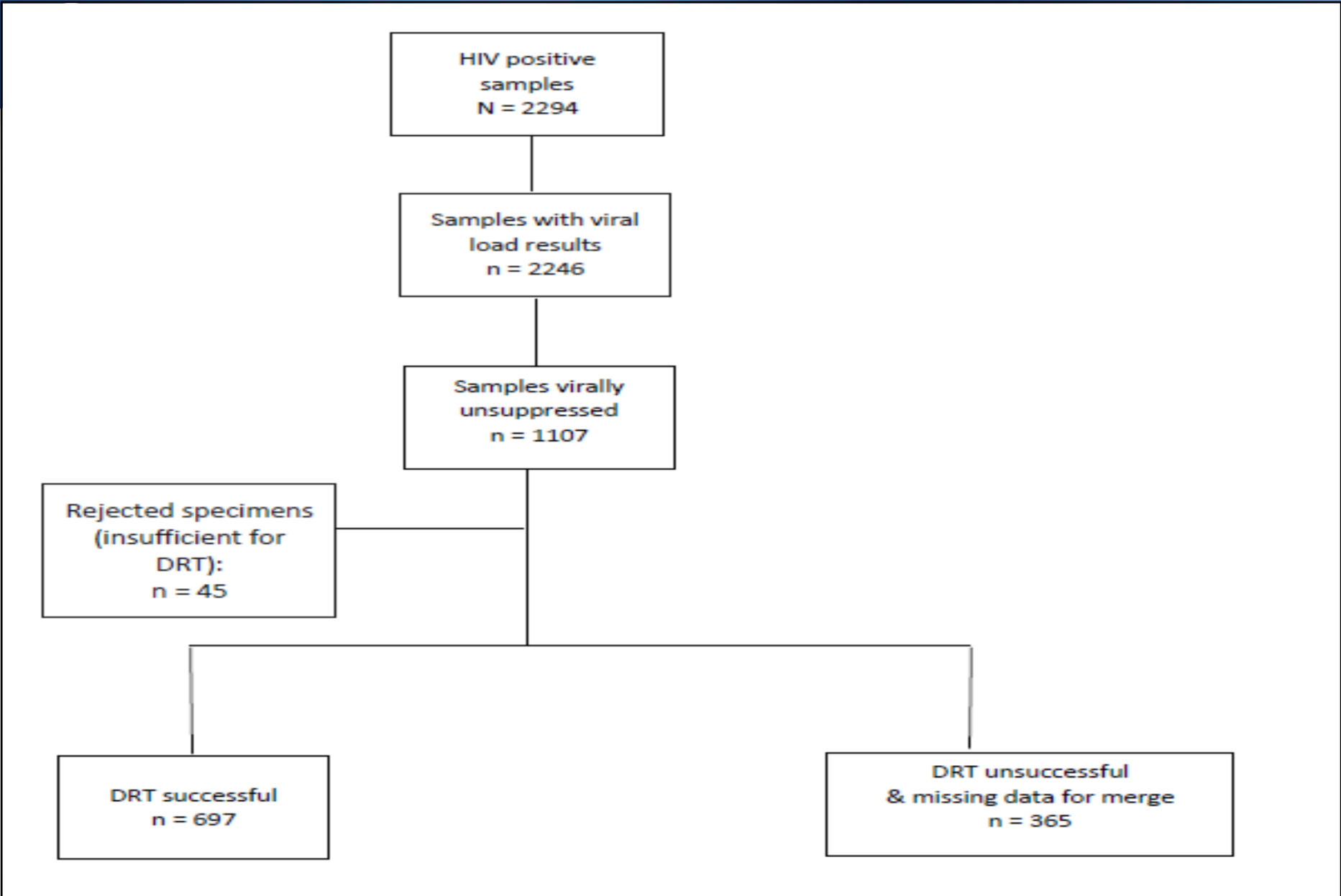


U.S. President's Emergency Plan for AIDS Relief (PEPFAR)  
through the U.S. CDC (Cooperative Agreement #GH001629)  
Department of Science and Technology, South African National AIDS Council, Global  
Fund, Right to Care, United Nations Children's Fund, United the States Agency for  
International Development, Soul City, LoveLife

