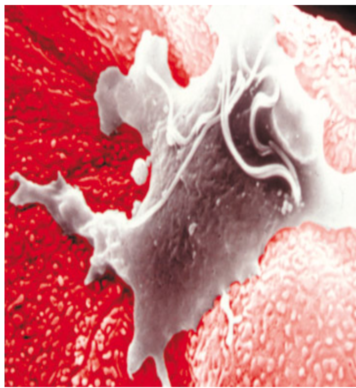

Clinical Identification and Treatment of Trichomoniasis in Local Health Department Clinics

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Disclosures

- **I have received grant funding from Cepheid, Melinta, NIH and CDC**
- **This presentation will include discussion of the following non-FDA-approved or investigational uses of products/devices:**
- **Testing for *T. vaginalis* utilizing:**
  - **Hologic Gen-Probe APTIMA Combo 2® (in men)**
  - **Roche COBAS® Amplicor PCR**

Vaginitis

- **Most common reason for patient visit to OB/GYN. 10 million patient visits per year in the United States.**
- **Three primary infections in order of prevalence:**
  - **Bacterial vaginosis**
  - **Candidiasis**
  - **Trichomoniasis**

Vaginitis

- **Usually characterized by:**
  - **Vaginal discharge**
  - **Vulvar itching**
  - **Irritation**
  - **Odor**

Other Causes of Vaginitis

- Mucopurulent cervicitis
- Herpes simplex virus
- Atrophic vaginitis
- Allergic reactions
- Desquamative Inflammatory Vaginitis (DIV)
- Vulvar vestibulitis
- Foreign bodies

Diagnosis of Vaginitis

- Patient history
- Visual inspection of internal/external genitalia
- Appearance of discharge
- Collection of specimen
- pH (avoid cervico-vaginal pool!)
- Preparation and examination of specimen slide

TRICHOMANIA

OTHERWISE KNOWN AS 'THAT GORGEOUS COCONUT SHAMPOO'.

