HIV Behavioral Surveillance in the Baltimore-Towson Metropolitan Area

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May 16, 2011

IDEHA Mission

- To improve the health of Marylanders by reducing the transmission of infectious diseases, helping impacted persons live longer, healthier lives, and protecting individuals and communities from environmental health hazards

- We work in partnership with local health departments, providers, community based organizations, and public and private sector agencies to provide public health leadership in the prevention, control, monitoring, and treatment of infectious diseases and environmental health hazards.

Agenda

- Overview of Behavioral Surveillance
  - Target Populations
  - Recruitment Methods
  - Data Collection
- Data Presentations
- Discussion
- Next Steps
- Lunch
- Central RAC Meeting

Definition

- Behavioral surveillance, for public health purposes, is the systematic and ongoing collection of data about risk and health-related behaviors with the purpose of correlating trends in behaviors with changes in disease over time.

  – Lansky, *et al*. Public Health Reports, 2007.

National HIV Behavioral Surveillance (NHBS)

- CDC funded project
- Data collection began in 2004
- In up to 25 metropolitan areas (has varied over time)
- Major divisions of metropolitan areas with the greatest numbers of AIDS cases

National HIV Behavioral Surveillance (NHBS)

- Based on methods developed in the Young Men's Survey (YMS)

- Currently funded under the third cooperative agreement between CDC and DHMH

- 2011 – Year 1 of a new 5 year cooperative agreement

NHBS Sites

FIGURE 1. Participating metropolitan statistical areas in the National Human Immunodeficiency Virus Behavioral Surveillance System — United States

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7
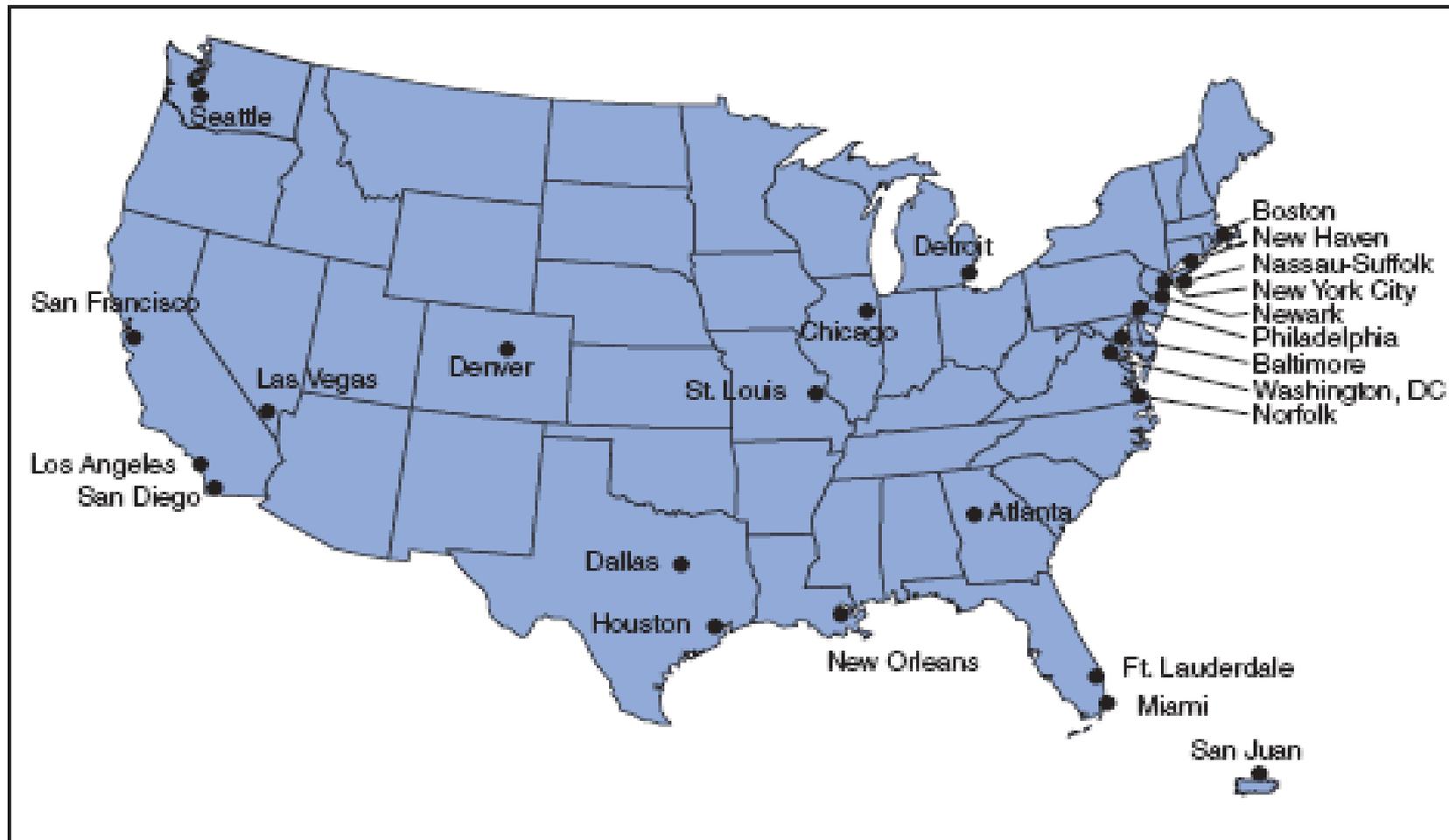
NHBS – Baltimore

