

Prevalence and Management of Sexually Transmitted Infections during Pregnancy in a Resource Limited Setting

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STI a Public Health Concern: Why?

- ~500 million people infected yearly
- > 1 million people acquire STI daily

- Trichomonas Vaginalis
- Gonorrhoea
- Syphilis
- Chlamydia



- Facilitates transmission and acquisition of HIV
- Adverse maternal and foetal outcomes

WHO 2008

Impact of STI on Pregnancy

- Premature rupture of membranes and or preterm birth*
- Severe neonatal infections**
- Ophthalmia neonatorum***
- Abortion/pregnancy loss#
- Postpartum endometritis*

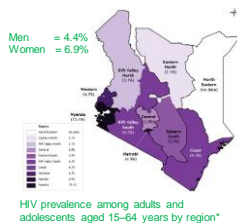


* Watson-Jones et al 2002; ** Schulz et al 1987; *** Schaller et al 2001; #Holmes et al 1999

Disease	CDC Screening Recommendation
Chlamydia	<ul style="list-style-type: none"> Screen all pregnant women at first prenatal visit 3rd trimester rescreen
Gonorrhoea	<ul style="list-style-type: none"> Screen all pregnant women at risk at first prenatal visit; 3rd trimester rescreen women at continued high risk
Syphilis	<ul style="list-style-type: none"> Screen all pregnant women at first prenatal visit; During 3rd trimester rescreen women who are at high risk for syphilis
Trichomoniasis	<ul style="list-style-type: none"> Test pregnant women with symptoms
Herpes (HSV)	<ul style="list-style-type: none"> Test pregnant women with symptoms
HIV	<ul style="list-style-type: none"> Screen all pregnant women at first prenatal visit Rescreening in the third trimester recommended for women at high risk for getting HIV infection

HIV and Syphilis in Kenya

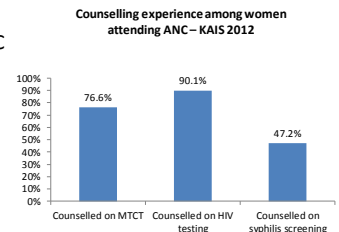
- Population ~40M
 - ~1.6M living with HIV*
 - 10% children <14 years
 - 57% women
- 6.5% of pregnant women HIV infected*
 - PMTCT B plus implemented in 2013
- Prevalence of syphilis**
 - Women - 1.7%
 - Men - 1.9%



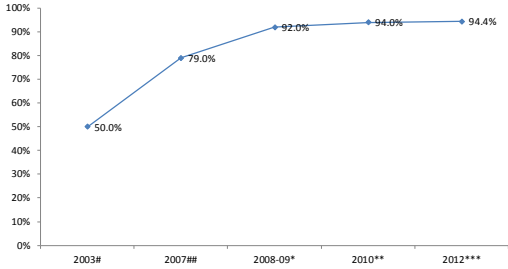
*KAIS 2012; **KAIS 2008/9

HIV & Syphilis Counseling among pregnant women

- Counseling & testing at 1st ANC
- 2000 - PMTCT implemented
- 2012 - >9,000 facilities offering PMTCT
- Repeat testing infrequent



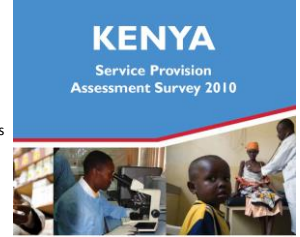
Trends on HIV testing during pregnancy



KDHS 2003; #KAIS 2008-9; *Kinuthia et al 2010; **Kiari et al 2011; ***KAIS 2012

STI services in Kenya

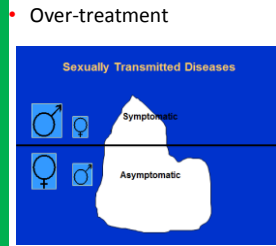
- Use WHO syndromic approach
 - ~50% have guidelines
 - ~30% of patients had genital examination
- Laboratory support
 - Only 1% of facilities can test for each of the four major STIs (Syphilis, gonorrhoeae, trichomoniasis, and chlamydia)
 - < 25% can test for syphilis or gonorrhoeae