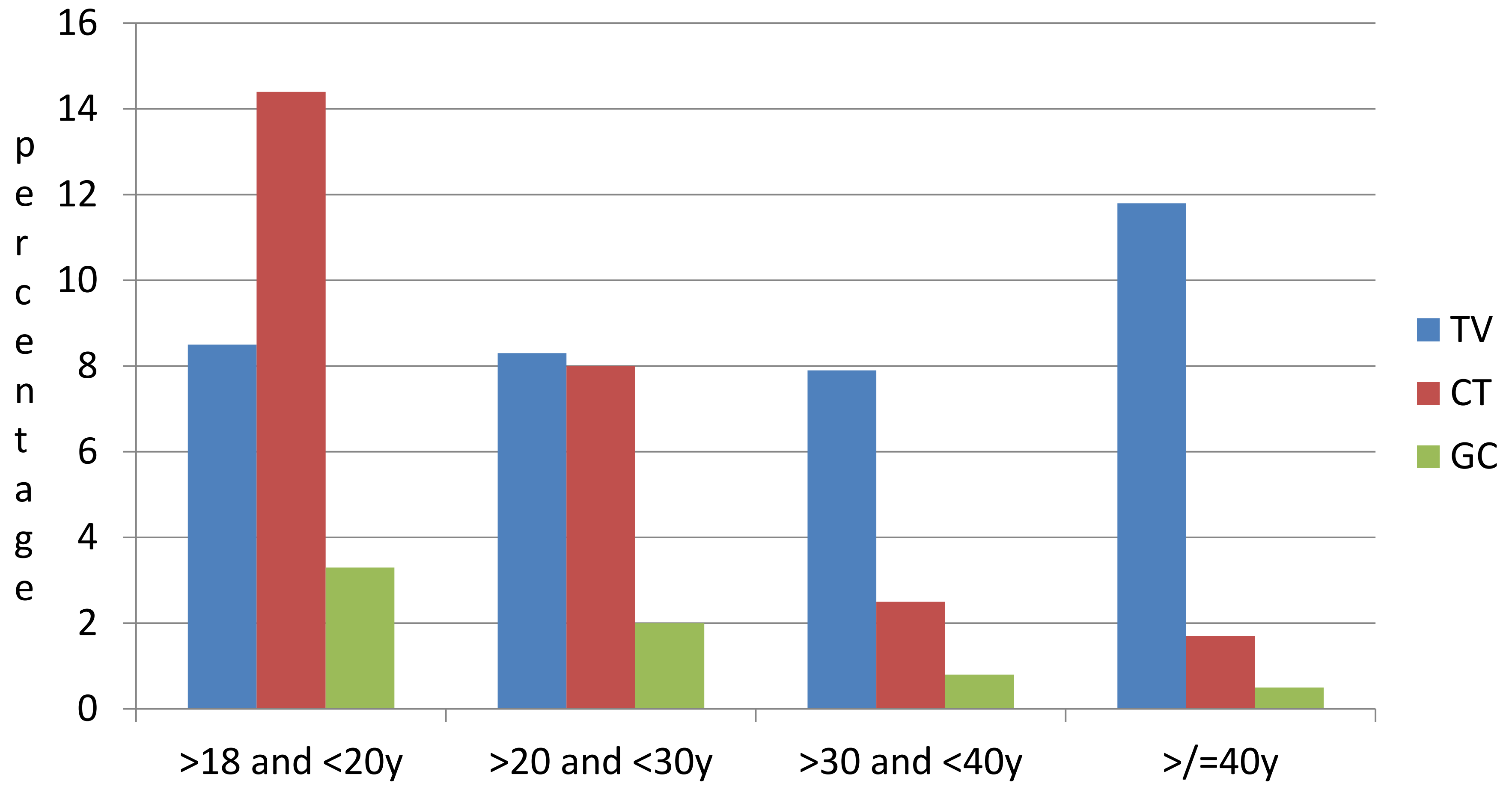
47.00 LB

11.75 1/4 LB

- Sexually transmitted parasite
- 248 million new cases world-wide in 2005 (WHO 2011)
- Estimated prevalence in US:
  - 3.1% in the general female population (2001-4)
    - Prevalence increases with age
    - Highest rates in AA (13.3%; 95%CI 10-17.7%)
    - Symptoms not predictive
  - 8.7% women from 21 states undergoing testing for GC/CT (N=7593)
  - 2.5-23.2% of adolescents
  - 8.6-38% of drug users

Sutton et al. Clin Infect Dis 2007; Van der Pol et al JID 2005; Miller et al Sex Transm Dis 2005; Plitt et al Sex Transm Dis 2005; Forhan et al Pediatrics 2009; Miller et al JID 2008; Ginocchio et al Jclin Microbiol 2012

Prevalence Rates by Pathogen and Age



Trichomonas vaginalis and HIV

- Most common curable STD in HIV+ women
  - 6-44% prevalence
  - 18-36% repeat infection rate (8% in HIV-neg)
- Multiple studies support the epidemiological association between TV and HIV
- HIV-infected women with TV had higher prevalence of HIV RNA in vaginal secretions than those without TV and TV treatment reduced vaginal HIV shedding over a 1-3 month period

Watts 2006, Mostad 1997, Moodley 2003, Magnus 2003, Cu-Uvin 2002, Miller 2008, Kissinger 2009, Gatski 2010

TV/HIV Interactions: Potential Mechanisms

- Mechanical disruption of epithelial barrier
- Inflammation (cellular immune response)
- Impaired immune response
  - TV decreases SLPI (secretory leukoprotease inhibitor) and other innate immune factors
- Impact on vaginal flora
  - Increased susceptibility to BV
  - Persistence of abnormal vaginal flora

TV and HIV Shedding

- 14 original studies examined, 8 found an increased risk.
- Meta-analysis and review papers were mixed
  - Small sample sizes in many studies
  - Confounding

