

New Approaches to Tracking the HIV/AIDS Epidemic in the United States

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Introduction (1)

- Throughout the 1980's and early 1990's, AIDS case surveillance was the primary system used to monitor trends in the epidemic in the United States
- With the introduction of highly active antiretroviral therapy (HAART) in 1996, the time interval between HIV infection and disease increased greatly, resulting in AIDS case surveillance becoming insufficient to monitor more recent trends
- Importantly, Goal 4 of CDC's 2005 HIV Prevention Strategic Plan emphasizes that "By 2005, (we must) strengthen the capacity nationwide to monitor the epidemic..."



Introduction (2)

- **Accordingly, CDC and its partners have developed and are implementing new and innovative national surveillance systems that are population-based and that will enable us to monitor the epidemic in a more comprehensive and timely manner**

- **Goals of this presentation:**
 - **Review the methods of these complementary surveillance systems**
 - **Present some new and important data that are beginning to emerge from these systems**

Why is HIV/AIDS Surveillance Important?

- To understand the epidemiology and magnitude of the HIV/AIDS epidemic in the United States
- To monitor trends in affected populations
- To target HIV prevention and treatment services
- To guide the development of new interventions and approaches to HIV prevention
- To provide data upon which funding decisions for HIV/AIDS programs (e.g. Ryan White) are based

Overview of Presentation: National Surveillance Systems to Monitor the “Pathway” of HIV

- 1. National Behavioral Surveillance System**
- 2. HIV Incidence Surveillance System**
- 3. HIV Case Surveillance**
- 4. HIV Prevalence Estimates**
- 5. Morbidity Monitoring Project**
- 6. AIDS Case and Death Surveillance**



1. National HIV Behavioral Surveillance System (NHBS)

Objectives:

To assess prevalence of and trends in

- **HIV risk behaviors**
- **HIV testing behaviors**
- **Exposure to and use of prevention services among persons at high risk for infection**

- **Men who have sex with men (MSM)**
- **Injection drug users (IDU)**
- **High risk heterosexuals (HRH)**



NHBS Methods

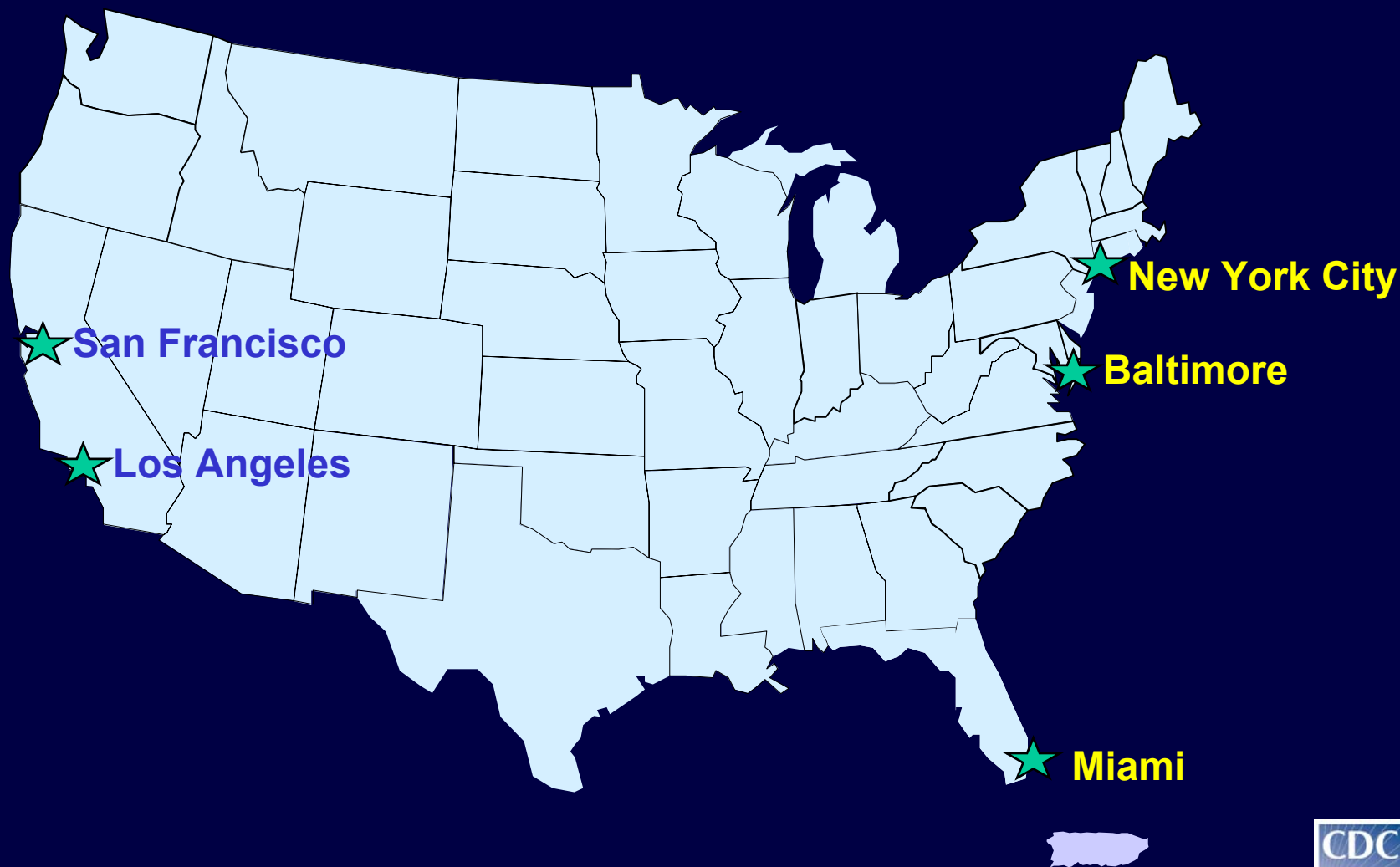
- **Conducted in alternating 12-month cycles**
 - **One group selected per cycle - MSM, IDU, HRH**
 - **Same populations and cities over time**
 - **Cycles to be repeated every 3 years**

- **2004-2005 MSM cycle recently completed**
 - **Time-space sampling of participants at randomly selected venues**
 - **17 sites, 500-1000 interviews per site**
 - **Data on 14,298 MSM collected**

