



**Biomedical Research
and Training Institute**

What's new in Sexually Transmitted Infections

Rashida Ferrand

Improving health worldwide

www.lshtm.ac.uk

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Sexually transmitted infections (STIs)

> 30 pathogens transmissible during sex



Bacteria

Neisseria gonorrhoea (gonorrhoea)
Chlamydia trachomatis (chlamydia)
Treponema pallidum (syphilis)



Protozoa

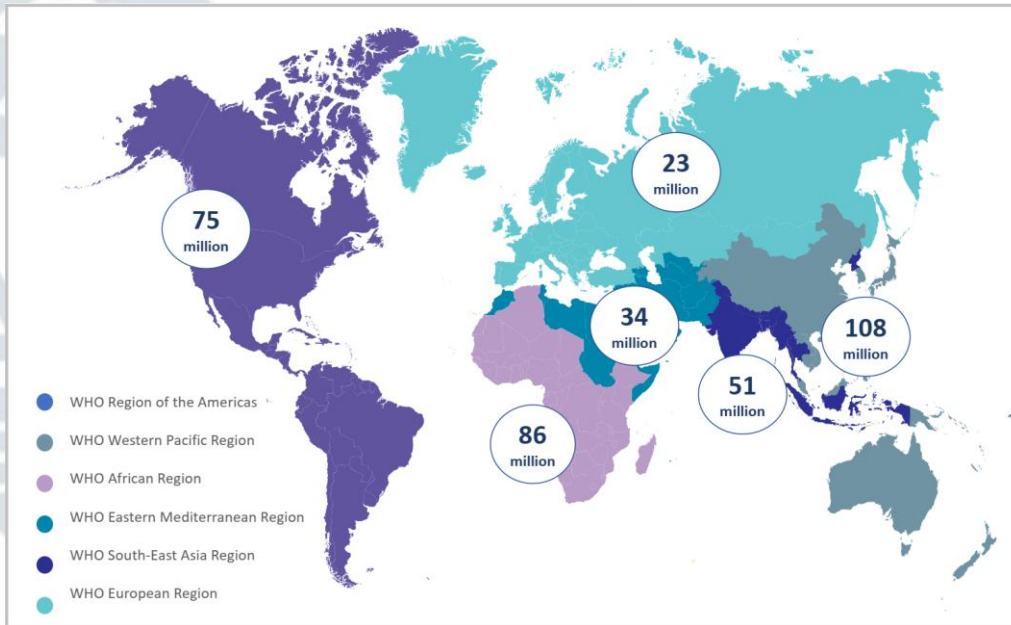
Trichomonas vaginalis



Viruses

Herpes simplex virus 2 (HSV2)
Human papillomavirus (HPV)
Hepatitis B virus (HBV)
Hepatitis C virus (HCV)
HIV