- DHMH contract with Johns Hopkins Bloomberg School of Public Health for field operations
  - Dept. of Epidemiology: Frank Sifakis, David Celentano
  - Dept. of Health, Behavior and Society: Danielle German, David Holtgrave
- Collaborative project of CDC, DHMH, and JHU

NHBS – Baltimore BESURE

The

BEhavioral

SUrveillance

**RE**search

Study

BESURE Logistics

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
  - HIV prevalence and incidence

HIV Disease Spectrum and Surveillance

Behavioral Surveillance

Case Surveillance

Exposure → Infection → HIV Diagnosis → Illness → AIDS Diagnosis → Death
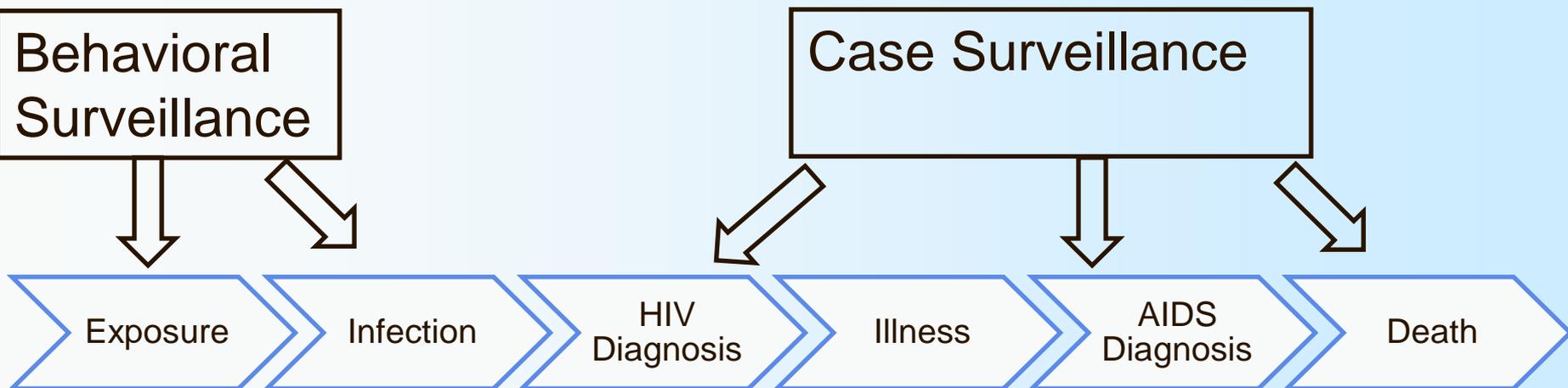
Case vs. Behavioral Surveillance

Case Surveillance

- Infected population
- HIV positives
- Mandated reporting
- Data abstracted from medical records
- All diagnosed cases (N≅30,000 in Maryland)
- Dozens of demographic and clinical variables

