

HIV Update

2011

H. Fisher Raymond
San Francisco Department of Public Health
HIV Epidemiology Section

Fundamentals

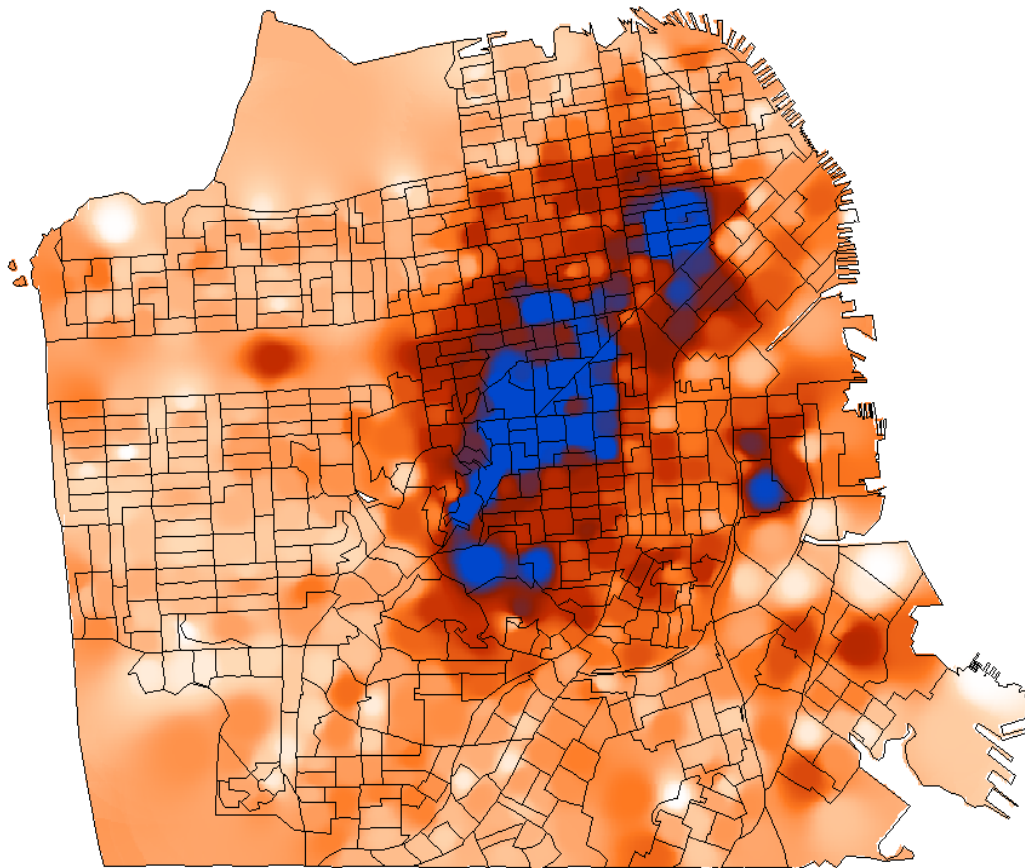
- Population sizes
 - The denominators, how many people are we talking about?
- Prevalence
 - Cumulative living AIDS cases and living HIV-non AIDS cases
- Incidence
 - Number of new infections over a given period of time, usually a year
- Behaviors
 - What are people doing that put themselves or others at risk?

Philosophy

- More data are better than fewer data
- All data are biased
- Have to make decisions for public health action
- **STAY AHEAD OF THE WAVE**

City and County of

San Francisco



HIV / AIDS Reporting

- **AIDS cases through 2009: 28,409**
- **AIDS deaths through 2009: 19,080**
- **Diagnosed with HIV/AIDS and still alive through 2009: 15,836**
- **Male: 92%**
- **MSM: 86%**

AIDS Case Reporting

	Cumulative AIDS Cases*			
	San Francisco ¹ (N = 28,409)		California ² (N = 155,208)	United States (N = 1,045,451)
	Number	%	%	%
Gender				
Male	26,819	94%	90%	80%
Female	1,191	4%	9%	20%
Transgender [#]	399	1%	<1%	--
Race/Ethnicity				
White	20,111	71%	55%	39%
African American	3,586	13%	18%	42%
Latino	3,459	12%	24%	17%
Asian/Pacific Islander	890	3%	2%	<1%
Native American	126	<1%	<1%	<1%
Other/Unknown	237	1%	<1%	<1%
Exposure Category				
MSM	21,068	74%	67%	44%
IDU	2,166	8%	10%	22%
MSM IDU	4,280	15%	10%	6%
Heterosexual	451	2%	6%	14%
Other/Unidentified	444	2%	7%	14%