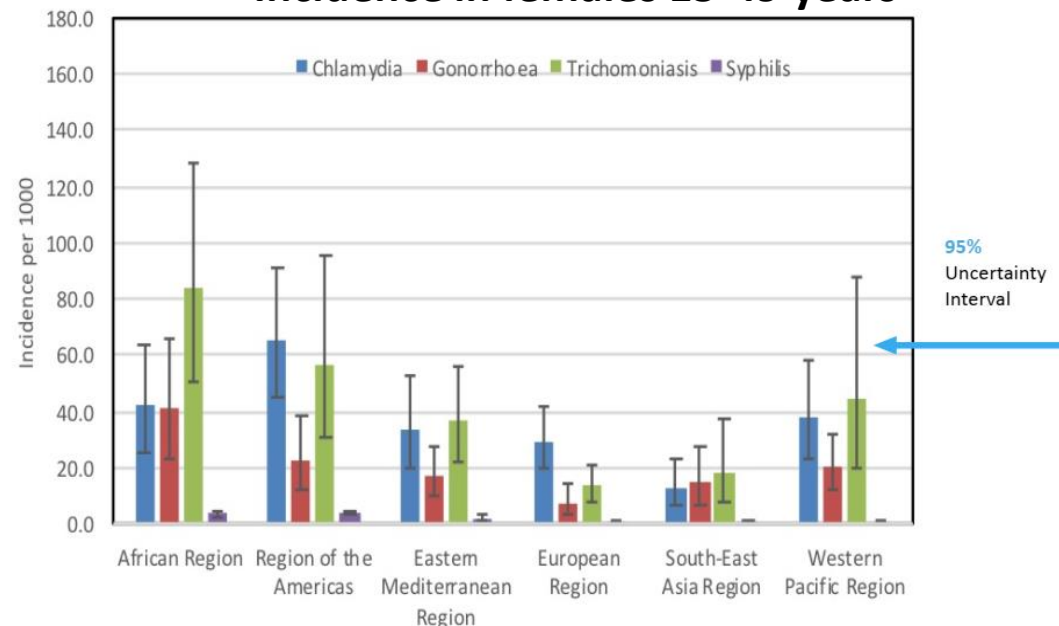
Curable STIs...the numbers



376 million cases of curable STIs in adults 15-49 years

(Chlamydia, Gonorrhoea, Trichomoniasis, Syphilis)

