

# Global Mapping of STIs, HIV, and Unplanned Pregnancy: Where Do These Epidemics Intersect?

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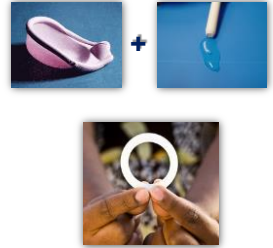
Multipurpose Prevention Technologies (MPTs): Developing interventions to simultaneously prevent STIs, HIV and pregnancy

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## Presentation Outline

- Project Objectives
- Methodology
- Indicators
- Maps & Findings
- Limitations
- Implications



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## Objectives

Examine the global distribution of HIV, unintended pregnancy, HSV-2 & HPV

Determine where these issues have the greatest geographical overlap



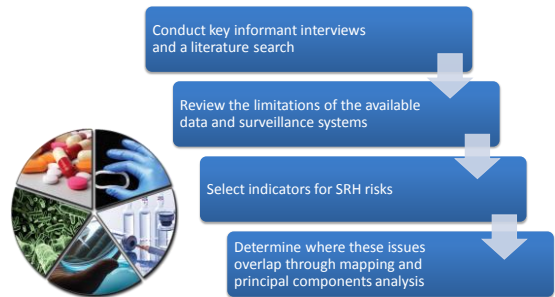
Review the strengths and limitations of the available data and surveillance systems



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## Methods



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## Indicators

1. HIV prevalence among women 15+
2. Herpes simplex virus type 2 (HSV-2) prevalence among women 15-49
3. Human papilloma virus (HPV) prevalence among women 15-49 with normal cytology
4. Unmet need for modern methods of contraception among women 15-49

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## 1. HIV prevalence among women 15+

**Data Source:** UNAIDS 2013 prevalence estimates

### Strengths

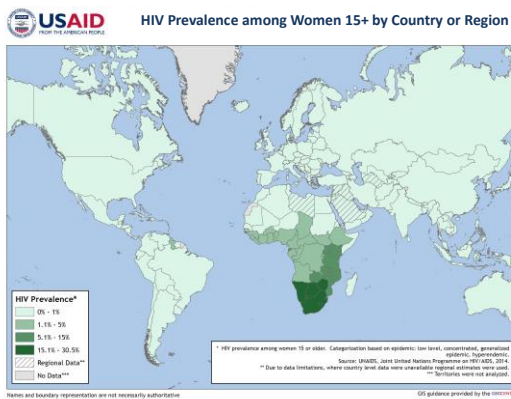
- Standardized data makes countries comparable
- Robust surveillance systems

### Limitations

- Unpublished or regional estimates substituted for small number of countries with missing (generally those with small populations)

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## 2. Herpes simplex virus type 2 (HSV-2) prevalence among women 15-49

**Data Source:** Looker et al. 2015\*

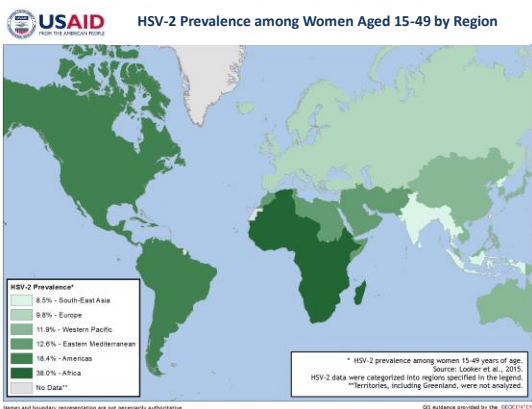
### Strengths

- Literature review of data from 2000 to 2012
- Pooled prevalence estimates for six regions

### Limitations

- No country level data
- HSV-2 surveillance varies

\*Looker KJ, Magaret AS, Turner KM, et al. Global estimates of prevalent and incident herpes simplex virus type 2 infections in 2012. *PLoS One* 2015;356(10):e114989.