HIV Case Reporting

Table 1.3 Characteristics of persons newly diagnosed with HIV between 2006 and 2009, San Francisco

	Year of HIV Initial Diagnosis*			
	2006	2007	2008	2009
Total Number	520	517	493	411
Gender				
Male	91%	88%	90%	90%
Female	7%	8%	8%	7%
Transgender	2%	4%	2%	3%
Race/Ethnicity				
White	58%	54%	50%	50%
African American	15%	15%	16%	16%
Latino	20%	19%	23%	23%
Asian/Pacific Islander	6%	9%	9%	8%
Native American	1%	0%	1%	1%
Other/Unknown	1%	3%	2%	2%
Age at HIV Diagnosis (years)				
0 – 12	0%	0%	0%	0%
13 – 24	11%	10%	10%	13%
25 – 49	74%	79%	80%	71%
50+	15%	11%	10%	16%
Exposure Category				
MSM	71%	67%	71%	73%
IDU	8%	8%	6%	6%
MSM IDU	12%	12%	9%	11%
Heterosexual	4%	7%	6%	5%
Other/Unidentified	6%	6%	7%	6%

* Data include persons with a diagnosis of HIV (not AIDS), an initial diagnosis of HIV (not AIDS) and later diagnosed with AIDS, and concurrent diagnosis of HIV and AIDS, reported to the SFPDPH as of February 26, 2010. Percentages may not add to 100% due to rounding.

PLWHA: SF, CA and US

Table 1.4 Characteristics of persons living with HIV/AIDS in San Francisco, California and the United States, December 2009

	San Francisco ¹		California ²		United States ³
	Living HIV Non-AIDS Case	Living HIV/AIDS Cases	Living HIV Non-AIDS Cases	Living HIV/AIDS Cases	Living HIV/AIDS Cases
Total Number	6,347	15,836	37,302	105,701	561,886
Gender					
Male	92%	92%	86%	87%	73%
Female	6%	6%	13%	12%	27%
Transgender	2%	2%	1%	1%	--
Race/Ethnicity					
White	63%	63%	48%	47%	33%
African American	13%	14%	19%	19%	48%
Latino	15%	16%	29%	30%	17%
Asian/Pacific Islander	5%	5%	4%	3%	<1%
Native American	1%	1%	<1%	<1%	<1%
Other/Unknown	3%	1%	1%	1%	<1%
Exposure Category					
MSM	73%	73%	67%	65%	38%
IDU	6%	7%	7%	9%	14%
MSM IDU	12%	13%	6%	8%	4%
Heterosexual	3%	3%	9%	9%	19%
Other/Unidentified	6%	4%	11%	9%	24%