Behavioral Surveillance

- Population at risk
- HIV negatives and positives
- Research study
- Data from participant interviews and blood tests
- 500 sampled participants per population per year
- Hundreds of behavioral variables
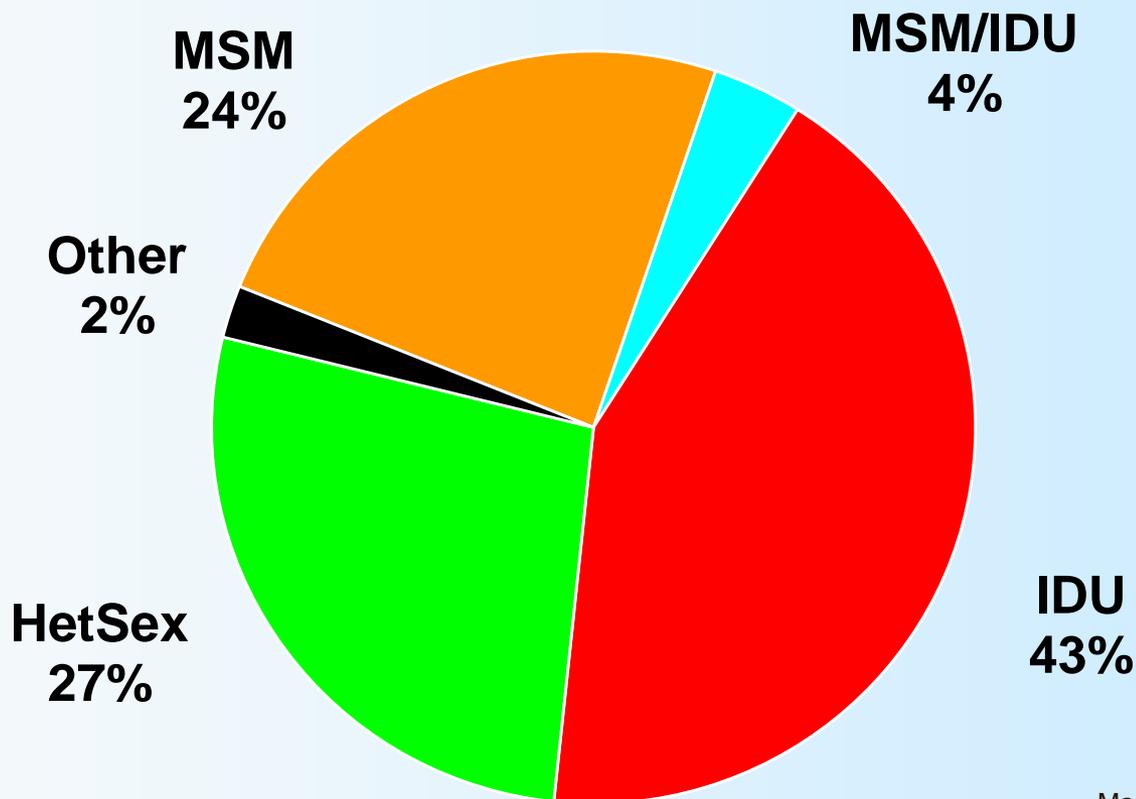
NHBS Target Populations

- Men who have sex with men (MSM)

- Injection drug users (IDU)

- Heterosexuals at risk for HIV (HET)

Living HIV Cases by Risk, Baltimore-Towson MSA, 12/31/08

N (with Risk) = 14,227 (82% of Total)

MSM 24%

MSM/IDU 4%

Other 2%

IDU 43%

HetSex 27%

Using data as reported through 12/31/2009

NHBS Recruitment Methods

- Venue-based sampling (VBS)

- Respondent-driven sampling (RDS)

Venue-Based Sampling (VBS)

- **Formative research** identifies public/private venues and days/times of attendance

- **Venue-Day-Times (VDT) enumerated** for eligibility and viability

- **Sampling frame** consists of VDTs

- Random selection of VDTs to construct sampling **event calendar**

- Individuals systematically recruited at **sampling events**

Venue Identification

- An area, location, or building, within the target geographic area, where men can be approached and recruited to participate in the survey.

- Public or private locations attended by men for any purpose EXCEPT: receiving medical/mental health care, HIV/STD testing/prevention services or social services to HIV+ men

Venue Examples

- Bars, dance clubs, retail businesses, cafes and restaurants, health clubs, social and religious organizations, sports teams, adult bookstores and bathhouses, high-traffic street locations, parks, beaches, and special events such as gay pride festivals, raves, and circuit parties.