NHBS-MSM, All Sites - 2004-2005



NHBS-MSM - Data from Five Cities Funded to Conduct HIV Testing, 2004-2005



HIV Prevalence and Proportion with Undiagnosed HIV Infection in MSM in 5 Cities – NHBS, 2004-2005

Characteristic	Total Tested	HIV Prevalence		Undiagnosed HIV Infection	
		N	(%)	N	(%)
Total	1767	450	(25)	217	(48)
Age					
18-24	410	57	(14)	45	(79)
25-29	303	53	(17)	37	(70)
30-39	585	171	(29)	83	(49)
40-49	367	137	(37)	41	(30)
≥ 50	102	32	(31)	11	(34)
Race					
White	616	127	(21)	23	(18)
Black	444	206	(46)	139	(67)
Hispanic	466	80	(17)	38	(48)
API	95	7	(7)	2	(29)
NA/AN	<10	<10	(29)	<10	(100)
Multiracial/Other	123	25	(20)	13	(52)

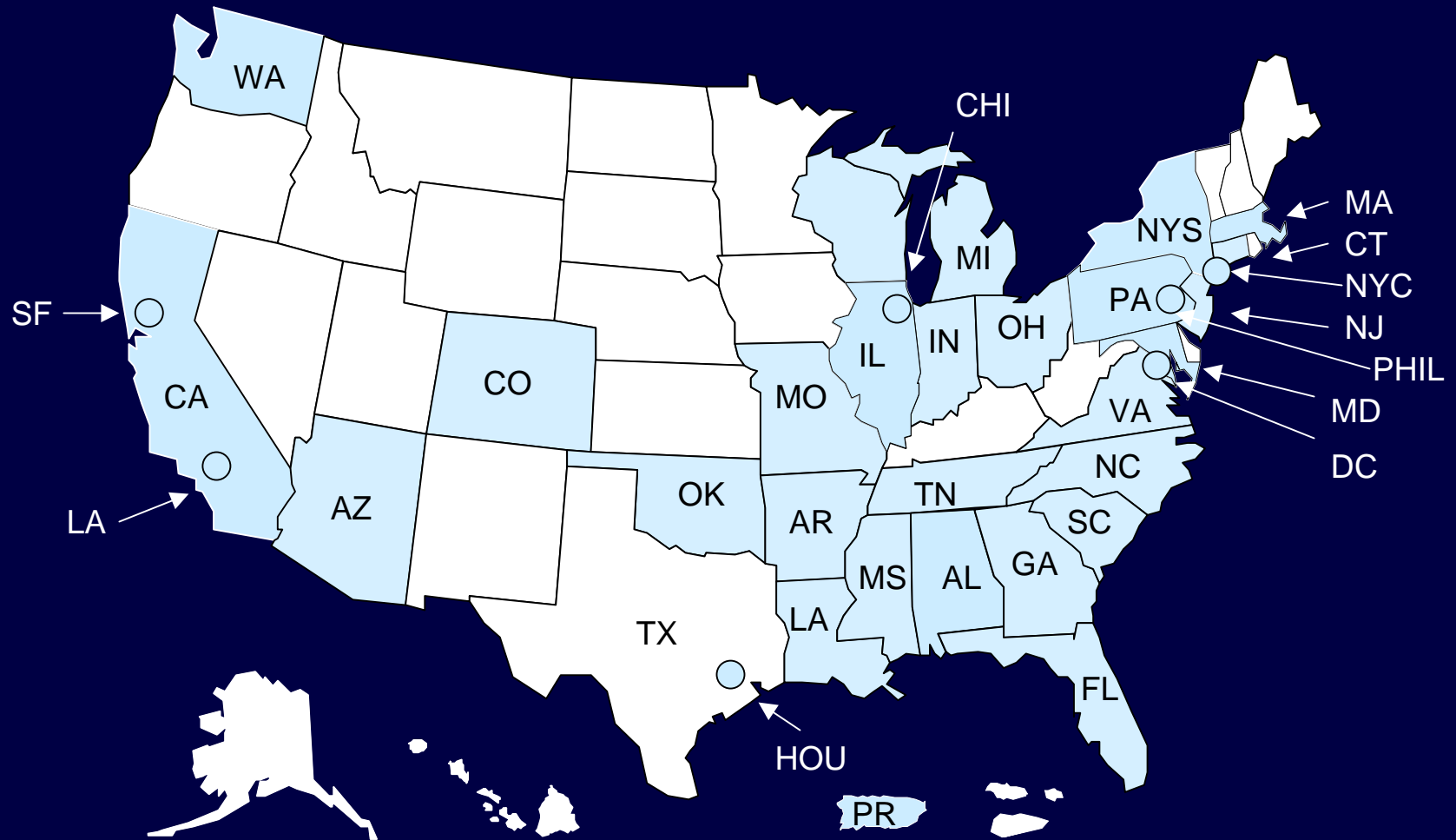
NHBS-MSM HIV testing results from 5 cities 2004-2005

- **The high HIV prevalence rates in MSM, and in particular Black MSM, demonstrate the continued gravity of the epidemic in this population, and are consistent with previous data from the Young Men's Surveys**
- **Despite 92% of men reporting that they had been tested previously (64% in the past year), nearly half of HIV-positive men were unaware of their infection, indicating the need for intensive HIV prevention services**
- **These data highlight several central HIV prevention issues that will be addressed in numerous sessions in this week's conference**

2. HIV Incidence Surveillance System

- **Background – CDC estimates that 40,000 persons are newly infected with HIV in the U.S. annually, but it is critical to develop a more precise estimate so that the efficacy of HIV prevention programs can be measured more accurately**
- **Objective – To provide national and area-specific population-based estimates of the number of new HIV infections per year**
- **Methods**
 - **For all newly reported HIV cases in funded areas**
 - **demographic and clinical information**
 - **supplemental HIV testing information**
 - **blood test to detect recent HIV infection**
 - **Using the above information and statistical methodology, an overall HIV incidence estimate including undiagnosed and unreported cases will be developed**

