High burden of sexually transmitted infections and poor diagnostic performance of syndromic approaches within a decentralized HIV care setting in Eswatini

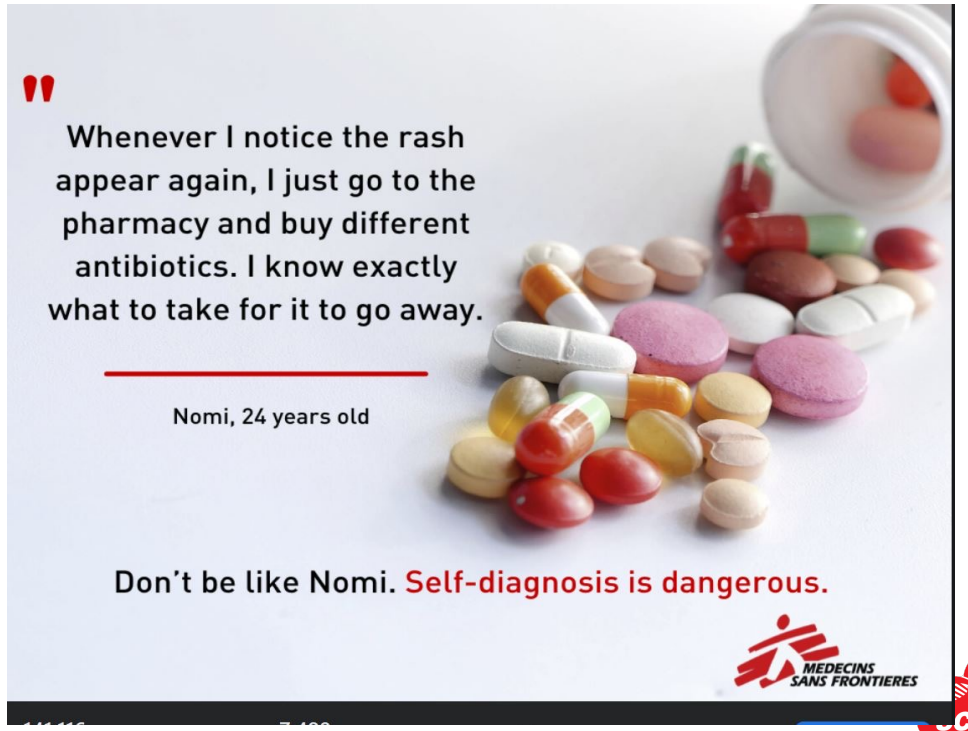
Bernhard Kerschberger[1]§, Esther Mukooza[1] Alessandra Berto[1] Nombuso Ntshalintshali[1] Mano Mafomisa[1],Skinner Lekelem[1], Sinikiwe Dlamini[1], Mayibongwe Muthupha[1] Edwin Mabhena[1] Michelle Daka[1], Iza Ciglenecki[2], Mpumelelo Mavimbela[3] Sindy Matse[3], Sindy Dlamini[3] , Alison Wringe[4] et al.

Conflict of Interest:
The author has declared no conflict of interest.

Sexually transmitted infections (STIs) globally

- 1 million new cases each day
  - Morbidity/mortality ↑
  - Antimicrobial resistance ↑
  - Transmission ↑

- Gaps in access to health products
  - Prevention, diagnosis and treatment



MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

Study setting

Shiselweni region; ~210,000 inhabitants

Population:

- Many school-going youth
- Factory workers
- Long distance truck drivers
- Female commercial sex workers
- Men who have sex with men (MSM)

Challenges:

- High HIV/Bacterial STI burden
- Concurrent sexual partnerships
- Gender based violence (GBV)
- Syndromic approach to STI care

MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

Study objectives and purpose

To estimate the prevalence of asymptomatic and symptomatic STIs

- Bacterial, parasitic and viral STIs

To evaluate performance of the syndromic approach

Expectations:

→ Improved access to comprehensive quality STI care
→ Improved health outcomes for patients
→ Decreased public health threat by STIs
→ Lessons learned to inform STI programming & health policy

MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

A mixed methods study design

A cross-sectional sample of patients accessing routine **HIV testing and ART care services tested for STIs**

Nested prospective laboratory study evaluating the test performance of a new rapid diagnostic test for the **diagnosis of acute/early HIV infection**