Venue Identification - Steps

- Identify venues within the target geographic area
- Collaborate with venue owners
- Observe the venue and conduct Type 1 and Type 2 enumerations of venues to assess eligibility of venue attendees
  - Type 1: count number of men at the venue (e.g., in a known gay-identified venue)
  - Type 2: count men and screen for eligibility (e.g., in a non-gay identified venue)

Venue Identification - Steps

- Determine the suitability of venues from recruitment:
  - More than 8 eligible men and more than 75% men counted within 4-hour period eligible
  - Staff safety, operational feasibility, venue owner approval
- Categorize and code suitable venues

Venues	VDTs						
Venue ID[b]	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
F001	6p–10p		6p–10p				
X002			8p–12a	8p–12a	8p–12a	8p–12a	
C019		6p–10p	6p–10p	6p–10p	6p–10p 10p–12a	6p–10p 10p–12a	4p–8p
P007						2p–6p	4p–6p
D101					11:30p–3:30a		
R045	6p–10p	6p–10p	6p–10p	6p–10p	6p–10p	6p–10p	
S033	4p–8p 8p–12a 12a–2a	4p–8p 8p–12a 12a–2a	4p–8p 8p–12a 12a–2a	4p–8p 8p–12a 12a–2a	4p–8p 8p–12a 12a–2a	4p–8p 8p–12a 12a–2a	4p–8p 8p–12a 12a–2a
D052			8p–12a	8p–12a	8p–12a	8p–12a	
O004			8p–9p				
O008		Tuesday 7p–10p (1st and 3rd)					
Z001	8p–12a						
X021	6p–10p 10p–2a	6p–10p 10p–2a	6p–10p 10p–2a	6p–10p 10p–2a	6p–10p 10p–2a	2p–6p 6p–10p 10p–2a	2p–6p 6p–10p 10p–2a
S001	6p–10p	6p–10p	6p–10p	6p–10p	6p–10p 10p–12a	6p–10p 10p–12a	4p–8p 6p–10p
C001	6p–10p	6p–10p	6p–10p	6p–10p	8p–12a	8p–12a	

[a]VDTs are venue-specific, day-time periods expected to yield a minimum of eight eligible MSM.

[b]B = bar; C = café or restaurant; D = dance club; F = fitness club or gymnasium; G = Gay Pride or similar event; H = house party; O = social organization; P = park or beach (not public sex environment); R = retail business; S = street location (e.g., corner); V = rave, circuit party, or similar event; X = sex establishment or environment; Z = other

MSM = men who have sex with men

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22

VBS – Sampling Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 PRa: O008 7p–10p A1b: S033 A2c: X021	**2** PR: O004 8p–9p A1: D052 A2: X002	**3**	**4** PR: D101 11:30p–3:30a A1: S033	**5**
6	**7** PR: Z001 8p–12a A1: S033 A2: X021	**8**	**9** PR: F001 6p–10p A1: C019 A2: C001	**10**	**11** PR: X002 8p–12a A1: D052 A2: C001	**12**
13	**14** PR: R045 6p–10p A1: F001 A2: Z001	**15**	**16**	**17** PR: D052 8p–12a A1: X021 A2: S033	**18** PR: C019 10p–12a A1: D101 A2: S033	**19** PR: C001 8p–12a A1: X021 A2: X002
20	**21**	**22** PR: S033 12a–2a	**23**	**24** PR: S001 6p–10p A1: R045 A2: X002	**25**	**26**
27 PR: P007 4p–6p A1: X021 A2: C019	**28**	**29**	**30** PR: X021 6p–10p A1: O004 A2: F001			

MSM = men who have sex with men

aPR = primary sampling event

bA1 = first alternate venue

cA2 = second alternate venue

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23

NHBS-MSM Recruitment

- Participant Recruitment
  - Men counted at venues and systematically intercepted
  - Eligibility data gathered and enrollment offered to eligible men
  - Escorted to the nearby, modified van for consent, questionnaire administration, HIV counseling, and blood drawing
  - Option to make appointments to participate later at our fixed location
  - HIV results appointment within 2 wks

VBS – Challenges

- Implementation
  - Support from target community
  - Ongoing Formative Research
  - Staff fatigue and burn out
  - Duplicates
- Analytical
  - Possibility for unequal probability of selection
  - Weights may be needed for adjustment
  - Clustering of risk factors and outcomes within venues