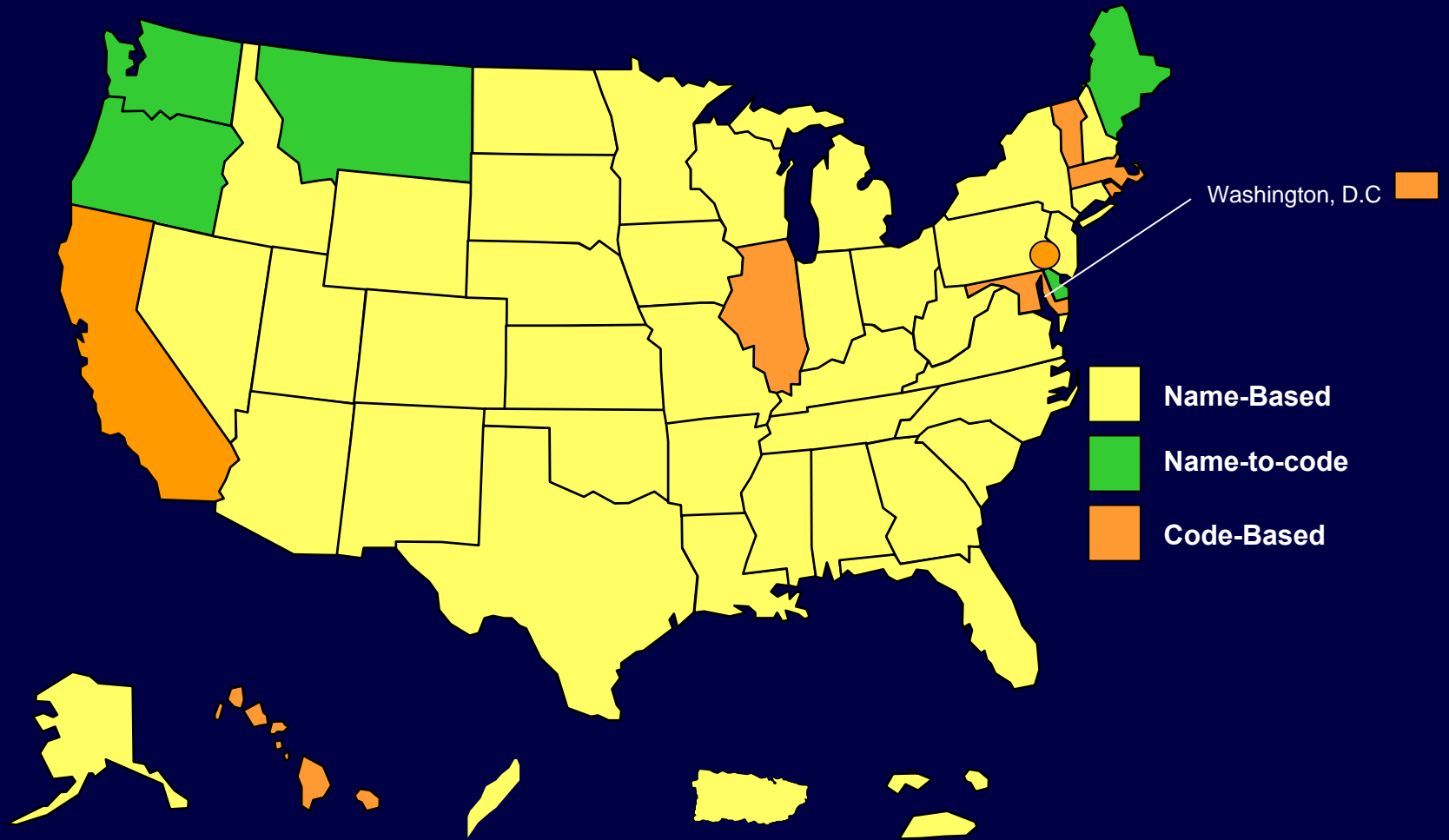
HIV Incidence Surveillance Sites, 2005 (n=34)



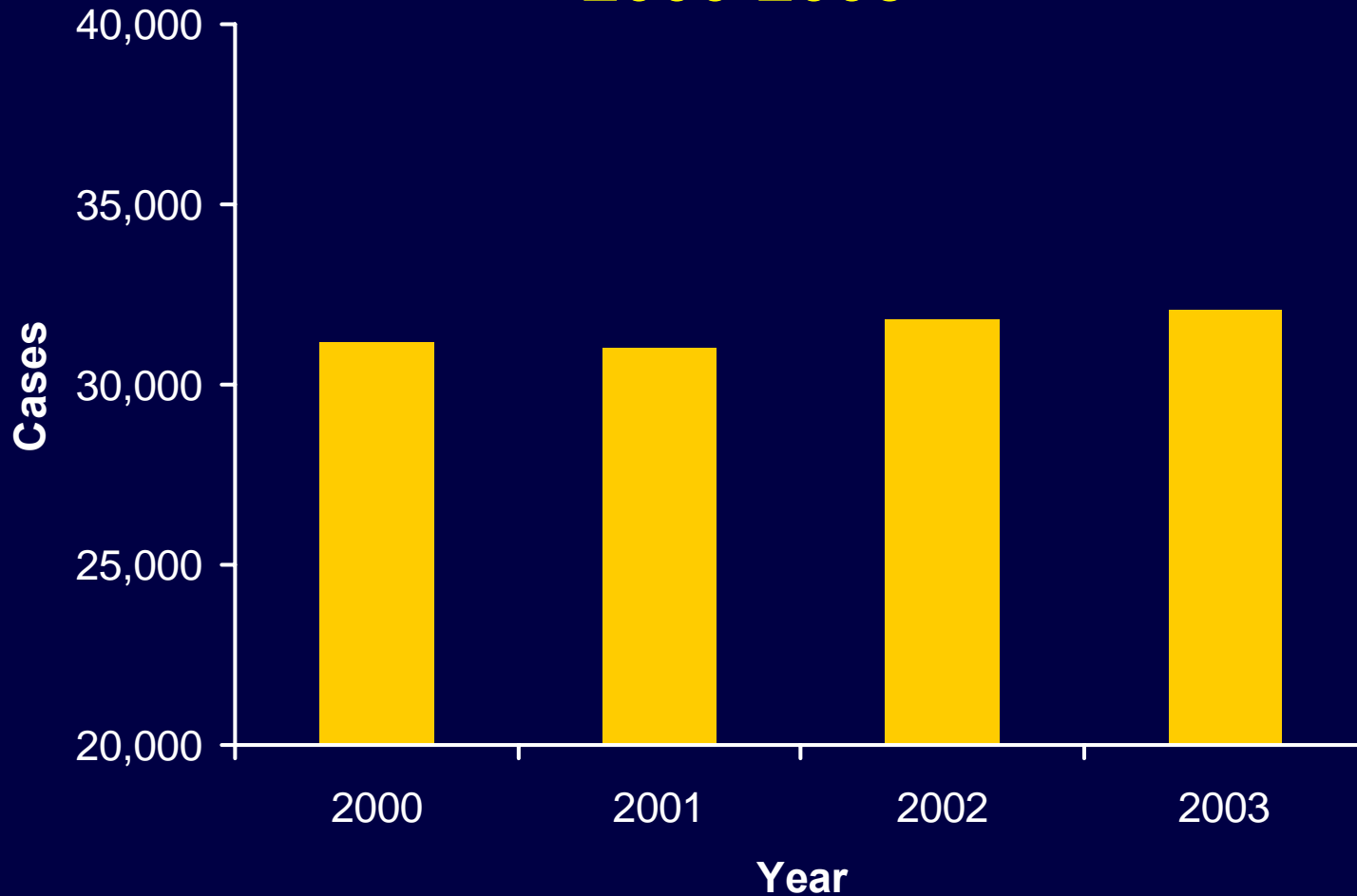
Current Status of HIV Incidence Surveillance