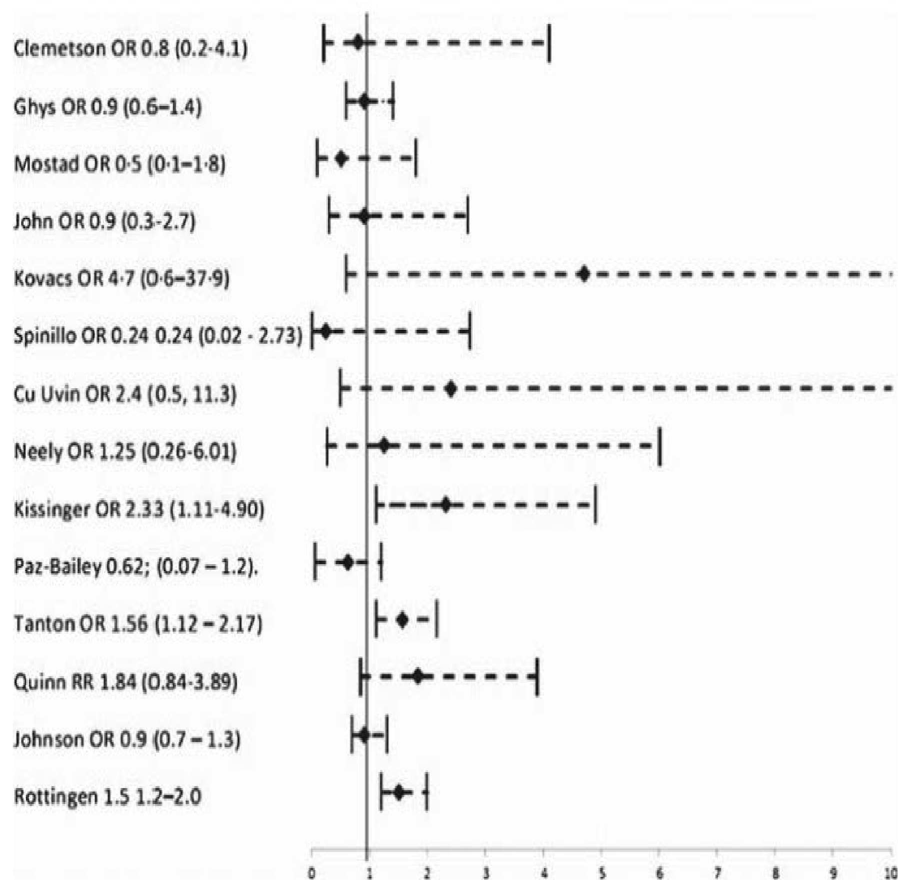


Figure 2.
Trichomonas and HIV genital shedding. *The findings of Hobbs[39] and Price[42] are not shown in the figure because they did not present effect measures.

Kissinger STI 2013

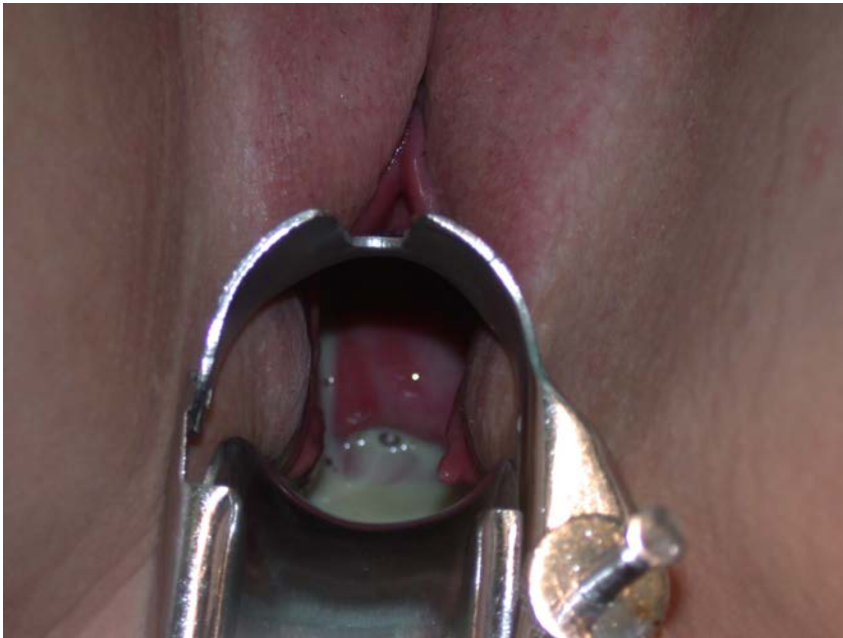
Recommendations for TV Screening in the General Population