Nested qualitative study assessing the **acceptability** of this intervention in patients, partners of patients, and healthcare givers

- Ethical clearance was obtained from the MSF ethics review board and the Eswatini health and human research review board

MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

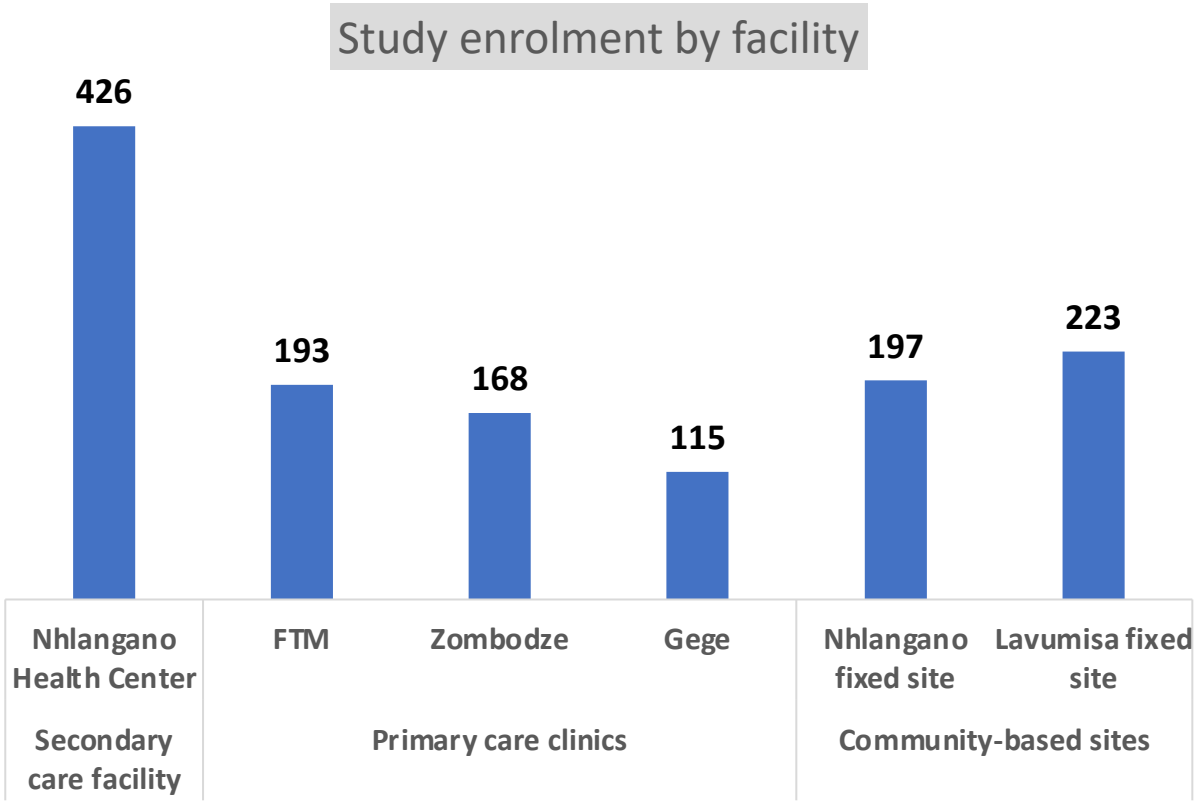