- 17 sites already implementing system
- Remaining 17 sites to begin by July 2005
- Six months of complete data will be obtained by December 2005
- HIV incidence estimates for 2005 will be developed by July 2006
- The quality, timeliness, and usefulness of incoming incidence data will be evaluated

3. HIV Case Surveillance - Implementation Status by State, 2005



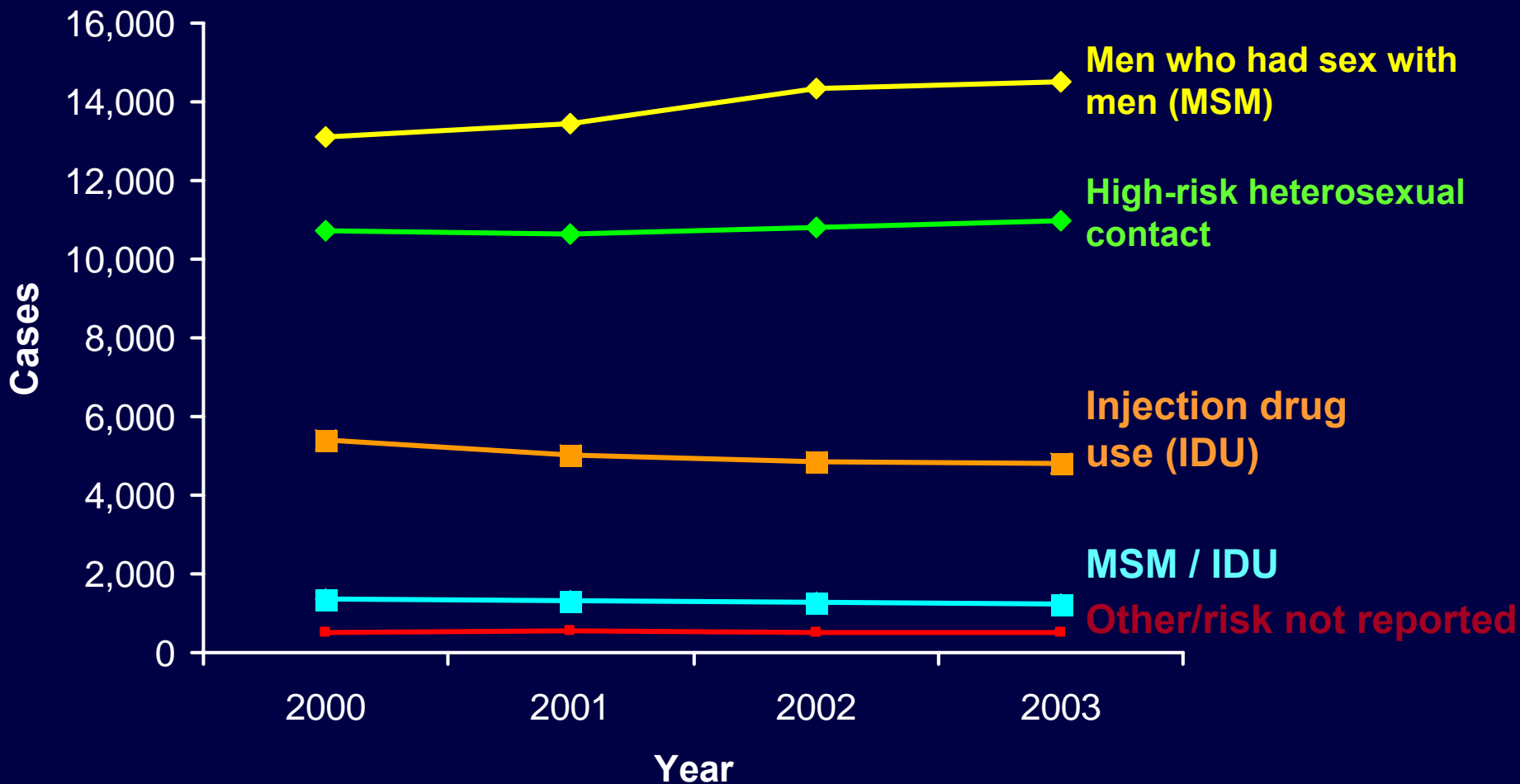
Estimated Annual Number of HIV/AIDS Diagnoses in 32 States with Name-based Reporting 2000-2003



Note: Estimates are adjusted for reporting delays and redistribution of transmission category for cases without risk factor information.



Estimated Number of HIV/AIDS Diagnoses, by Transmission Category, in 32 States with Name-based Reporting, 2000-2003



Note: Estimates are adjusted for reporting delays and redistribution of transmission category for cases without risk factor information.