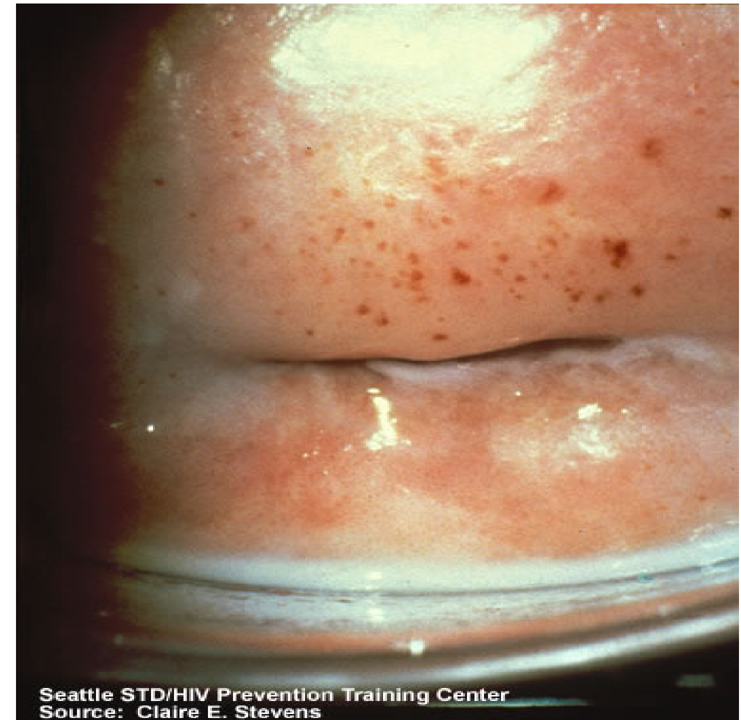
- **Women presenting with genital complaints**
- **Women presenting for STD evaluation**
- **Women at "high risk"**
- **HIV-infected women**

Diagnosis

Clinical Manifestations of *T. vaginalis*

Abnormal genital discharge, dysuria, urinary frequency, itching, burning, dyspareunia, NGU in men