## 3. HPV prevalence among cytologically normal women aged 15-49

**Data Source:** HPV Information Centre\* & 2010 Bruni et al. meta-analysis\*\*

### Indicator Strengths

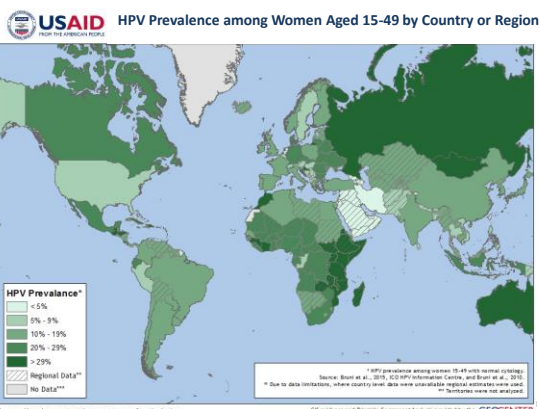
- Regional estimates based on meta-analysis
- Inclusive of all HPV types (not just high risk)
- Limiting to women with normal cytology gives approximation of distribution in general population

### Indicator Limitations

- Mixed country- and regional-level data
- Data quality inconsistent
- HPV is a transient infection

\*L. Bruni et al., "Human Papillomavirus and Related Diseases. Summary Report" ICO Information Centre on HPV and Cancer (HPV Information Centre) 2015.

\*\*L. Bruni et al., "Cervical human papillomavirus prevalence in 5 continents: meta-analysis of 1 million women with normal cytological findings." *Journal of Infectious Diseases*, vol. 202, pp. 1789-1799, 2010.



## 4. Unmet need for modern methods of contraception

**Data Source:** UNPD 2012 country-level estimates

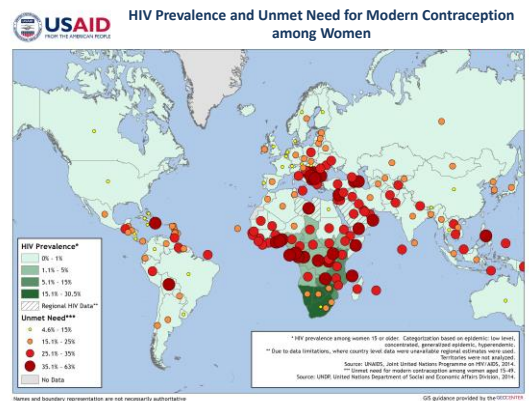
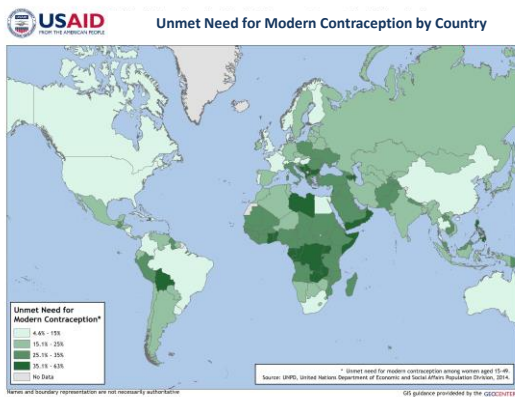
### Indicator Strengths

- Proxy measure for gap between women's reproductive intentions and their use of highly effective contraception
- Available for most countries
- Focus on modern methods emphasizes effectiveness for pregnancy protection

### Indicator Limitations

- Not self-defined, may not indicate desire to use contraception
- Only captures women married or in union