Study enrolment

1322 patients enrolled

22% were known HIV+

65% were women

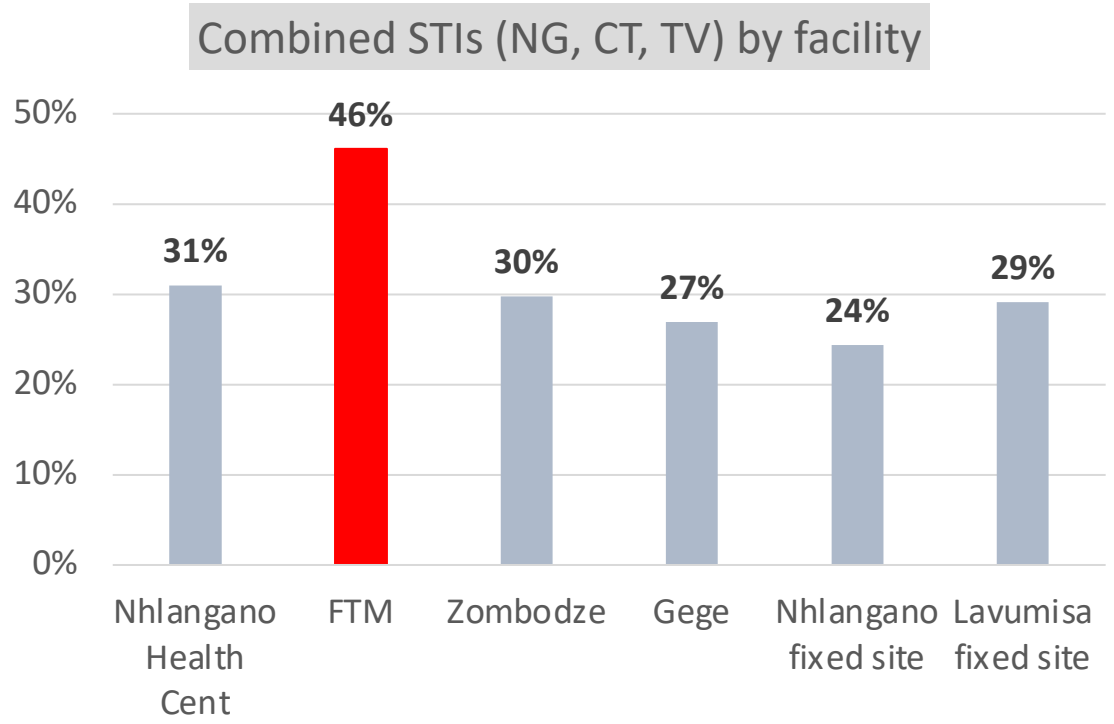
29 - Median age

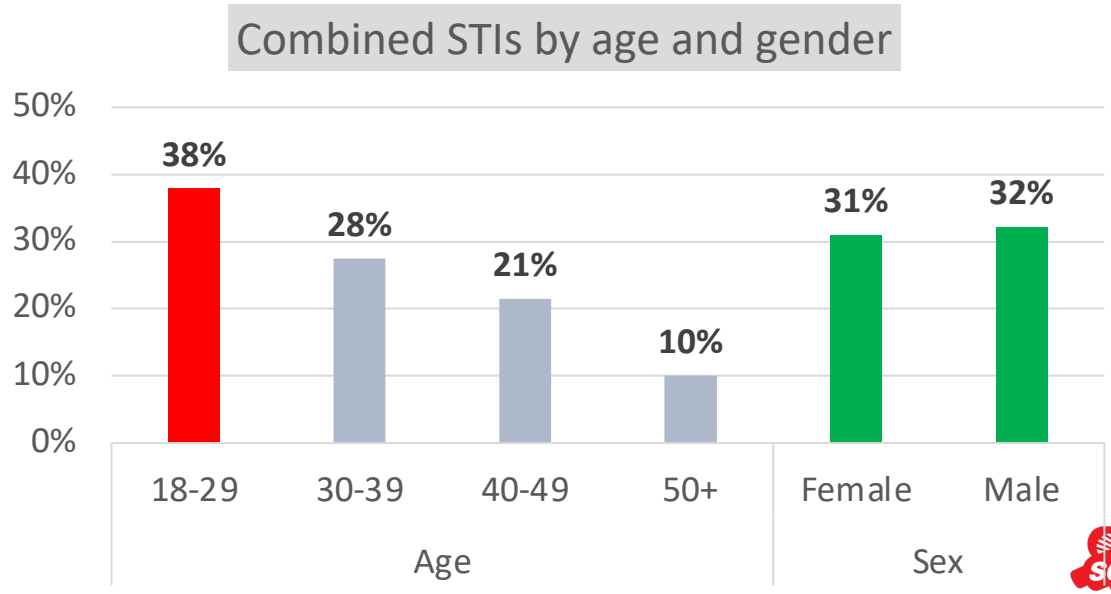


STIs by facility, age and gender

31% (n=415) of patients had one or more of the main STIs

- Neisseria gonorrhoea (NG)
- Chlamydia Trachomatis (CT)
- Trichomonas Vaginalis (TV)