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- Extra slides



# ART exposure by age group, South Africa, 2017

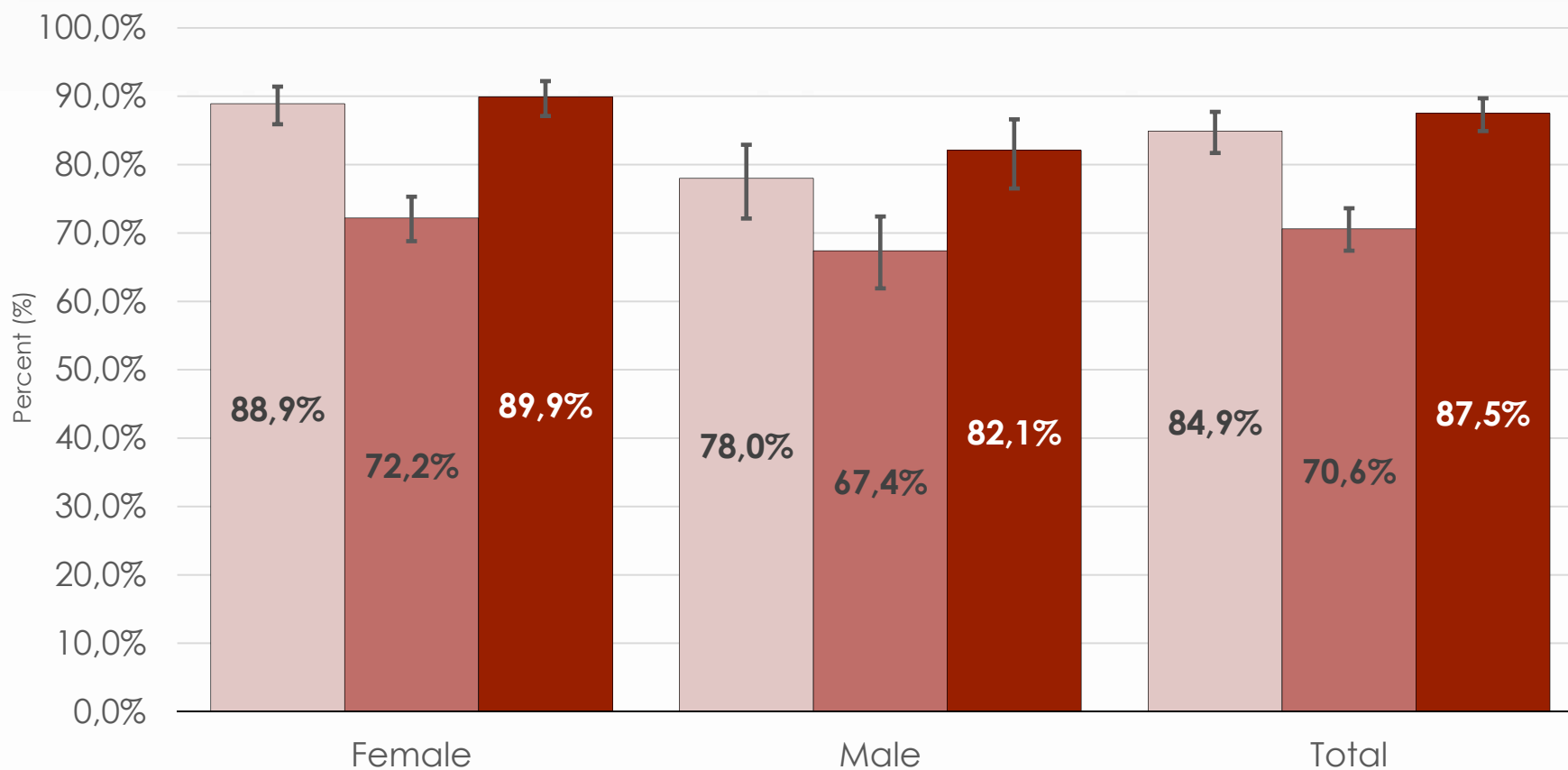
Age group (years)	Estimated number of people on ART (n)	Proportion of people living with HIV on ART (%) 95% CI
Total	4,401,872	62.3 (59.2-65.2)
0-14	131,052	50.0 (36.6-63.3)
15-24	273,981	39.9 (32.1-48.3)
25-49	3,243,819	63.1 (59.2-66.8)
50 and older	753,020	76.7 (71.3,81.4)
15-49	3,517,800	60.4 (57.0-63.6)



- The current policy is to test and treat everyone who is HIV positive as soon they are diagnosed
- Overall viral suppression was 87.3% in PLHIV on treatment, in all age groups
- The lowest viral suppression levels in ART users were among males (82.4%), 0–14 year olds (81.9%), PLHIV on farms (82.6%) and those living in Mpumalanga (82.9%)
- However not everyone who is living with HIV is on treatment, and consequently it was found that only 62.3% of all PLHIV irrespective of treatment were virally suppressed

# 90-90-90 - 15 to 64 years of age

■ Diagnosed   ■ On Treatment   ■ Virally suppressed



# Viral suppression among all PLHIV irrespective of treatment by age and sex, South Africa, 2017