4. Estimated HIV Prevalence in the United States at the End of 2003

- **CDC estimated that by the end of 2000:**
 - 850,000 - 950,000 HIV-infected persons living in the U.S.
 - 25% undiagnosed and unaware of their HIV infection
- **HIV surveillance data and two statistical modeling procedures were used to update these estimates**
- **CDC now estimates that by the end of 2003:**
 - 1,039,000 - 1,185,000 HIV-infected persons living in the U.S.
 - 24-27% undiagnosed and unaware of their HIV infection



Estimated HIV Prevalence in the United States at the End of 2003

- These estimates indicate that while HAART has resulted in HIV-infected persons leading longer, healthier lives, the need for HIV prevention and treatment services is growing
- Critically, about 25% of persons with HIV remain undiagnosed, and a variety of approaches to reaching out and offering testing to this population are being actively promoted by CDC
- A complete presentation of the methods and results of these estimates will be presented by Drs Kate Glynn and Phil Rhodes of CDC in an oral session on Tuesday morning

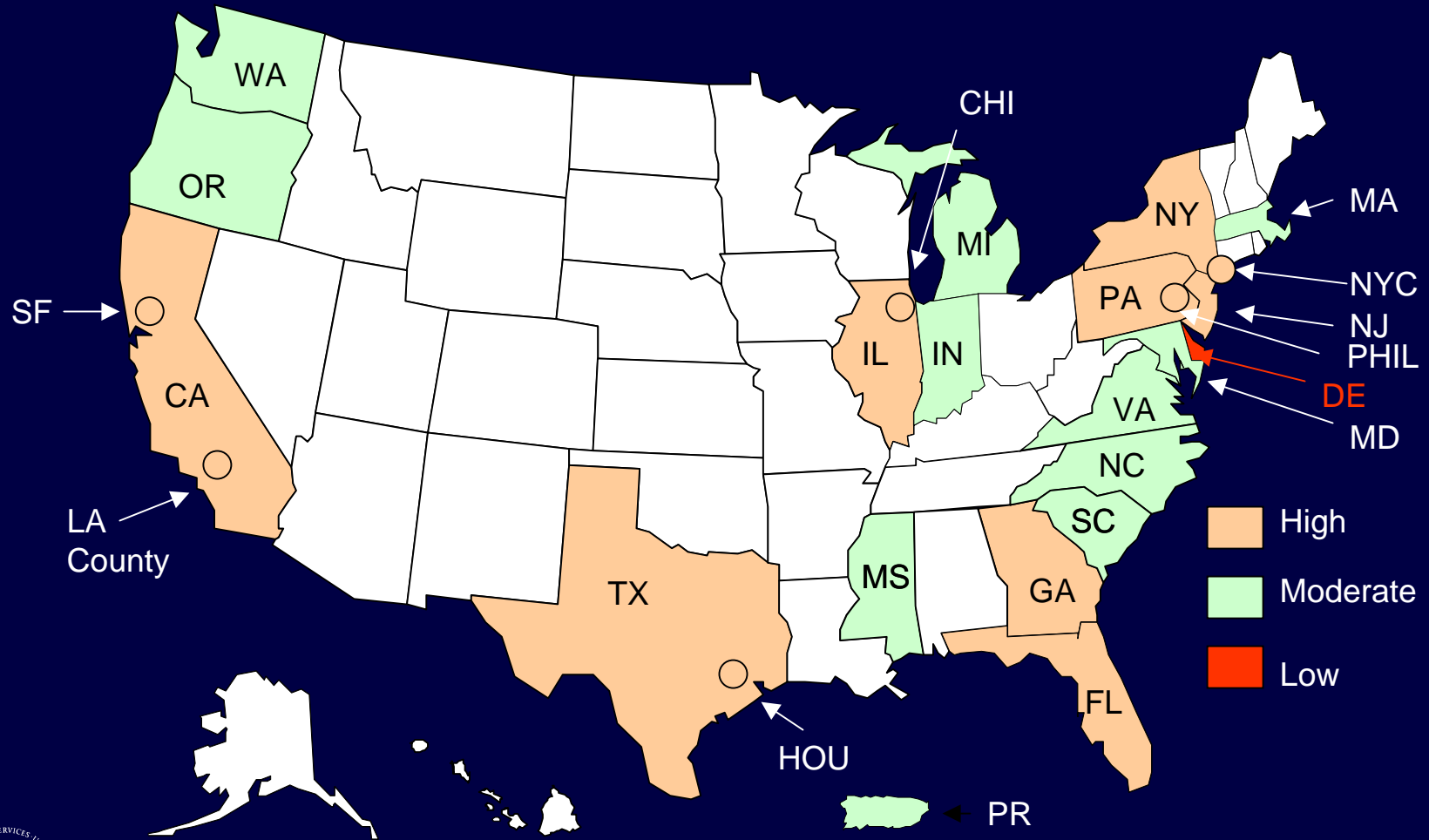


5. Morbidity Monitoring Project (MMP)

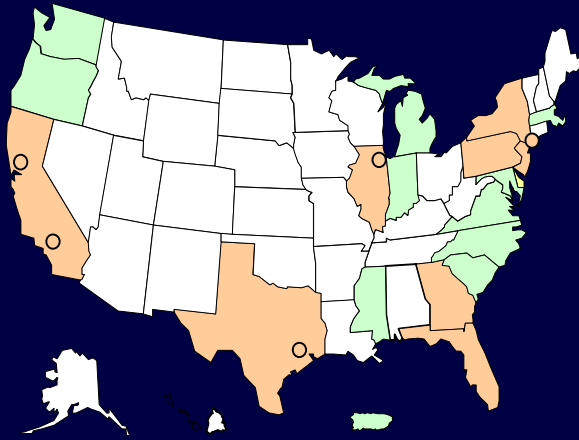
- Objectives - in a nationally representative sample of HIV-infected adults in-care
 - Monitor clinical outcomes, quality of care and HIV risk behaviors
 - Identify met and unmet needs for HIV care and prevention services
- Substudy of HIV-infected adults out-of-care
 - Determine why these persons are not in-care
 - Monitor HIV risk behaviors
- Methods
 - Annual medical record abstraction (in-care) – demographics, illnesses, laboratory data, antiretroviral drug history
 - Interviews (in- and out-of-care) - demographics, HIV risk behaviors, access to health care and HIV prevention services