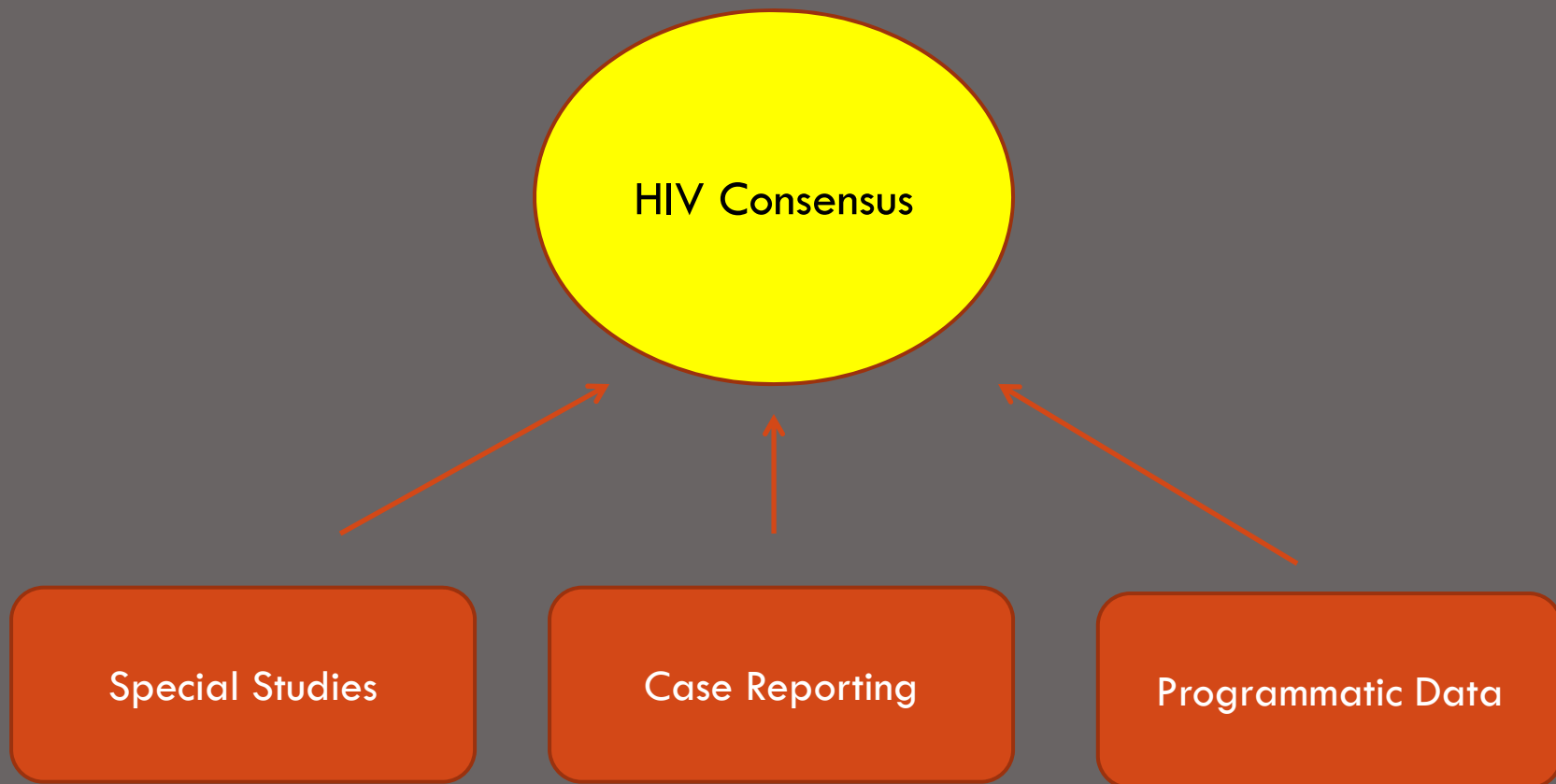
1. San Francisco cases are reported through February 26, 2010 for cases diagnosed through December 31, 2009 and include both the name-based and code-based HIV cases.

2. California cases are reported through September 30, 2009 and include only the name-based HIV cases.

3. U.S. data reflect unadjusted living cases, as of December 2007 for 37 states with confidential name-based HIV reporting.

HIV Consensus 2011: Preliminary Findings

How HIV Consensus Fits In



Methods

- **There is no gold standard to compare to**
 - There is no specific study, though NHBS is getting better
- **Select convergence of estimates by different methods**
 - Some biases over-estimate, some under-estimate
 - Median (middle estimate): less influenced by outliers
 - In some cases (few data) use mean
- **Choose upper and lower “plausibility bounds”**
 - Not confidence intervals
 - Plausible lowest and highest that still make sense
- **The pieces are inter-linked, not independent**

Data points have to fit

Examples:

- Prevalence can't be lower than known living HIV/AIDS cases
- Incidence number must fit population size \times rate
- Most projected numbers must “show up” in cases after several years
- Population size, HIV prevalence, HIV incidence must be reconciled
- If not, something is wrong

Methods

- **Population-based surveys**
- **Multiplier method**
- **Components (add up pieces)**
- **Ratio method (Lieb et al)**
- **Trends in indicators**
- **“Roll forward” (new infections minus AIDS deaths from 2006 consensus estimates)**