Incidence in females 15-49 years

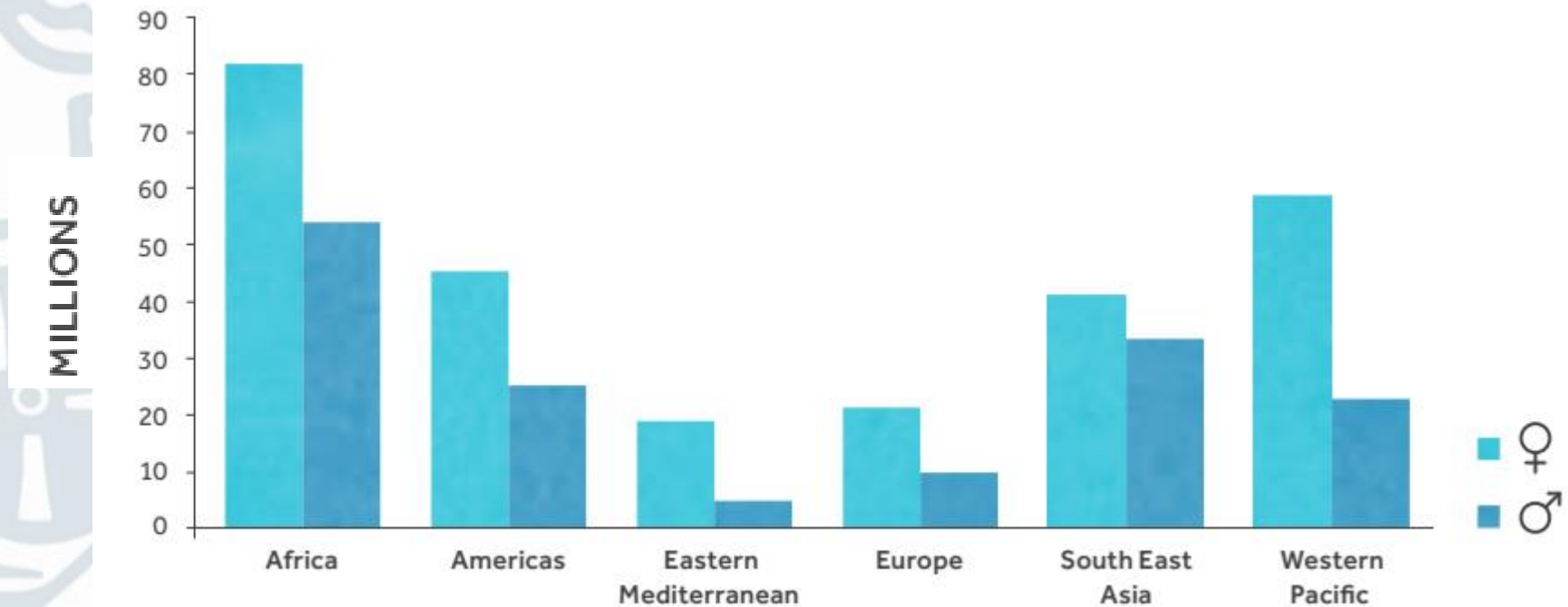


Viral STIs

291 million women harbour human papillomavirus

Prevalence of herpes simplex virus-2 by WHO region and sex

417 million



Hidden toll of STIs

Profound impact on the lives and health of children, adolescents and adults

- Foetal and neonatal deaths (>300,000/annum)
- Infertility
- Precursor to cancers (264,000 cervical cancers/annum)
- Risk of HIV transmission (2-3 times)
- Psychological and social consequences



Framing the approach to STI control

Universal health coverage (SDG 3.7)