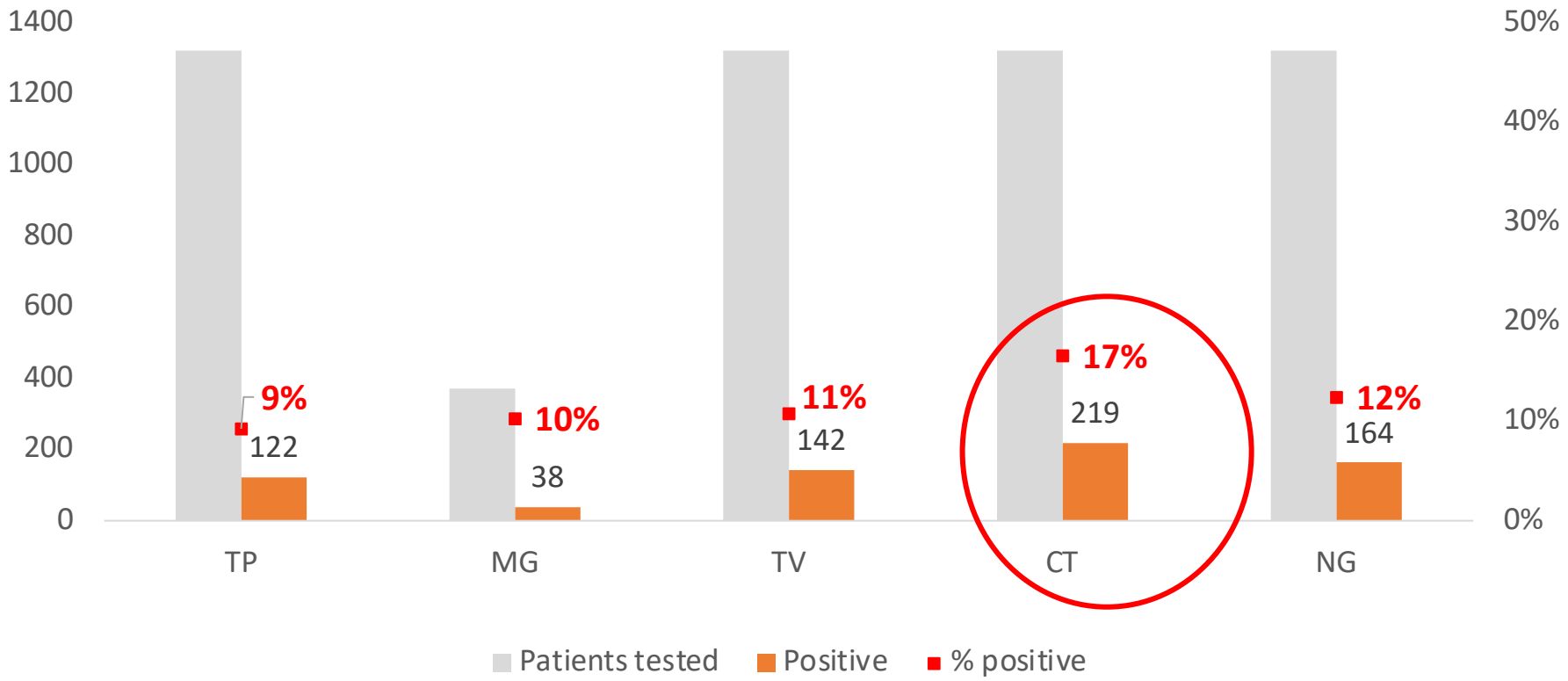




MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

Distribution of bacterial/parasitic STIs



Between 9% and 17% for syphilis (TP), gonorrhoea (NG), chlamydia (CT), and trichomonas (TV) infections.
Mycoplasma genitalium (MG)

MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

Viral STIs

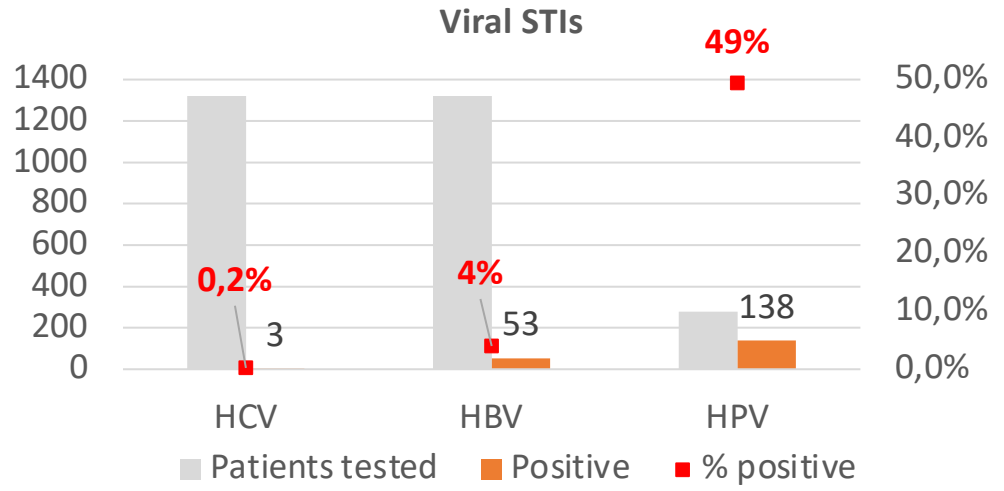
0.2% (n=3) hepatitis C (HCV) infection

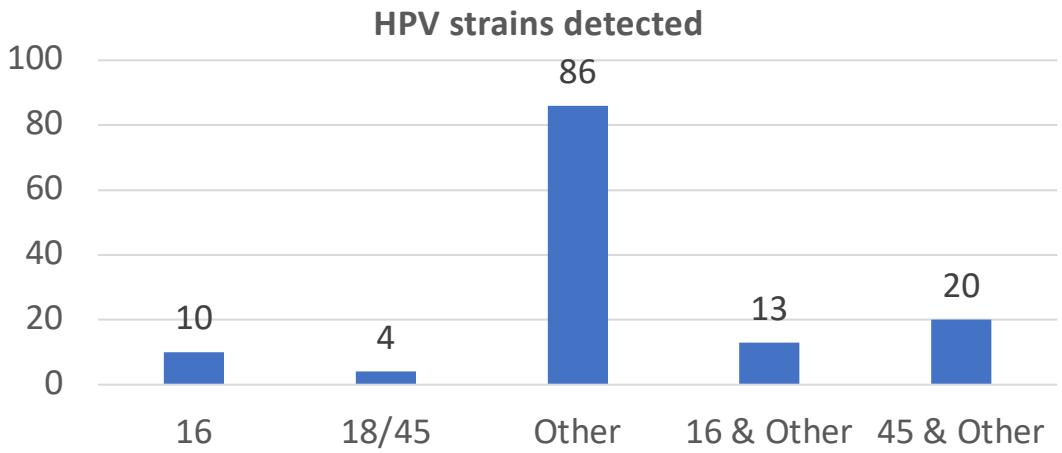
- None with detectable VL
- None had a co-infection with HBV

4% (n=53) hepatitis B (HBV) infection

- 17 patients on ART, median VL = 0 (IQR 0-10)
- 36 patients not on ART, median VL = 172.5 (IQR 9-728.5)

279 tested for Human Papilloma Virus (HPV) 49% +ve





Note: HPV other are strain 31, 33, 35, 52, 58; 51, 59; 39, 56, 66, 68

MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

Acute/early HIV infection (RDT-negative/Inconclusive &VL detectable)

1033 clients were tested for HIV with rapid diagnostic test (RDT) Alere combo, Determine & Unigold

5% (n=50) were newly diagnosed with HIV

- 20% (n=10) had **acute HIV infection** (RDT-negative/inconclusive & Viral Load (VL) detectable)
- 66% (n=33) had **established HIV infection** (RDT-positive & VL detectable)
- 14% (n=7) were possible **re-testers** (Patients on ART and PrEP)