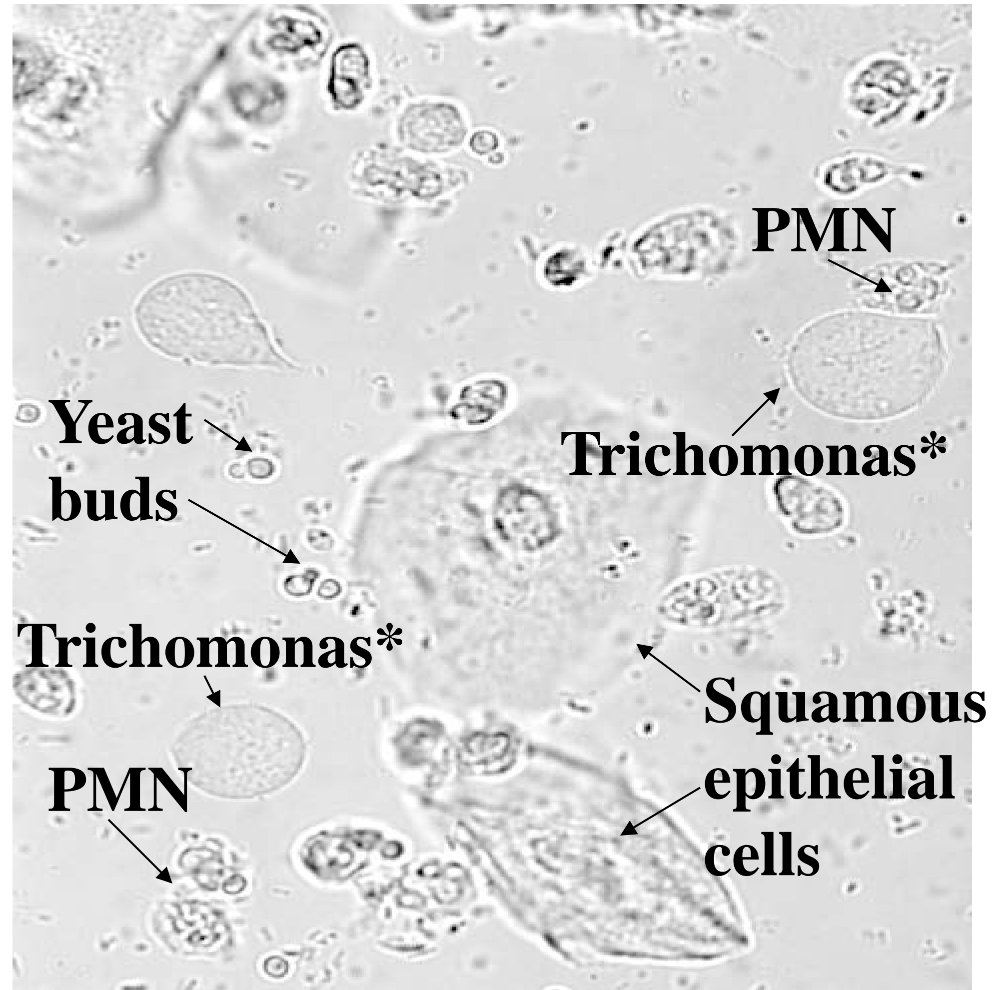




MOST TRICHOMONAL INFECTIONS ARE ASYMPTOMATIC!!!