Methods: Examples

Population-based survey example: American Communities Survey

Adult male population (2008 proj.) x Percent self-reporting as gay or bisexual

$$346,995 \times 17.2\% = 59,683 \text{ MSM (including MSM-IDU)}$$

Multiplier method: National Behavioral Surveillance + CC HIV test clients

Number of MSM CC clients in 2008 / % MSM reporting CC HIV test in 2008

$$2029 / 3.0\% = 67,633 \text{ MSM (including MSM-IDU)}$$

Roll forward:

Start with 2006 estimate, add projected new infections, subtract deaths each year:

$$489 + (4 * 14) - (23 + 23 + 18 + 15) = 466 \text{ Female IDU living with HIV}$$

Methods: Examples

Components

MSM living with AIDS + new HIV-non-AIDS diagnoses + 23%
Unknown/not reported

**4867 + 6218 + 3314 = 14,408 MSM living with HIV
(not including MSM-IDU)**

Ratio

Ratio of 1 MTF-IDU : 3.45 MTF

449 MTF-IDU x 3.45 = 1,549 MTF

Trends

Indicator trends among MSM

3 Up, 3 Level, 6 Down = Net down

Data Sources

Data Source	Description
American Community Survey	US Census inter-decennial Census estimates, sample surveys, population size
US Census	Decennial Census, total population size
Behavioral Risk Factor Survey	CDC RDD survey of population
Magnet	HIV and STD test service
NHBS MSM2	CDC collaboration, quasi-population based survey of MSM
NHBS IDU2	CDC collaboration, quasi-population based survey of IDU
NHBS HET1	CDC collaboration, quasi-population based survey of high risk heterosexuals
SF City Clinic	Municipal STD and HIV test service
TEACH	Population Study of transwomen

Data Sources (con't)

Data Source	Description
STOP AIDS Project	CBO HIV testing and BRA Data
Assort!	NIH funded quasi-population based survey of MSM
National HIV/AIDS Case data	Mandated national case reporting
API Wellness Center	CBO HIV testing
SFDPH HIV/AIDS Case reporting	Mandated local HIV/AIDS case reporting
Alternative Test Sites	HIV testing in SF funded community test sites
SFGH ED	ED OD reporting
Walden House	CBO drug treatment provider
RTI / Lorvick	Quasi-population based study of high risk women in SF
2006 Consensus	Previous consensus