2030
GLOBAL
TARGETS FOR STI
CONTROL

Public
Health
Approach

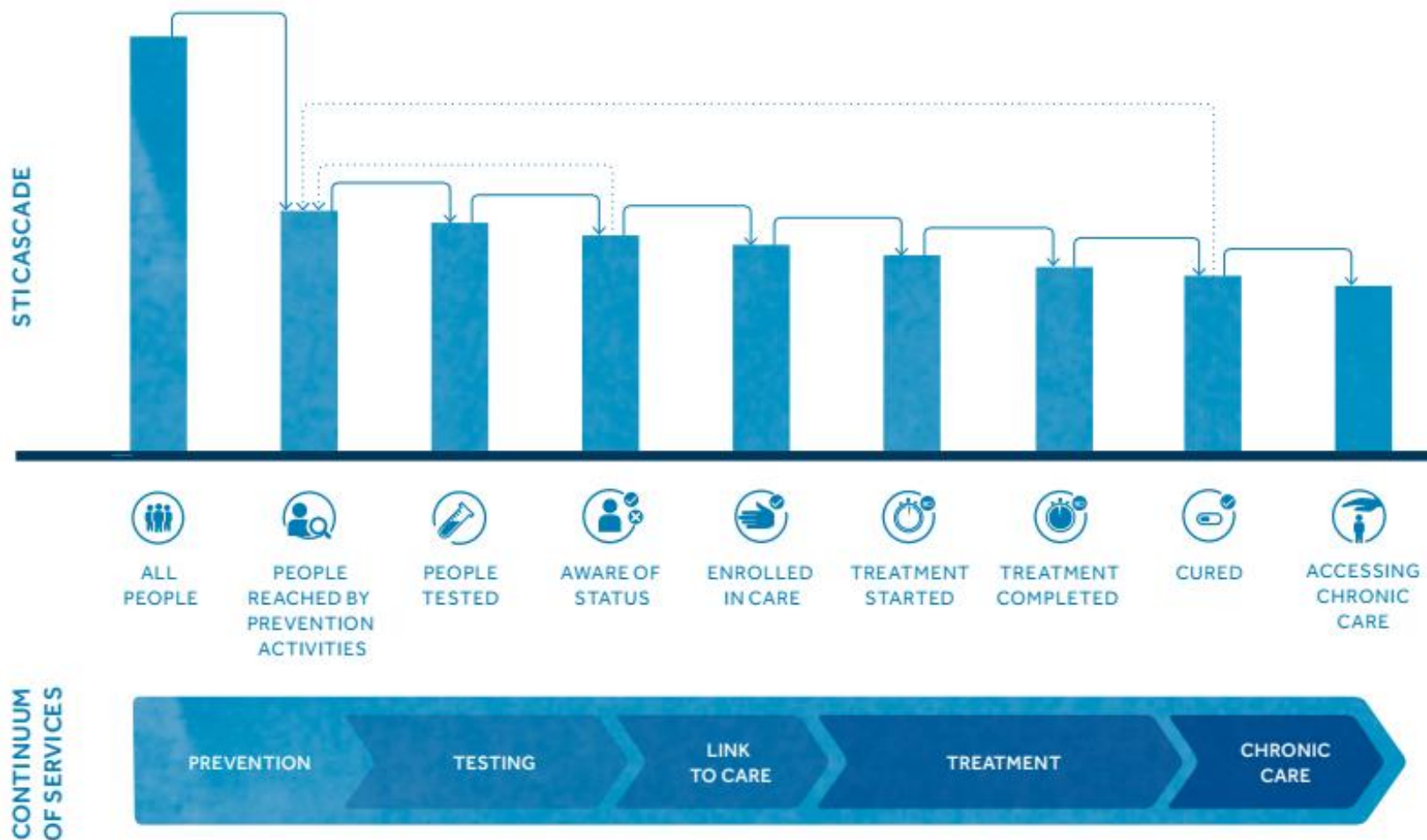
Continuum of
services

- 90% reduction in *T. pallidum* & *N. gonorrhoea* incidence
- ≤50 congenital syphilis cases/100000 live births in 80% countries
- 90% coverage of HPV vaccine

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Continuum of services



The 5 pillars of the strategy

1. **Surveillance and data:** prevalence, aetiology, resistance
2. **Essential package of high-impact interventions:** across continuum
3. **Approaches for delivery of interventions:** different populations and different locations
4. **Access to & scale-up innovations:** diagnostics , vaccines, microbicides, suppressive therapy, health promotion methods
5. **Sustainable and innovative financing models**

WHO Global health sector strategy on STIs (2016-2021)

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WHO Enhanced Gonococcal Antimicrobial Surveillance Programme (eGASP)

- Multidrug-resistant *Neisseria gonorrhoeae* (NG) major global health threat
- Extremely limited data from sub-Saharan Africa
- Standardised, quality-assured WHO EGASP established in Kampala, Uganda: 458 isolates characterized (using Etest), with associated epidemiological surveillance data, in 1.5 years

*(minimum WHO Global GASP requirement 100 isolates per year/
country requested to detect AMR levels with confidence)*

- Ciprofloxacin resistance: 99.6%.
- Susceptibility to azithromycin: 99.8%,
- Susceptibility to ceftriaxone: 100%

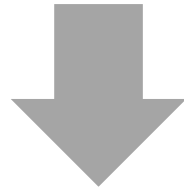
*Weston EJ et al Emerging Infect Dis 2017
Kakooza F et al Sex Transm Infect 2020*

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Rapid diagnostic tests (RDTs)-syphilis

- Several point-of care tests for syphilis
- Performance comparable to laboratory tests
- Do not distinguish between past and present infection
- Cost of “overtreating biological false positives” acceptable to risk of non-treatment