Wet Prep: Trichomoniasis

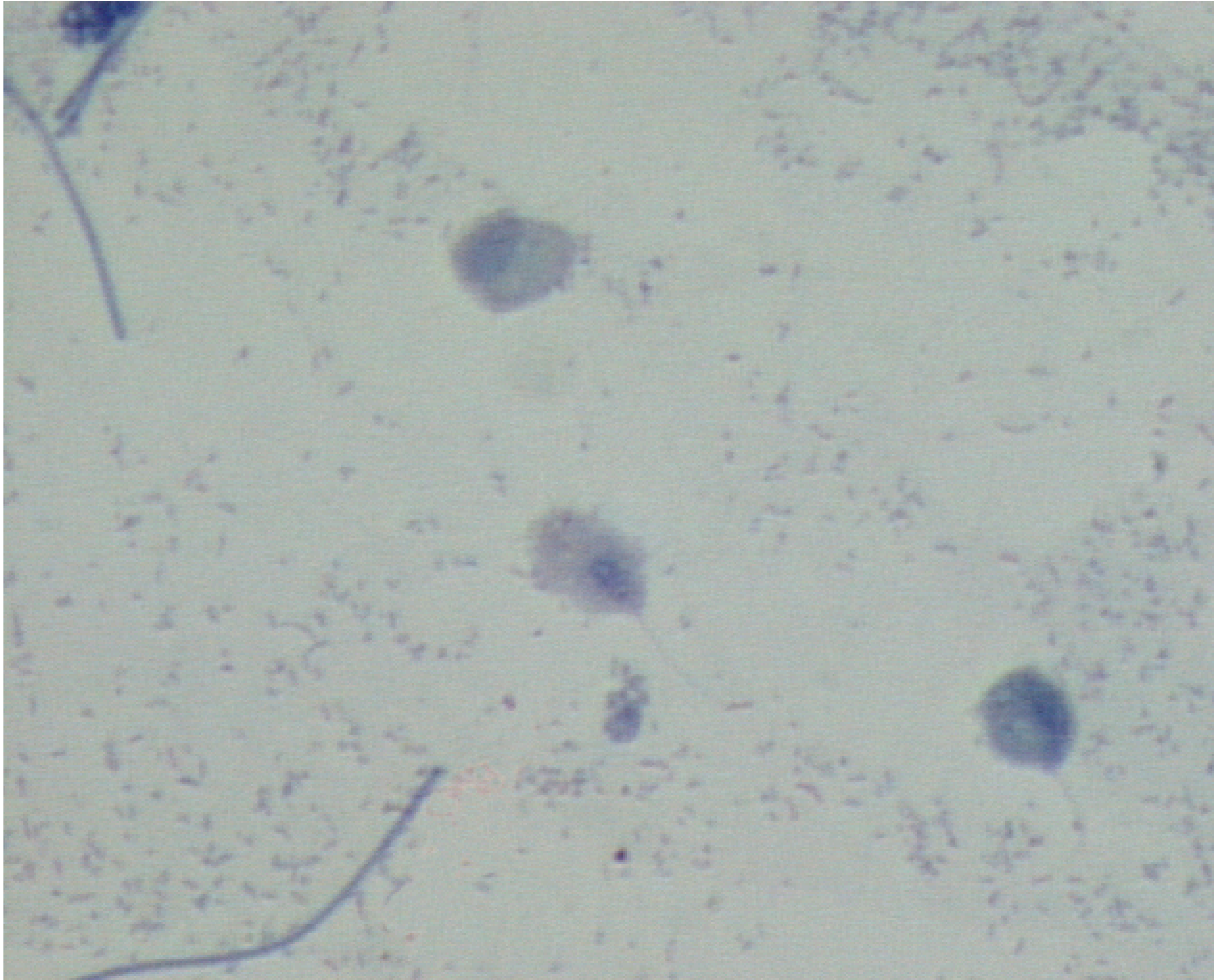
Saline: 40X objective



*Trichomonas shown for size reference only: must be motile for identification

Source: Seattle STD/HIV Prevention Training Center at the University of Washington

Trichomonas – Pap Smear



Diagnostic test	Technique	Time to result	Specimen	Sensitivity	Specificity
Wet Mount	Vag swab with saline microscopy	Minutes, in office	Vag swab	35-82%	99.6-100%
Culture	Media: Diamond's, Trichosel, InPouch TV	24-120h; send out	Vag swab, urethral swab, urine, semen	F:75-87% M: 28.6-48%	100%
APTIMA Trichomonas (GenProbe)	NAAT – TMA to detect species specific 16S rRNA	Hours; send out	Vag swab (F) Urine (F) ThinPrep (F) Urethral swab (M) Urine (M)	96.6-98.4% 87.5% 96-100% 95.2% 73.8%	98-100% 100% 98.8-99.9% 96.5% 98.4%
Affirm VPIII (BD Diagnostics)	Direct specimen nucleic acid probe assay	45 min; send out or equipped office	Vag swab	83-90.5%	99.8-100%
OSOM Trichomonas rapid test (Genzyme Diagnostics)	Immunochromatographic capillary flow assay with murine monoclonal antibody	10 min; in office	Vag swab	82-94.7%	98.8-100%

Adapted from Miller and Nyirjesy, Curr Infect Dis Rep 2011 13:595-603;Schwebke JCM Dec 2011; p4106-4111

Treatment Issues

New Episode

Tinidazole 2 g PO single dose OR
Metronidazole 2 g PO single dose

-Metronidazole 500 mg po BID for 7 days (alternative, rec if HIV+)