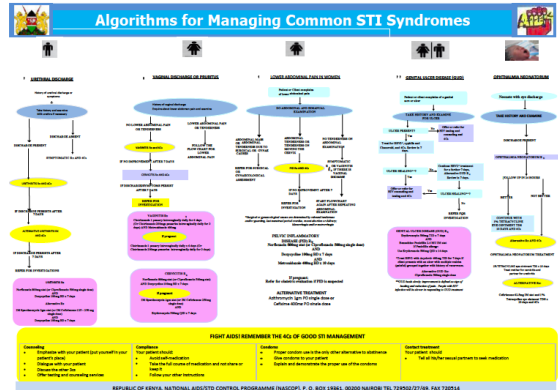
- ~50% of facilities have medicines for the 4 major STIs⁸

Syndromic Approach to STI Management

- Simple, rapid and inexpensive
- Complete care offered at first visit
- Treated for possible mixed infections
- Accessible to a broad range of health workers
- Avoids unnecessary referrals



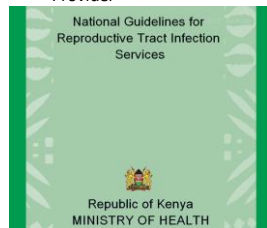
- Over-treatment
- Asymptomatic infections missed



Partner Notification

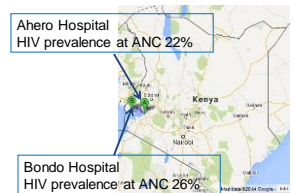
- Important in STI management
- Importance
 - Prevents re-infection
 - Prevents spread
 - Prevents complications of untreated STIs
 - Locates & treats asymptomatic patients
 - Gets a partner to abstain or use condoms

- Achieved through:
 - Patient
 - Provider



HIV Incidence During Pregnancy and Postpartum Study

- Enrolled HIV-1 negative women seeking ANC
- Follow up to 9 months postpartum



	Antenatal (weeks)		Delivery	Postpartum (weeks)					
	Enroll	28	36	2	6	10	14	24	36
Questionnaires	✓	✓	✓	✓	✓	✓	✓	✓	✓
Blood samples	✓	✓	✓	✓	✓	✓	✓	✓	✓
Genital samples	✓	✓	✓	✓	✓	✓	✓	✓	✓
GC/CT	✓								
TV/BV	✓	✓	✓	✓	✓	✓	✓	✓	✓

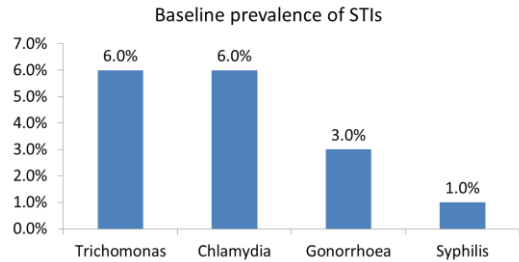
Methods for STI detection

- Chlamydia and Gonorrhoea
 - Self-collected Vaginal Swabs
 - Polymerase Chain Reaction Technology and Gen-probe APTIMA Combo2 (GC/CT) Kits
 - University of Nairobi/Washington Research Laboratory
- Trichomonas Vaginalis
 - Self-collected Vaginal Swabs
 - Standard Wet Microscopy in Clinic
- Syphilis
 - Rapid Plasma Reagin Tests

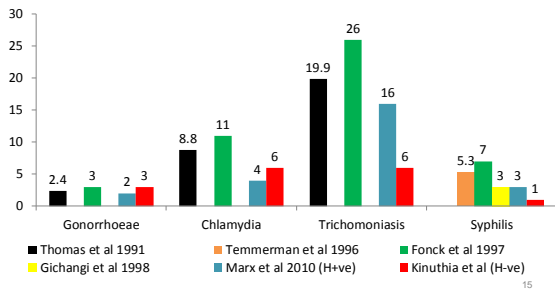


HIV Acquisition During Pregnancy and Postpartum is Associated with Genital Infections and Partnership Characteristics: A Cohort Study