Preliminary 2011 HIV Consensus Estimates

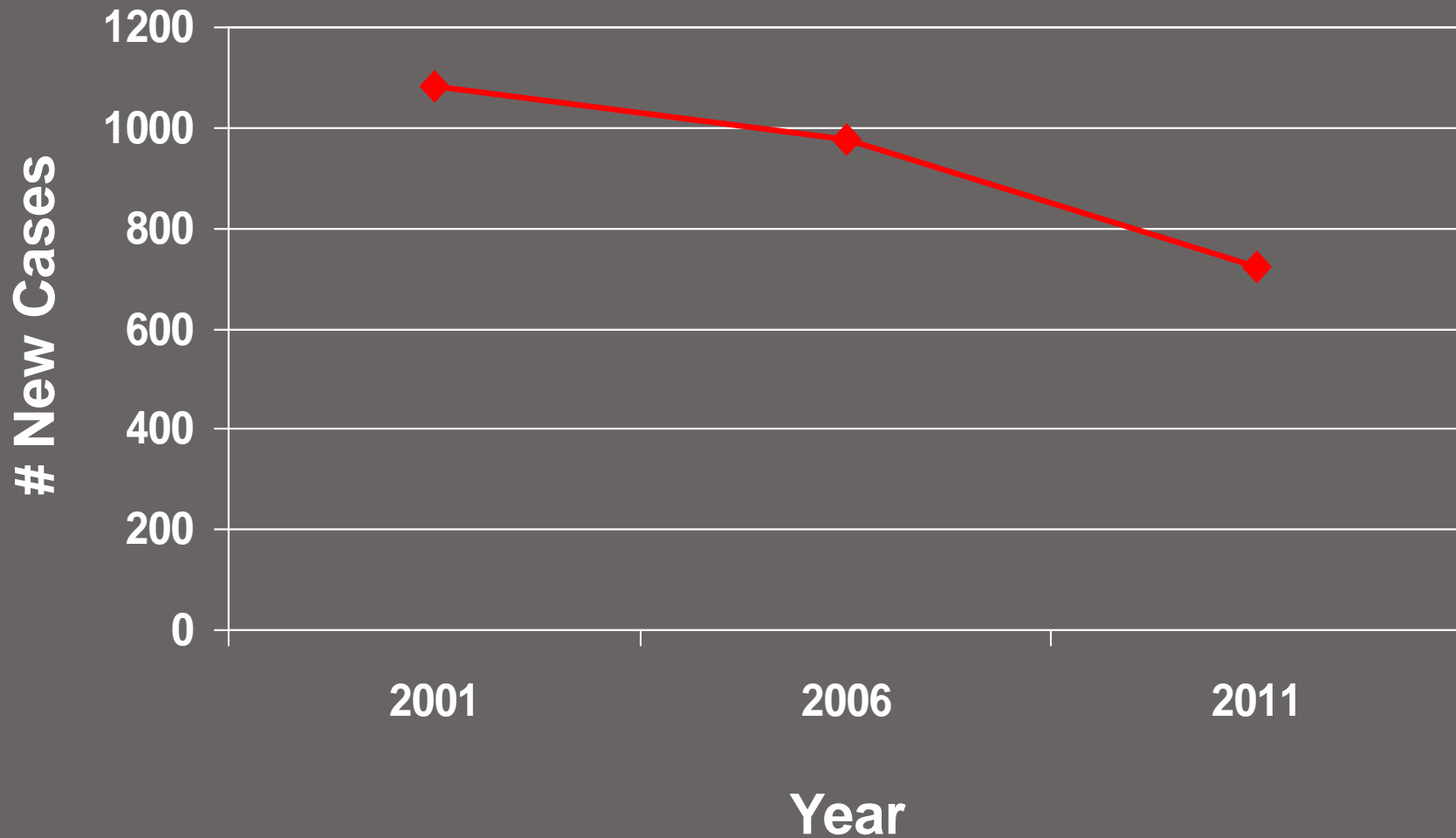
● Total

- **815,358** population size (~2.4% rise since 2006)
- **18,576** living with HIV (prevalence 2.27%)
- **736** new infections (incidence rate 0.09%)
 - 30.8% reduction in rate
 - 24.6% reduction in number