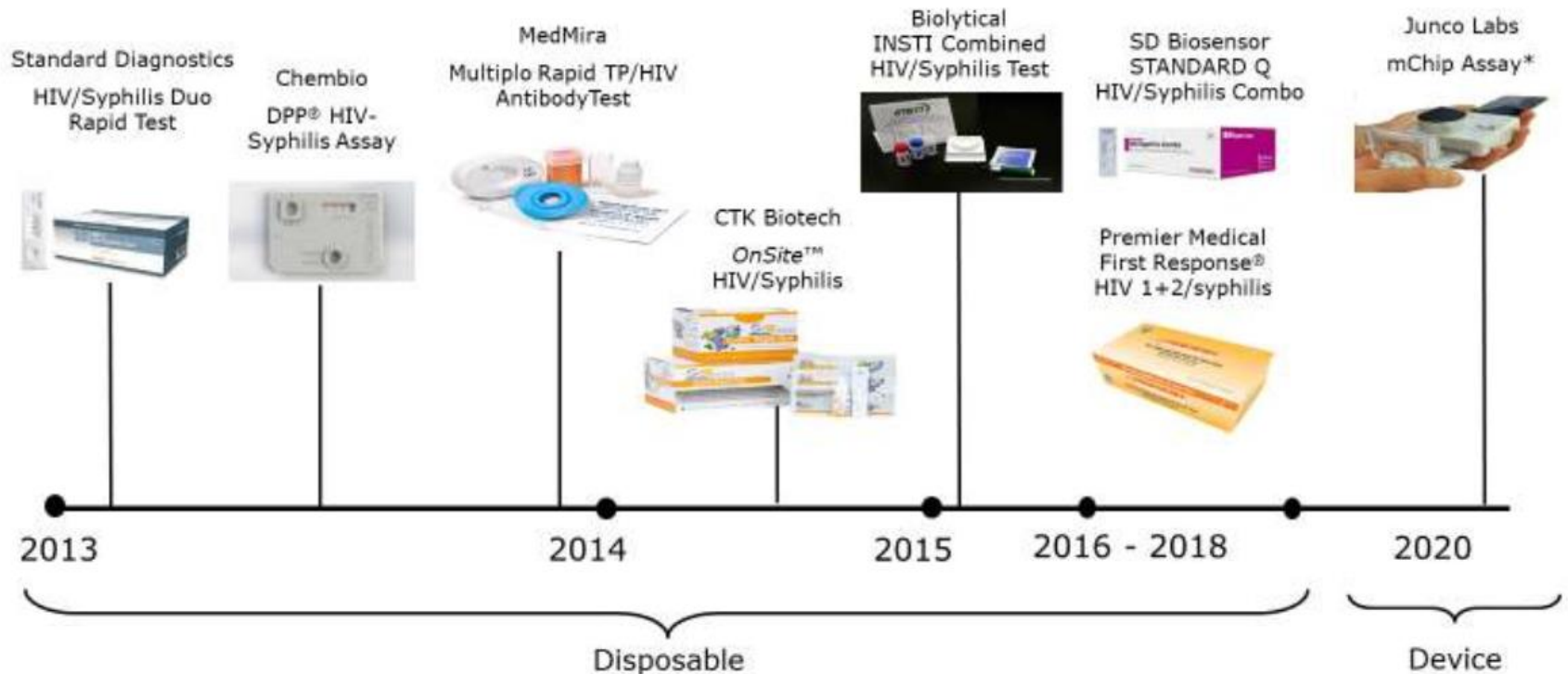
- Chembio[®] Syphilis Screen and Confirm
- Recombinant antigen to *Treponema pallidum* (TP) + synthetic antigen for non-TP
- Possibly lower sensitivity for TP

Jafari Y et al Plos One 2013
Marks M et al CID 2016



POC HIV/Syphilis tests-available & pipeline

- Acceptable, feasible, cost-effective
- Syphilis screening programmes still not widely implemented