Kinuthia J, Drake A, Matemo D, Richardson B, Czeh C, Osborn L, Overbaugh J, McClelland RS, John-stewart G *AIDS* 2015



Prevalence of STIs among pregnant women in Kenya



HIV Acquisition During Pregnancy and Postpartum is Associated with Genital Infections and Partnership Characteristics: A Cohort Study

Kinuthia J, Drake A, Matemo D, Richardson B, Czeh C, Osborn L, Overbaugh J, McClelland RS, John-stewart G *AIDS* 2015

- 1232 person-years of follow-up.
- HIV incidence - 2.31/100 person-years (95% CI: 0.71-4.10)
- Incident HIV associated with:
 - Syphilis (Hazard Ratio [HR] 9.18, 95% CI:2.15–39.3)
 - Chlamydia (HR 4.49, 95% CI:1.34–15.0)
 - STI history (HR 3.48, 95% CI:1.31-9.27)

Trichomonas Vaginalis Risk and Cofactors among Peripartum Kenyan Women: Protective Association with Male Partner Circumcision (O11.3)

Pintye J, Drake AL, Unger JA, Matemo D, Kinuthia J, McClelland RS, John-stewart G

Characteristic	aHR	95% CI	P value
Circumcised partner (vs uncircumcised)	0.35	0.27– 0.74	0.006
Employed (vs unemployed)	0.47	0.27-0.83	0.009
Recent other STIs	2.01	1.05-3.86	0.035
Pregnancy (vs postpartum)	9.27	4.07-21.07	<0.001

- 166 Trichomonas Vaginalis infections detected
 - 81 prevalent at baseline
 - 85 incident during follow-up
- **Only 27% of infections were symptomatic**
- TV incidence was 7.8 per 100 person-years

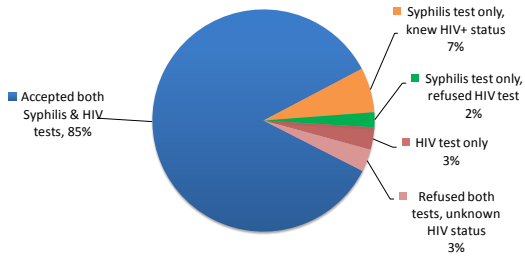
Patient-Delivered Partner Treatment for Chlamydia, Gonorrhoea and Trichomonas Infection among Pregnant and Postpartum Women in Kenya

Unger J, MD, Matemo D, Pintye J, Drake A, Kinuthia J, McClelland RS, John-Stewart G *STD in press*

- 67 women with STIs screened for PDPT
- 76 STIs detected
 - 9 CT (12%)
 - 9 GC (12%)
 - 58 TV (76%)
- 97% of PDPT-screened women willing to notify their partners
- 91% were willing to dispense PDPT
- 40 women returned for PDPT reassessment
 - 34 (85%) reported their partners received PDPT

Male Partner Acceptance of Home-Based Syphilis and HIV Testing for Couples During Pregnancy

Mark J, Kinuthia J, Osoti A, Gone A, Asila V, Parikh S, Krakowiak D, Betz B, Richardson B, Roxby A, Farquhar C (IAS 2015)



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Challenges facing STI control programs

- Low priority for policy makers and planners.
 - Inadequate allocation of resources as STI's perceived to result from discreditable behavior
- Failure to recognize the magnitude of the problem.
- Control efforts concentrated on symptomatic patients (**usually men**) and failing to identify asymptomatic individuals (**commonly women**).
 - Lack of simple screening tests.
- Inadequate attention.
 - Prevention efforts.
 - Inadequate attention to structural issues which impact on STI transmission.
 - Poverty, literacy, conflict, homosexuality and prostitution.

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Summary

- Prevalence of STI among HIV uninfected pregnant women still high
- STIs increase HIV incidence among pregnant women
- Need for affordable, rapid, point of care screening for infections
 - Gonorrhea
 - Chlamydia
 - Trichomonas
- PDPT highly acceptable and may be a useful strategy reduce to risk of recurrent infections and pregnancy complications

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Acknowledgement

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