Morbidity Monitoring Project

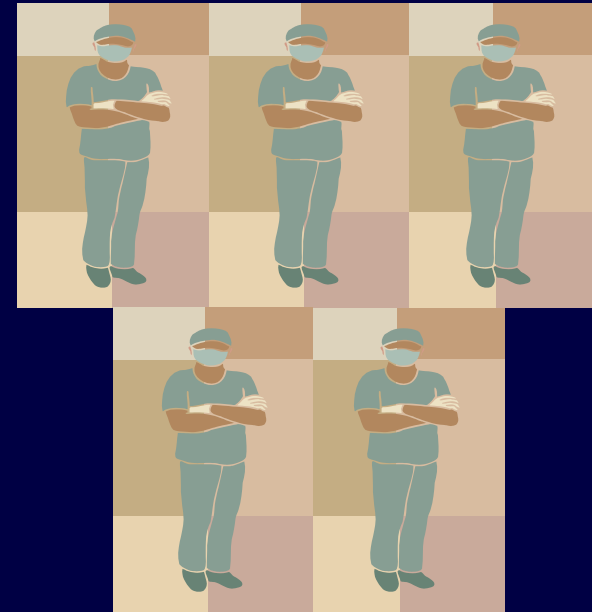
26 Sites - to begin in summer 2005



Multi-stage probability sample of adults in HIV care in the U.S.