Treatment Failure of 2 g metronidazole single dose*

-Metronidazole 500 mg BID x 7d

Treatment Failure – Additional Options*

Tinidazole or Metronidazole 2 g PO daily x 5d

New Episode

Tinidazole 2 g PO single dose OR
Metronidazole 2 g PO single dose

Metronidazole 500 mg po BID for 7 days (alternative, rec if HIV+)

Treatment Failure of 2 g metronidazole single dose*

Metronidazole 500 mg BID x 7d

Treatment Failure – Additional Options*

Tinidazole or Metronidazole 2 g PO daily x ~~5d~~ 7d
Tinidazole 2-3g PO daily x 14d plus intravaginal tinidazole

A Randomized Treatment Trial: Single Versus 7-Day Dose of Metronidazole for The Treatment of Trichomonas Vaginalis Among HIV-Infected Women

Kissinger, et al. *J Acquir Immune Defic Syndr* 2010;55:565–571

Evidence A; RCT

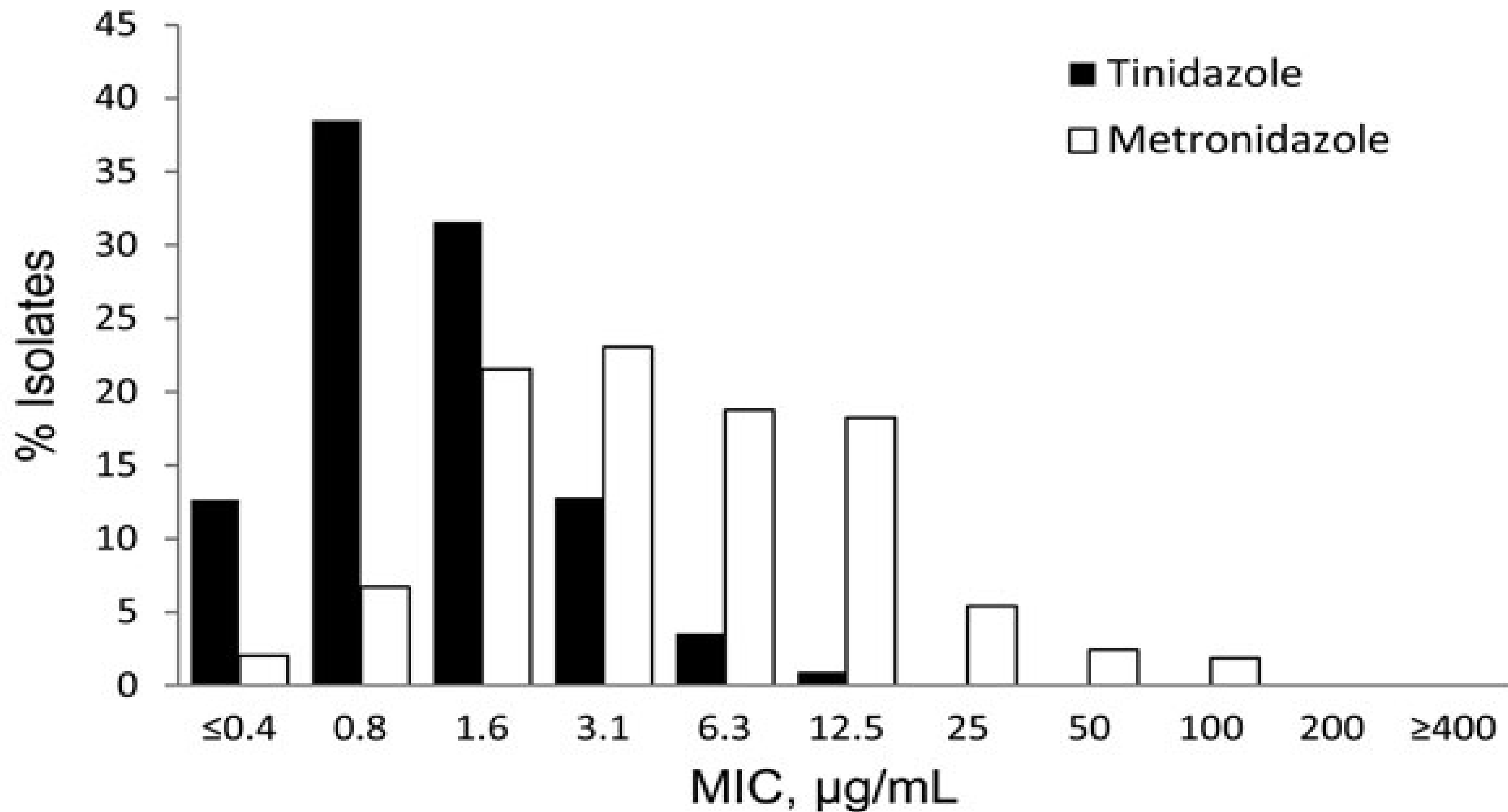
Repeat/Persistent Infection

- **High rates of repeat infection following 2g metronidazole in all women**
  - Increased concern secondary to treatment failure (vs reinfection)
- **Range repeat/persistent infection from 18.3-36.9% in HIV positive women**
- **Role of BV, Antiretroviral therapy**

Peterman et al (Clin Infect Dis 2009; 48(2):259-260); Gatskin and Kissinger (Clin Infect Dis 2010; 51(1):114-115); Kissinger (Sex Trans Inf 2013; 89(6): 426-33; Niccolai Sex Transm Dis 2000; 27: 284-8; Gatski Sex Transm Infect 2011; 87: 205-8; Balkus Sex Transm Dis 2013; 40(6): 499-505

What about resistant *T. vaginalis*?

6 US Cities, STD Surveillance Network, 2009-2010



4.3% with low-level resistance (MIC 50-100ug/mL) to metronidazole; no mod-high level resistance to metronidazole or tinidazole resistance!

Kirkcaldy et al. Emerg Infect Dis 2012 June; 18(6):939-943