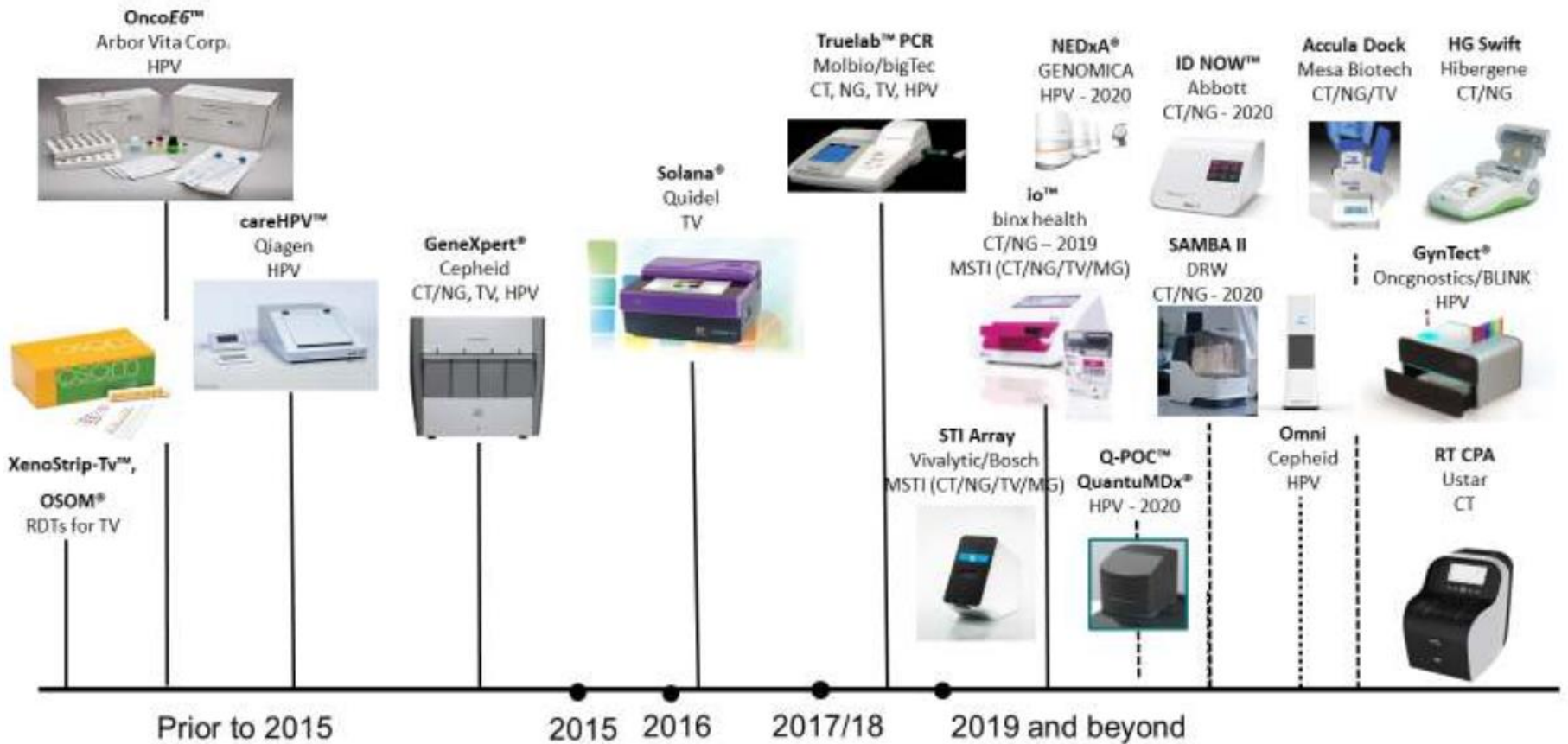


*Estimated as of June 2019 - timeline may change

--- No market launch date set by company.

Rapid diagnostic tests: NG, CT, TV, HPV

<https://www.who.int/reproductivehealth/topics/rtis/Diagnostic-Landscape-for-STIs-2019.pdf>



*Estimated as of June 2019 - timeline and sequence may change.

----- No market launch date set by company.

Near POC vs POC

GenXpert®: NG, CT, TV and HPV

- Multiple specimen types
- Automated closed system
- Modular machine
- Not point-of-care



Binx io® : NG and CT..others

- 30 minutes
- True POC
- FDA clearance
- No published evaluations in LIC



Moving away from syndromic approaches

- Validation of tests in different populations
- Still require infrastructure: uninterrupted power supplies etc
- How, where and who to test
- Turn-around time preclude using as point-of-care tests
- Cost prohibitive

<https://www.who.int/reproductivehealth/topics/rtis/pocts/en/>

<https://sti.bmj.com/content/93/S4>

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Resistance-guided treatment of gonorrhoea

- Detection of the *Neisseria gonorrhoea* sequences in gyrase A (*gyrA*) gene point mutation associated with resistance to ciprofloxacin
- Guides treatment option of whether to use ciprofloxacin and avoid ceftriaxone- one of the last remaining antibiotics for multi-drug resistant infections
- Mutation >98% predictive of resistance to ciprofloxacin- may not be applicable to other agents
- Patients selected on bases of positive NAAT
- Not near patient