1st stage - states

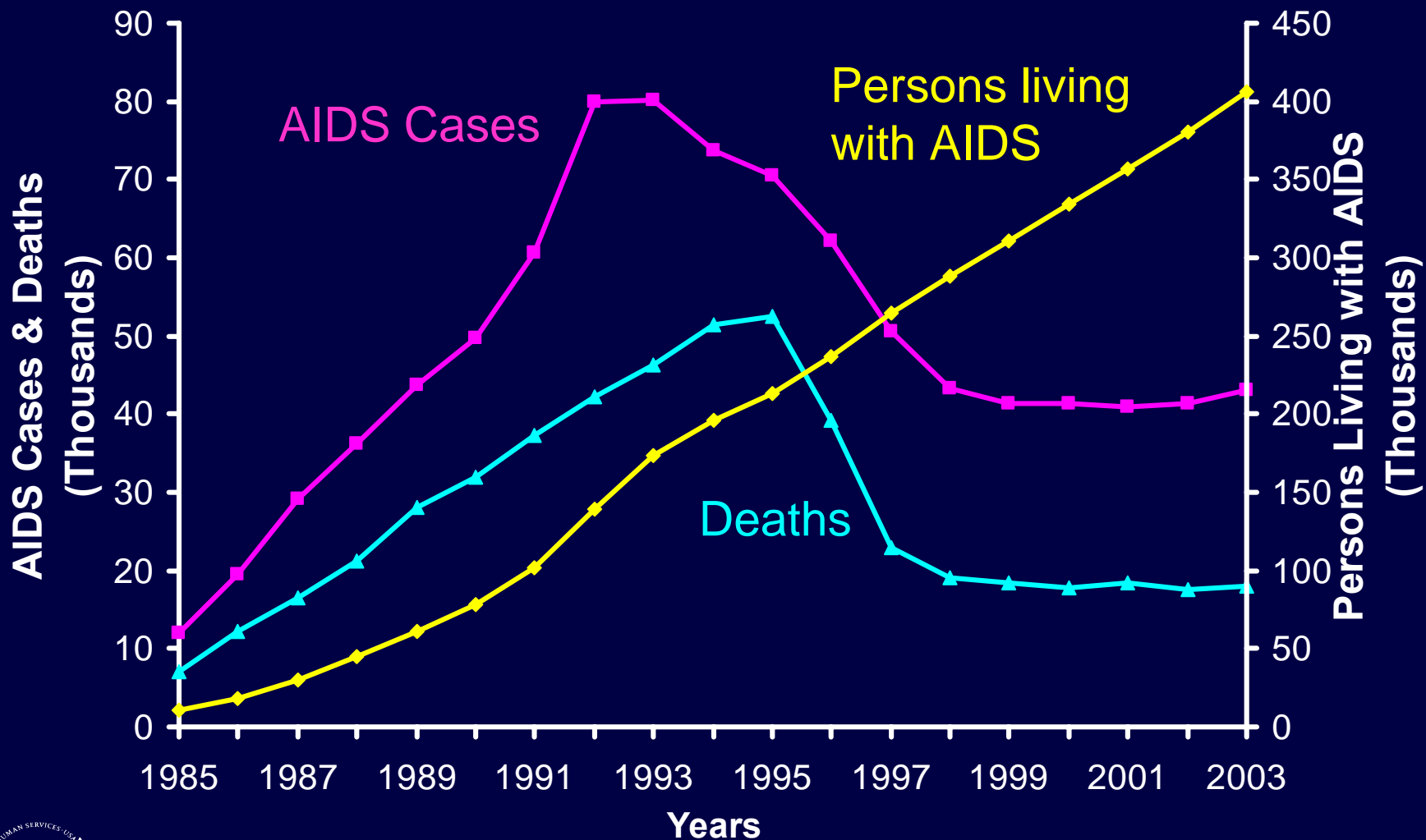


2nd stage - providers



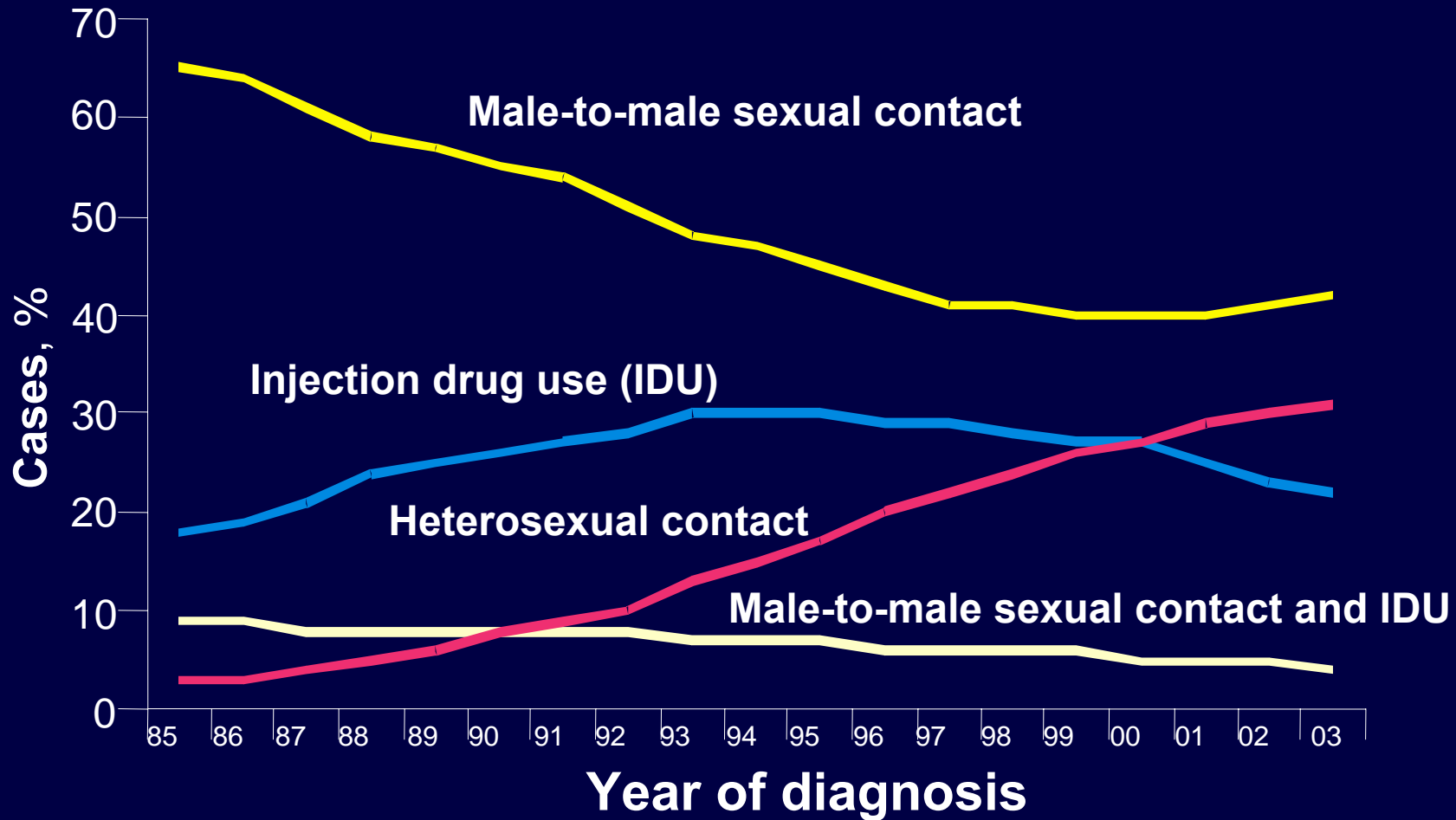
3rd stage - patients

6. AIDS Cases, Deaths of Persons with AIDS, and Persons Living with AIDS in the United States, 1985-2003



Note: Estimates are adjusted for reporting delays

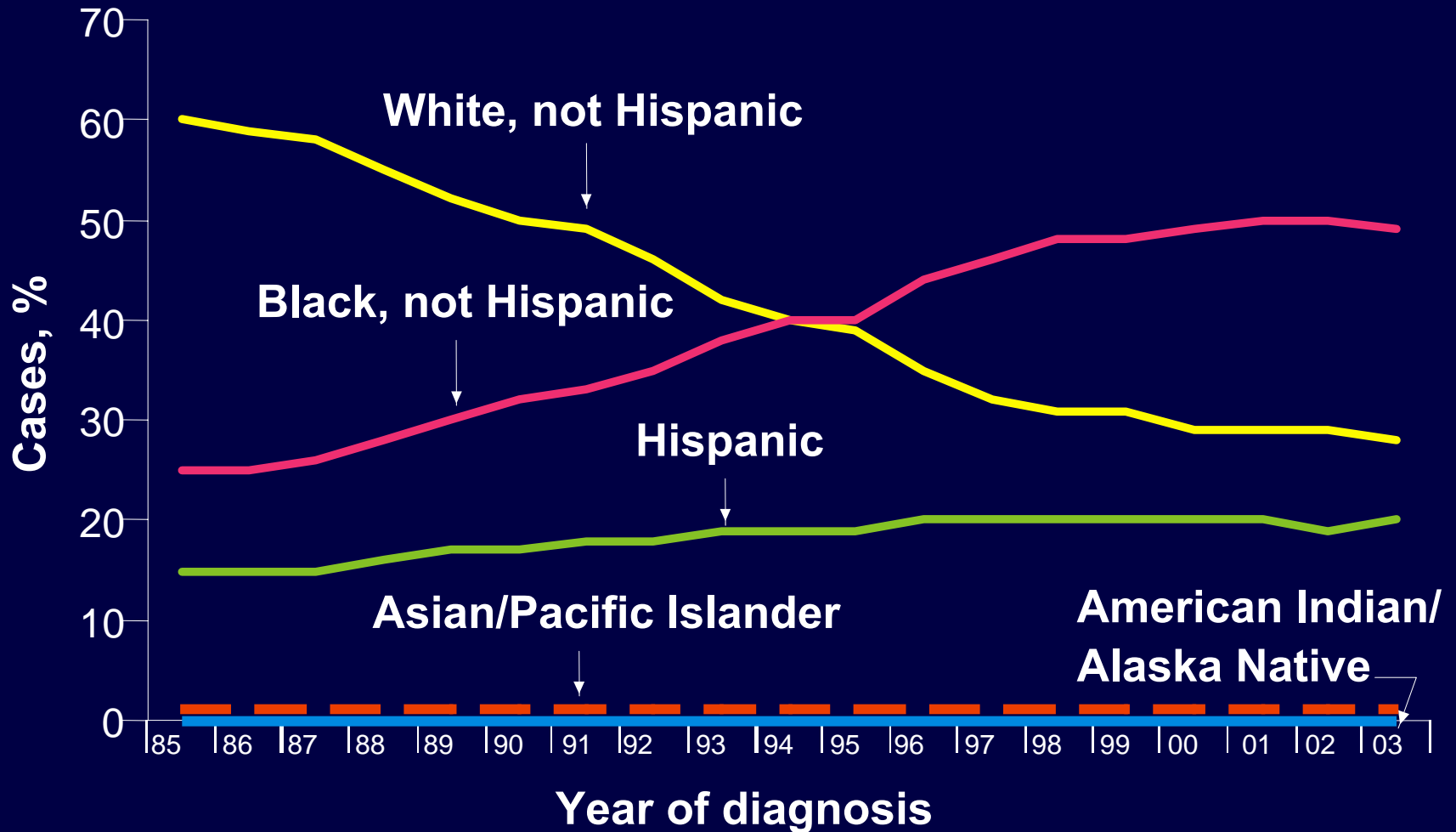
Proportion of AIDS Cases among Adults and Adolescents, by Transmission Category, 1985-2003



Note. Data adjusted for reporting delays and estimated proportional redistribution of cases in persons initially reported without an identified risk factor.