MEDECINS SANS FRONTIERES

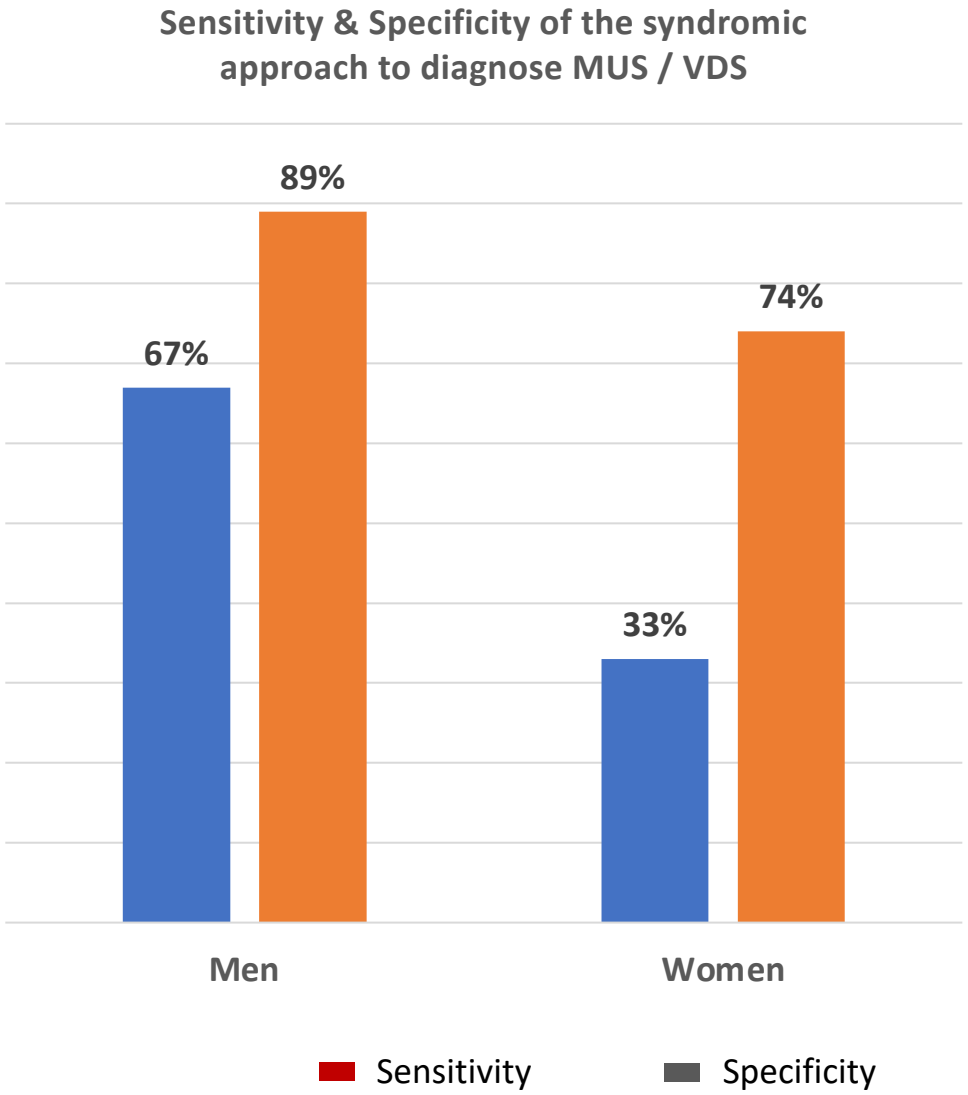
SCIENTIFIC DAYS

Diagnostic performance indicators MUS / VDS

Mis-diagnosis high for Male Urethritis Syndrome (MUS) and Vaginal Discharge Syndrome (VDS)

- **Diagnostic performance was lower for women:**

  - Patients with a false-positive diagnosis likely to receive antibiotics that are not needed
  - Patients with a false-negative diagnosis likely to not receive treatment despite need



MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS

Interim conclusions

- **Very high occurrence of bacterial/parasitic STIs**
- **Low HCV infections and HBV prevalence similar to other settings in sub-Saharan Africa**
- **Crucial to test for acute/early HIV infection**
- **Syndromic approach performance sub-optimal**
  - for the diagnosis of bacterial/ parasitic STIs in women
  - likely resulted in over- and under-prescription of antibiotics
  - potential emergence of antimicrobial resistance

Study collaborators

- Médecins Sans Frontières (MSF)
- National Reference Laboratory (NRL), Ministry of Health, Mbabane, Eswatini
- Eswatini National AIDS Programme (ENAP), Ministry of Health, Mbabane, Eswatini
- Institute of Global Health, University of Geneva, Geneva, Switzerland
- University Hospital of Geneva, Geneva, Switzerland
- Department of Population Health, London School of Hygiene and Tropical Medicine, London, UK.

Special thanks go to the study participants and the entire study implementing team for the passion with which they executed & immersed themselves in a study of this magnitude.

MEDECINS SANS FRONTIERES

SCIENTIFIC DAYS