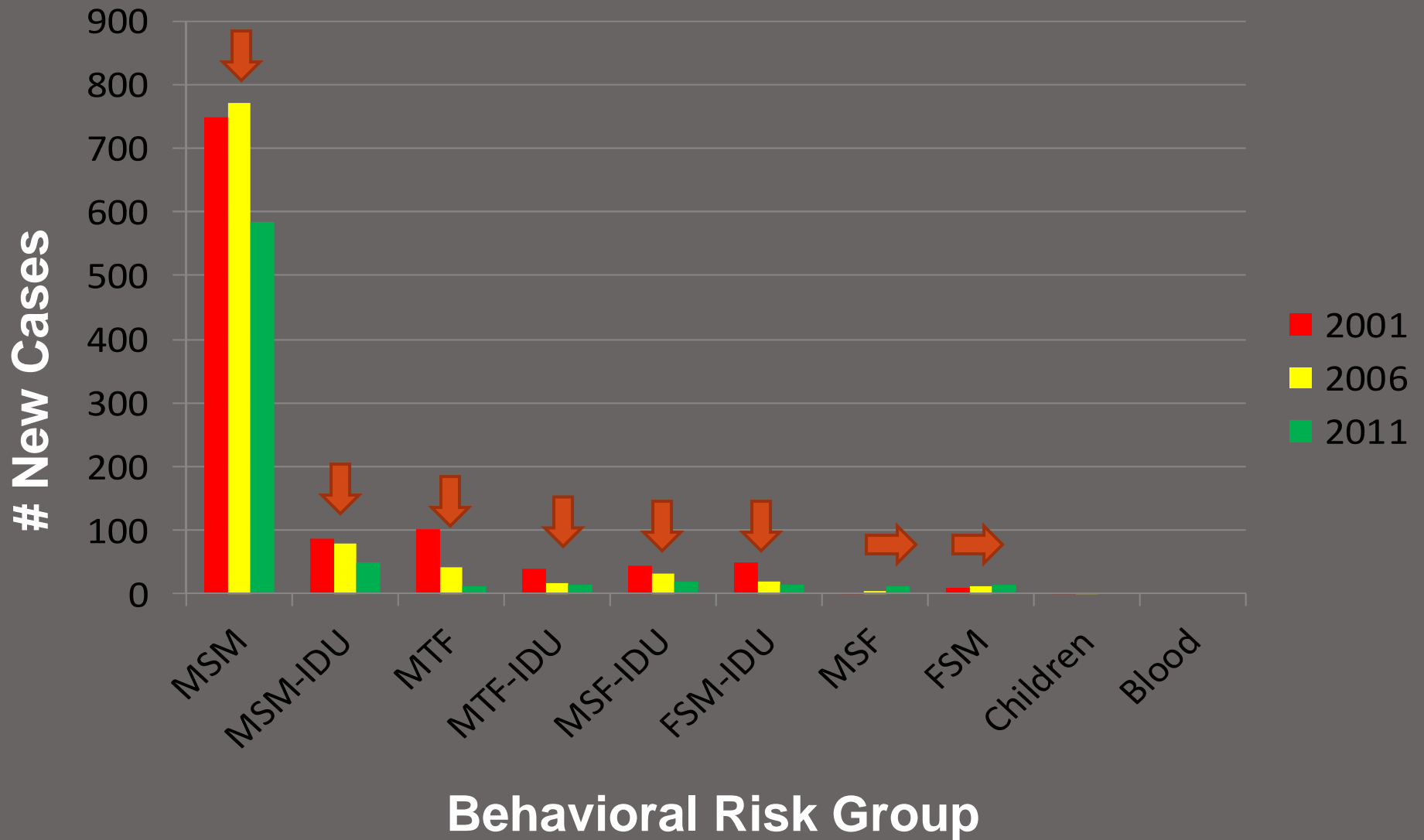
● Plausibility Bounds for New Infections 2011

- **534** Lower Plausible
- **977** Upper Plausible

Estimated Number of New HIV Cases By Year



Number of New Cases by Group



Preliminary 2011 HIV Consensus Estimates

- **MSM (non-IDU)**
 - 59,809 population size
 - 13,565 living with HIV (prevalence 22.7%)
 - 585 new infections (incidence rate 1.27%)
- **MSM-IDU**
 - 4,874 population size
 - 2,308 living with HIV (prevalence 47.4%)
 - 49 new infections (incidence rate 1.92%)
- **Transgender (MTF non-IDU)**
 - 1,064 population size
 - 377 living with HIV (prevalence 35.5%)
 - 17 new infections (incidence rate 2.48%)

Preliminary 2011 HIV Consensus Estimates

- **MSF-IDU**
 - 7,884 population size
 - 986 living with HIV (prevalence 12.5%)
 - 20 new infections (incidence rate 0.29%)
- **MTF-IDU**
 - 464 population size
 - 206 living with HIV (prevalence 44.4%)
 - 15 new infections (incidence rate 5.7%)
- **FSM/F-IDU**
 - 5,772 population size
 - 599 living with HIV (prevalence 10.5%)
 - 14 new infections (incidence rate 0.27%)

Preliminary 2011 HIV Consensus Estimates

- **FSM/F**
 - **3,626** population size at risk* (335,586 adult F non-IDU)
 - **289** living with HIV (prevalence 8.0% of at risk or 0.086% of total pop)
 - **17** new infections (incidence rate 0.51% of at risk or 0.0051 %)
- **MSF**
 - **2,991** population size at risk* (281,976 adult M non-IDU, non-MSM)
 - **138** living with HIV (prevalence 4.6% of at risk or 0.049% of total pop)
 - **18** new infections (incidence rate 0.63% or 0.0064% of total pop)
- **Persons Infected Peri-natally**
 - **28** persons living with HIV infected as infants
 - **0** new infections among infants
- **Blood**
 - **29** persons living with HIV infected via blood product exposure
 - **0** expected new infections (risk < 1 in 3 million)

* Those individuals whose risk is having sexual risk with a high risk partner (MSM, IDU, Transwoman)

Acknowledgements

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Feedback and Questions