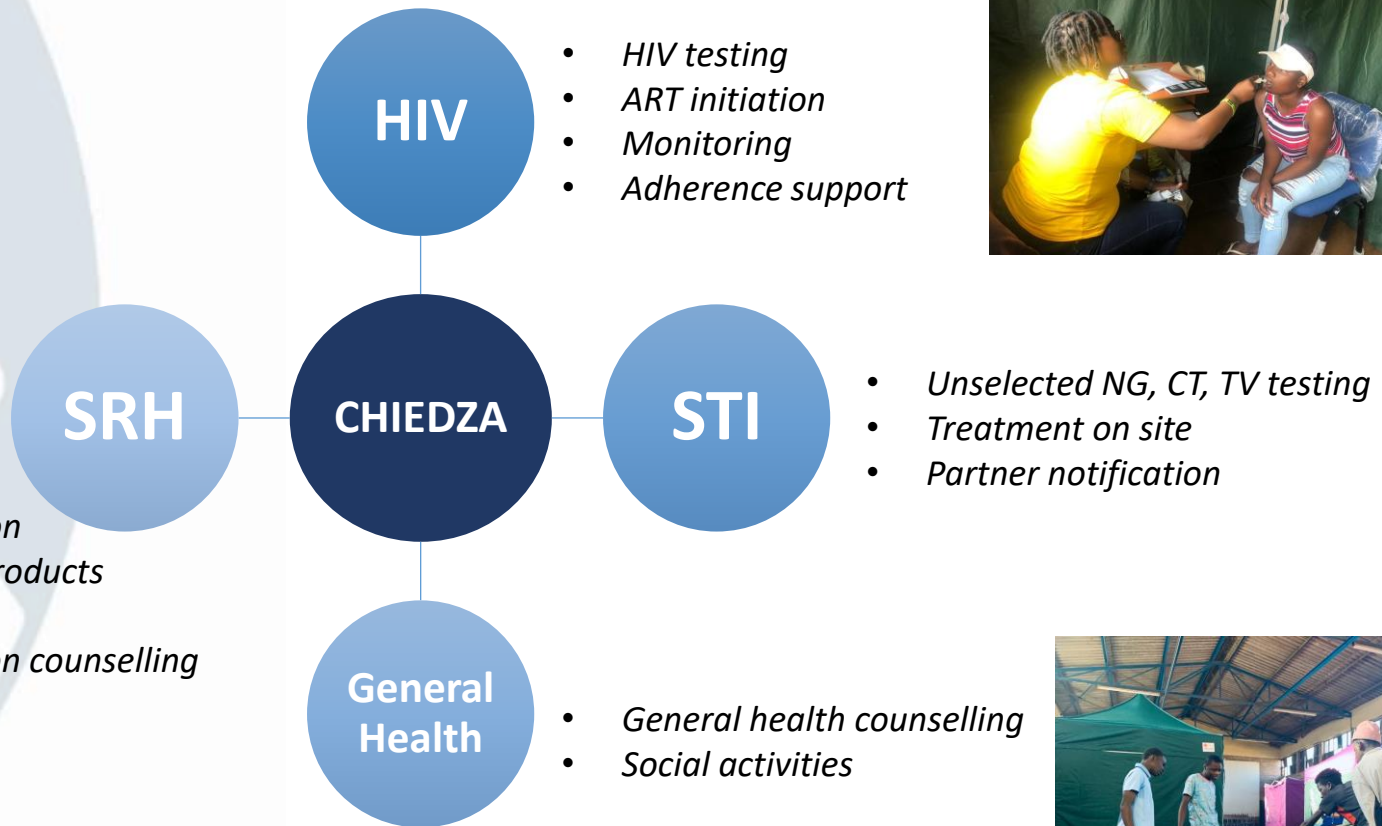
Vaccines

- Chlamydia adjuvanted vaccine (CTH522): double-blind, placebo-controlled phase 1 trial (n=35)
 - Fist in-human trial
 - Immunogenic, well-tolerated
- Retrospective case-control study in New Zealand:
 - N=14370
 - Group B outer membrane vesicle meningococcal vaccine (MeNZB)
 - Vaccinated individuals less likely to be cases (with gonorrhoea) than controls (chlamydia only)
 - 511 [41%] (cases) vs 6424 [51%] (controls); adjusted OR 0.69 [95% CI 0.61–0.79]; $p < 0.0001$)
 - Estimate vaccine effectiveness of MeNZB against gonorrhoea after adjustment for ethnicity, deprivation, geographical area, and sex was 31% (95% CI 21–39).
 - Proof of principle for vaccines