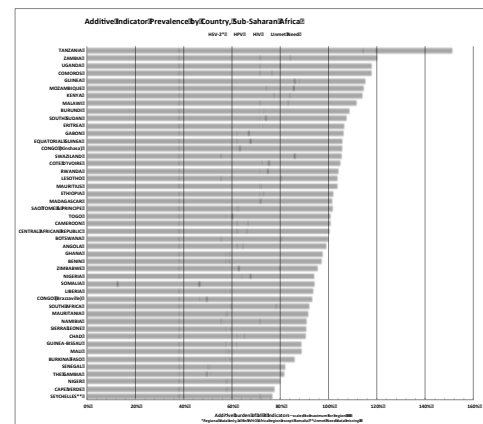
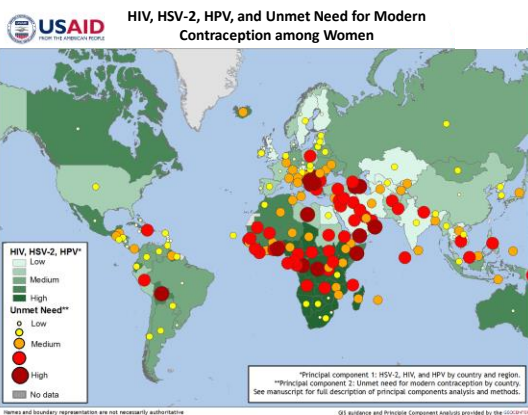
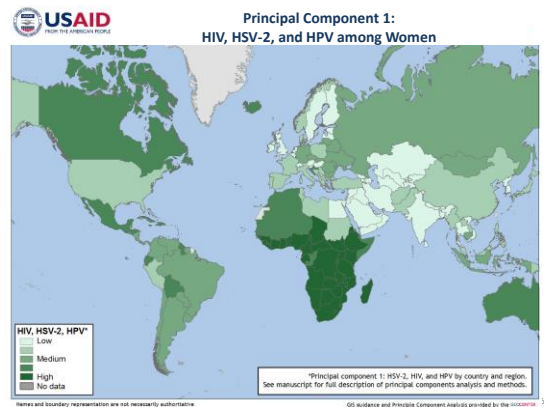
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## Principal Components Analysis

- Data reduction technique to extract most important information
- HSV-2 and HIV highly correlated
- Constructed two key components
  - STIs
  - Unmet need for modern contraception
- Mapped results to capture all indicators

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## Key Findings

- Greatest potential impact in Sub-Saharan Africa
- Specific countries vary by MPT product and indication
  - Uganda
  - South Africa
- MPTs have potential across contexts

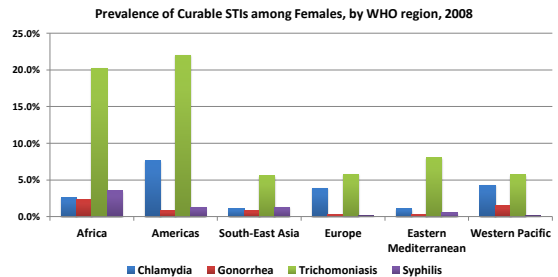


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## STI Data Limitations

### Bacterial & Parasitic STIs



### Need for higher quality and more granular STI data

World Health Organization (2012). Global incidence and prevalence of selected curable sexually transmitted infections-2008. Geneva, Switzerland.

## Adolescents & Young Adults

- Burden of many STIs greater among young women
- Desire for MPT indications will vary by life stage

### Case Studies: Kajiaata & Angie

- Age 33, married
- 6 children
- Husband spends time out of the village and she accepts he is unfaithful
- Husband will not wear a condom



- Age 27
- Not in a committed relationship
- Currently taking oral contraception
- Doesn't always use a condom

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## Implications

- Broad, population-level overview of overlapping burdens to identify regions of high need
- Need for additional research, including subpops and qualitative, user-focused research
- Expansion of pipeline related to non-HIV STIs
- Guide strategic planning and investment in MPTs



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## Thank you!

I would like to gratefully acknowledge the contributions of Brian Bakker and Patrick Gault at the GeoCenter, Bethany Young Holt, Joe Romano, the RTU team, other colleagues at USAID, NIAID, WHO and Manjula Lusti-Narasimhan, UNAIDS and Mary Mahy, Anna Fulton, CAMI Health and the IMPT, the University of Bristol, and the HPV Information Centre for their help with this project.

Schelar E, Polis CB, Essam T, Looker K, Bruni L, Chrisman CJ, Manning J. Multipurpose prevention technologies for sexual and reproductive health: mapping global needs for introduction of new preventive products. *Contraception* 2015 (in press).

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