Treatment Conundrums

5-nitroimidazole resistance

- New evidence that susceptibility testing leading to tailored treatment may have beneficial role for management of women with persistent TV*

5-nitroimidazole allergy

- Alternative regimens (poor efficacy)
- Desensitization

CDC (telephone: 404-718-4141; website: http://www.cdc.gov/std)

*Bosserman EA et al. Sex Trans Dis 2011; 38(10):983-987

Alternative Treatments

- Various regimens of high-dose 5-nitroimidazoles
  - Tinidazole 1g PO TID + 500mg PV TID x 14d
- Paromomycin (alone or with tinidazole→paromomycin 5% cream – 5g PV qd +Tinidazole 1g PO TID x 14d
- Clotrimazole
- Acetarsol Pessary
- Povidine-Iodine
- Nonoxynol-9
- Zinc-sulfate
- Furazolidone
- Trichofuran
- Boric acid
- Vaginal/bladder irrigation
- AVC Tablets (1.05g sulfanilamide,allantoin,aminacrine HCL)

TV in pregnancy

- **Associated with preterm delivery and low birth weight**
- **Studies to date yield conflicting results regarding benefit**

Bottom line…

- **Treat if symptomatic (or if found) – metronidazole 2gm po x 1**
- **Do not aggressively screen (accept if HIV+)**

Partner Management

- **TV concordance between partners 22-71.7%**
- **Sex partners should be treated (partners within the last 60 days or last partner if longer)**
- **Patient-delivered partner therapy has not definitively been found to decrease recurrent TV in women though adherence with PDPT high**

Sena AC et al. CID 2007; Krieger 1992; Gatski 2010, Kissinger 2006, Schwebke 2010

Repeat testing in 3 months for patients treated for TV…

Consistent with recommendations for GC/CT retesting

Resources

www.stdptc.org

www.nnptc.org