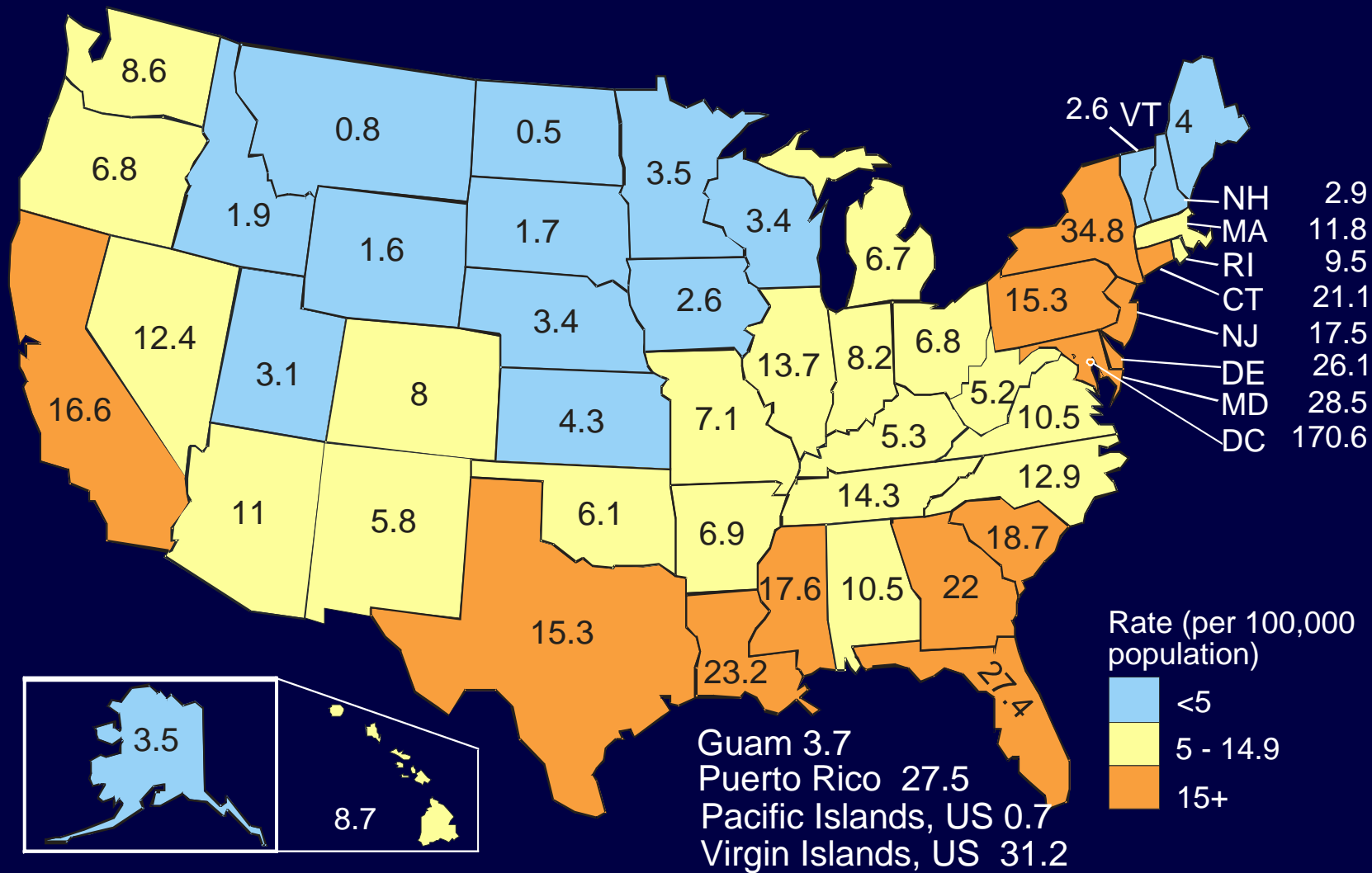
Proportion of AIDS Cases among Adults and Adolescents by Race/Ethnicity, 1985-2003



Note. Data adjusted for reporting delays.



AIDS Case Rates in 2003, United States



Summary (1)

- **CDC and its partners have now developed a comprehensive national surveillance system to monitor the entire pathway of HIV, from high risk behaviors to HIV incidence and prevalence, to HIV illness, AIDS and death**
- **CDC estimates that by the end of 2003, 1,039,000 – 1,185,000 persons were living with HIV in the U.S., of whom 24-27% were unaware of their HIV infection**



Summary (2)

- **Data from complementary surveillance systems all indicate that the HIV/AIDS epidemic in the U.S. continues to affect disproportionately Blacks, MSM and high risk heterosexuals**
 - **2004-2005 NHBS MSM data show that Black MSM have the highest rates of both HIV (46%) and undiagnosed infection (67%)**
 - **HIV case surveillance data indicate that the highest rates of HIV are among MSM and high-risk heterosexuals**
 - **AIDS case surveillance data demonstrate the highest proportions of AIDS cases continue to occur among MSM, high risk heterosexuals and Blacks**



Conclusions

- **National surveillance data strongly support CDC recommendations for expanded HIV testing in high-risk communities to identify persons in need of HIV prevention and treatment services**
- **It is critical to continue the implementation of proven HIV prevention strategies in highly impacted communities**
- **HIV researchers must continue to develop new behavioral and biomedical interventions that will add to our HIV prevention armamentarium**



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