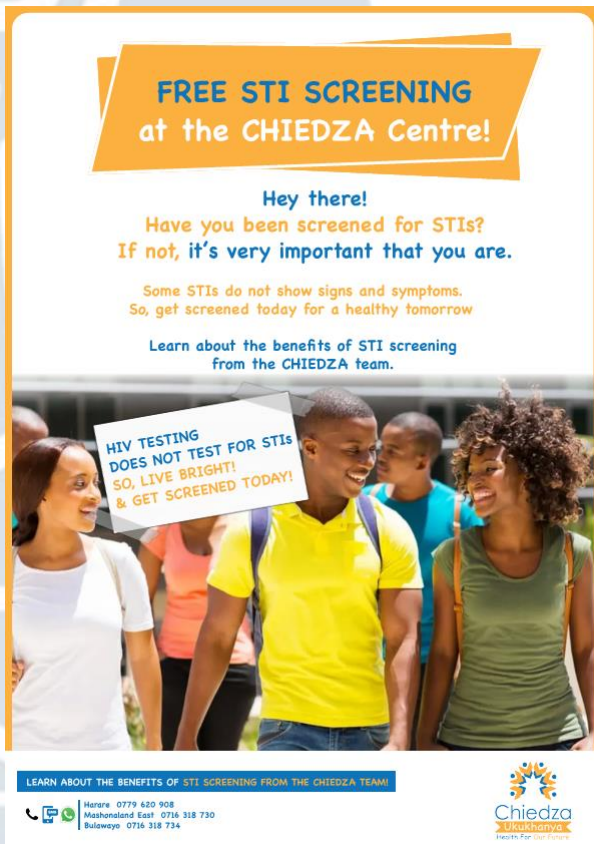
Integrating STI into broader HIV & SRH platforms

CHIEDZA Trial: Cluster randomized trial in 3 provinces in Zimbabwe



Access: Specific populations in specific settings

- Targeted at youth aged 16-24 years
- Community-based settings



FREE STI SCREENING
at the CHIEDZA Centre!

Hey there!

Have you been screened for STIs?
If not, it's very important that you are.

Some STIs do not show signs and symptoms.
So, get screened today for a healthy tomorrow

Learn about the benefits of STI screening
from the CHIEDZA team.

HIV TESTING
DOES NOT TEST FOR STIS
SO, LIVE BRIGHT!
& GET SCREENED TODAY!

LEARN ABOUT THE BENEFITS OF STI SCREENING FROM THE CHIEDZA TEAM!

Harare 0779 620 908
Mashonaland East 0716 318 730
Bulawayo 0716 318 734

Chiedza
Ukukhanya
Health For Our Future



MENU OF SERVICES

Hey Guys!
Here are our services,
especially for you!

Get your mind, body and health
on the bright path with our...

- HEALTH INFORMATION
- COUNSELLING
- HIV TESTING
- FAMILY PLANNING
- RELATIONSHIP ADVICE
- HIV TREATMENT
- CONDOMS
- REFERRAL SERVICES
- HIV TREATMENT SUPPORT

Available at the CHIEDZA Centre or in the
comfort of your own home.

- Ask us about our Wangu/ Skeem Sami programme

LIVING BRIGHT
BEGINS HERE

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Behavioural interventions

- Interfacing with with the needs of clients
- Messaging
- Quality



SPECIALLY DESIGNED TO HEIGHTEN EXCITEMENT

Fantasy Condoms are designed for pleasure and total reliability. Made from premium quality natural rubber latex, each Fantasy Condom is electronically tested to provide maximum protection and safety.

Avoid oil-based lubricants such as petroleum jelly and baby oil as these will damage latex condoms

Conform to ISO 4074 •
Lubricated condoms •



Looking ahead.....

- Need a paradigm shift away from decades-old approach: lessons to be learnt from HIV
- Much to do: Opportunities for biomedical, implementation and behavioural research