Respondent-Driven Sampling (RDS)

- Type of chain referral sampling to reach hidden populations
- Begin with a set of non-randomly selected seeds
- Seeds recruit peers, who recruit peers, etc.
- Each seed is given a set number of recruitment coupons
- Recruits are linked by coupons with unique identifying numbers
- Incentives provided for participation and for each successful recruit
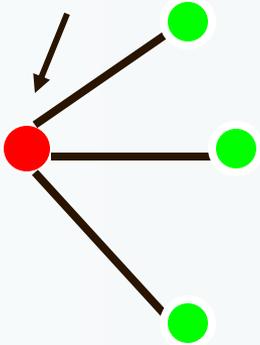
Heckathorn 1997; Heckathorn & Salganik, 2004; Broadhead et al. 1998

Seed

●

1   **2**   **3**   **4**   **5**

Seed

Recruitment Waves

Recruitment Waves

Recruitment Waves

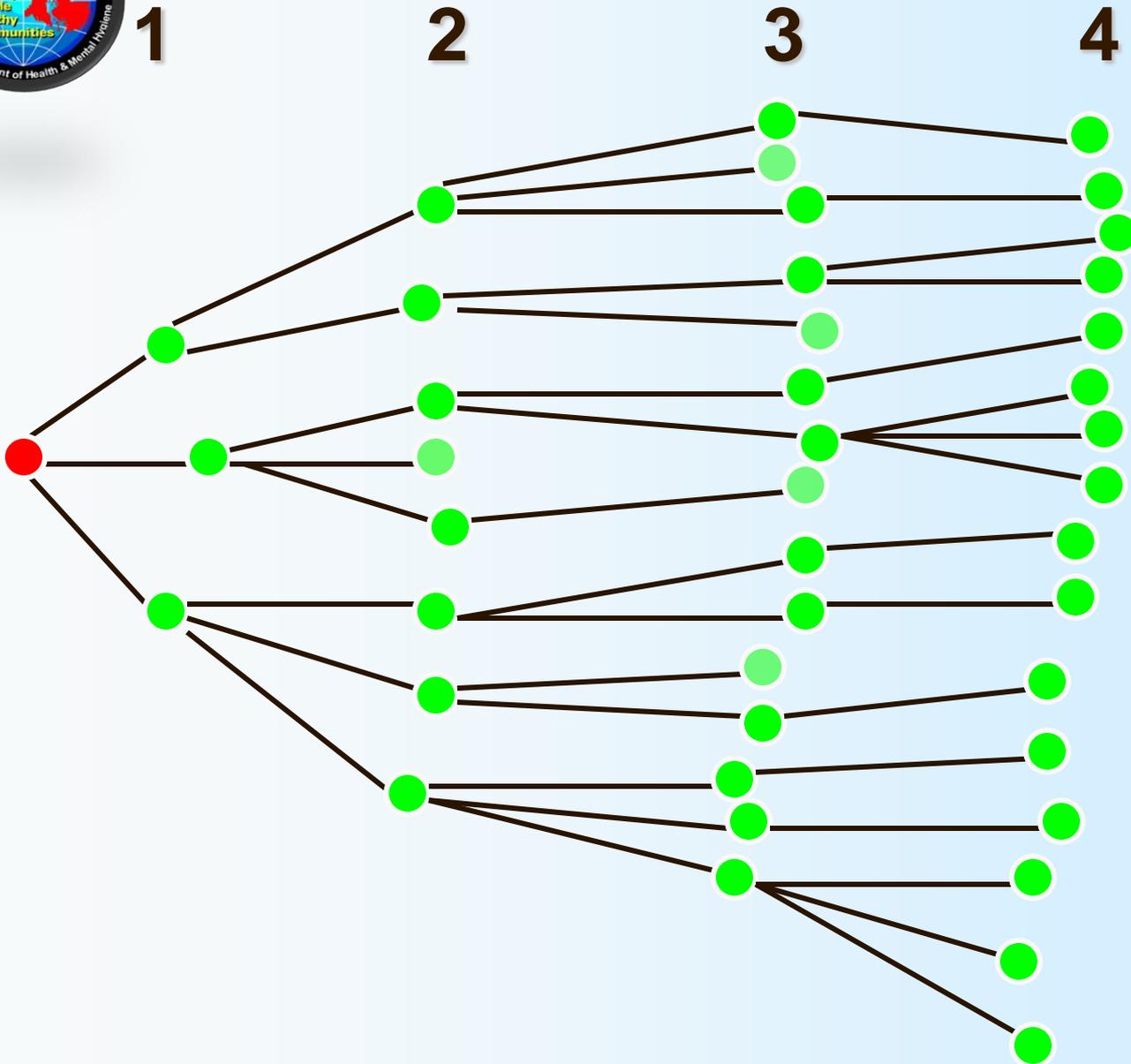Maryland Infectious Disease and
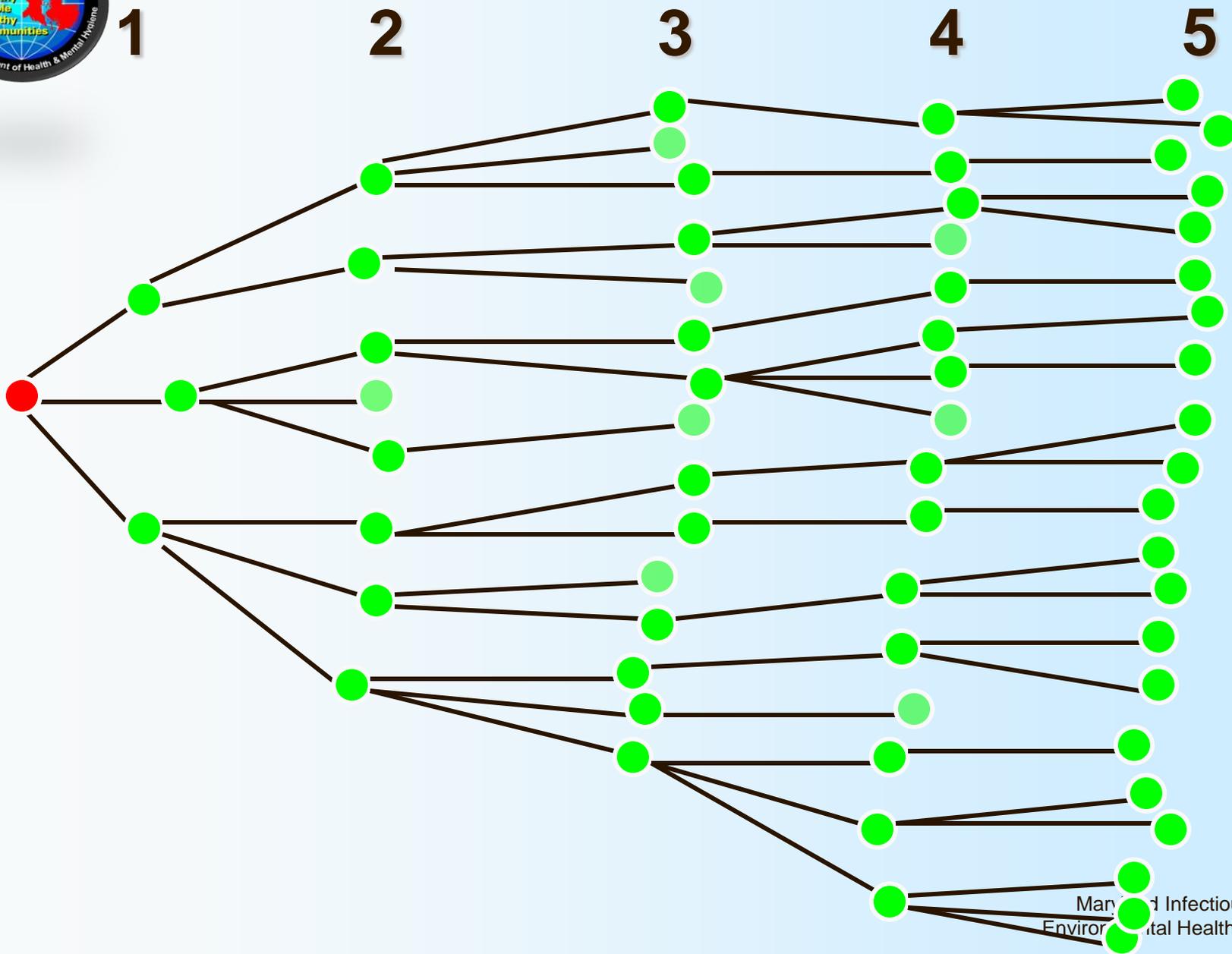Environmental Health Administration
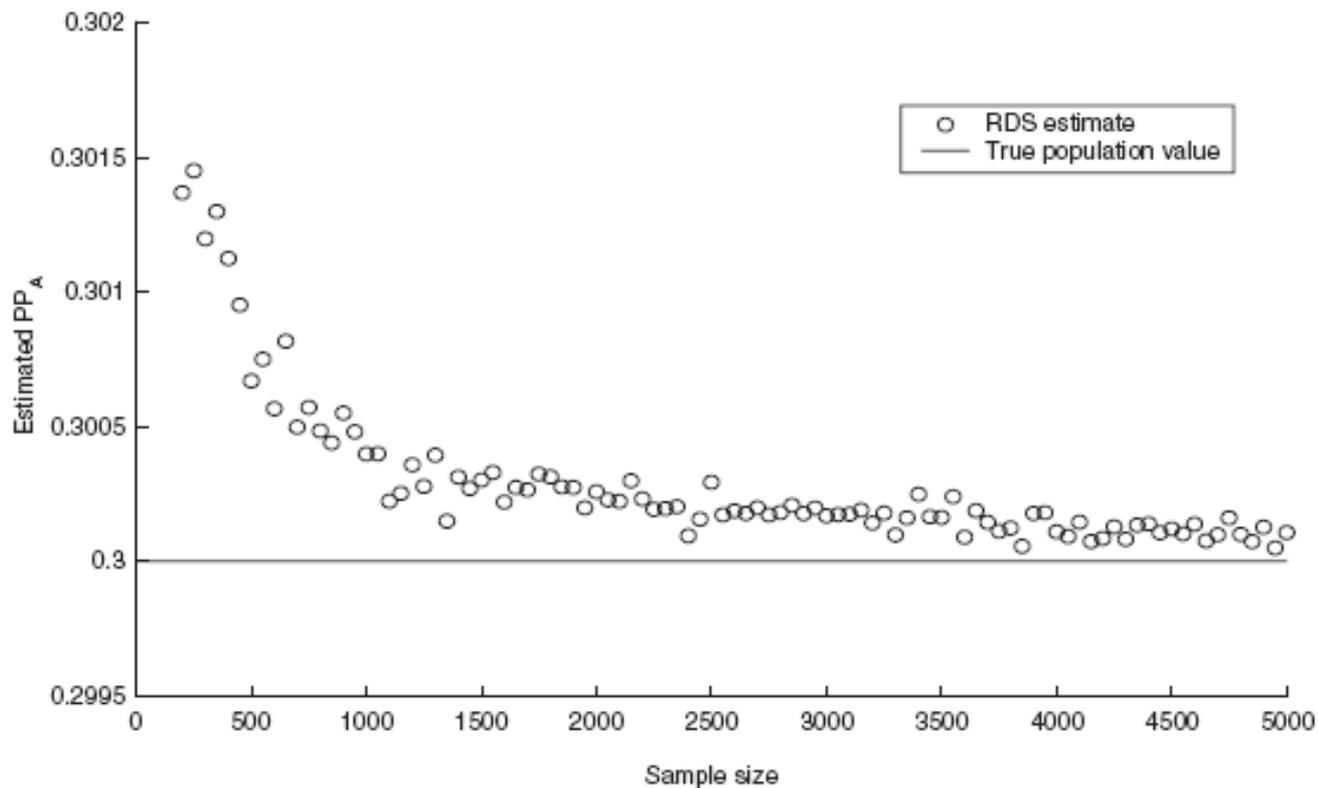May 16, 2011
31
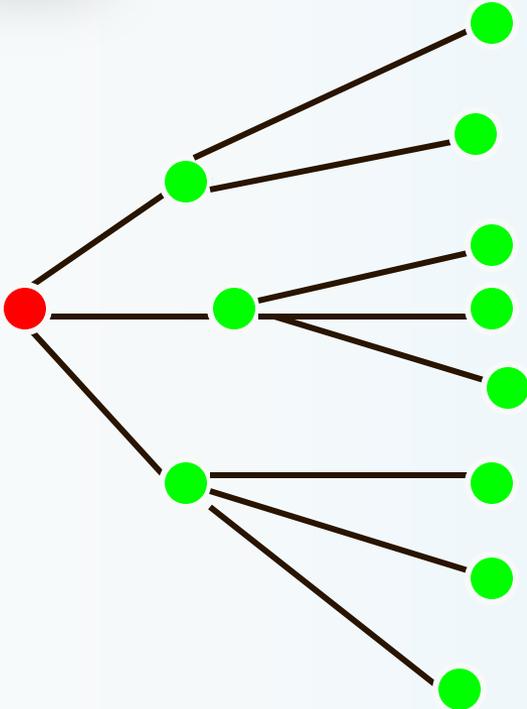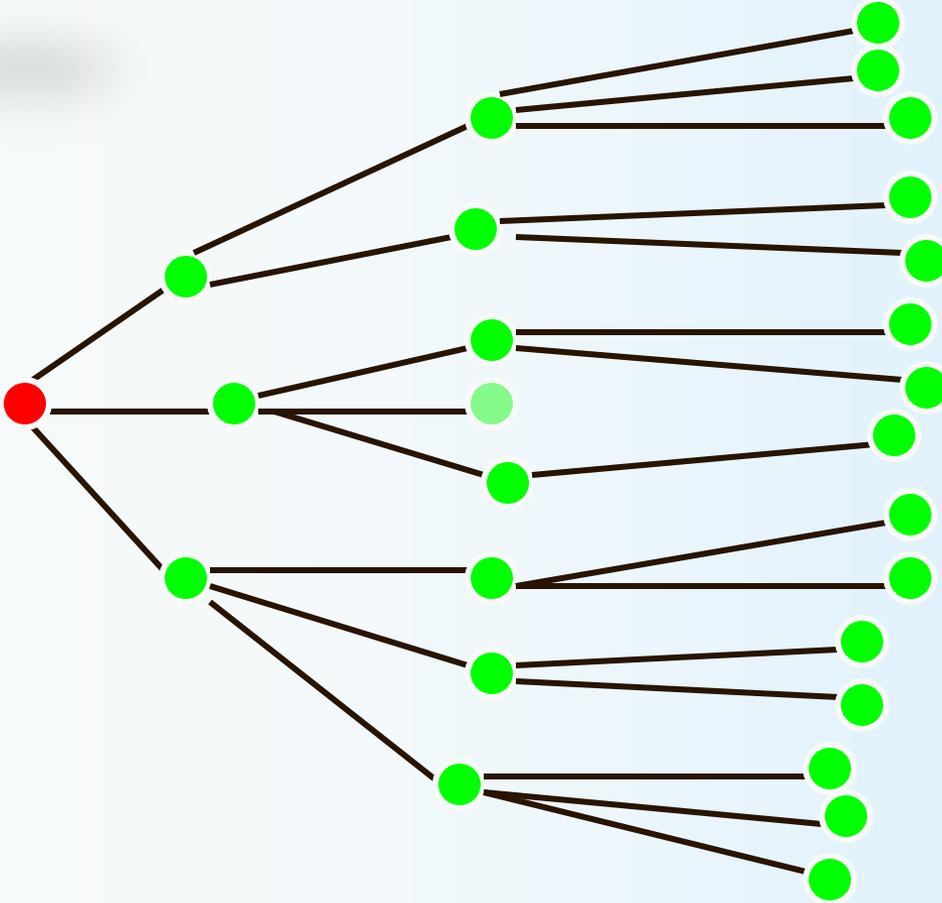
Recruitment Waves

RDS Premise

As the recruitment process continues from wave to wave, an equilibrium mix of recruits will eventually be attained that is independent of the characteristics of the subject or set of subjects from which recruitment began.

RDS – Challenges

- Implementation
  - Dependent on geographic/social barriers
  - Adequate time needed; referral chains may be interrupted
  - Coupons are commodities; may be sold
  - Appropriately trained staff; complex operations
  - Ethical concerns; coercion to participate
  - Only participants who are part of networks are sampled

RDS – Challenges

- Analytical
  - Possibility for unequal selection probability of participants
  - Weights may be needed for adjustment
  - Cross-sectional; inability to make causal inferences
  - Only participants who are part of networks are sampled

NHBS Cycles

	MSM	IDU	HET
Wave 1	VBS 2004-2005	RDS 2006	VBS and RDS 2007
Wave 2	VBS 2008	RDS 2009	RDS 2010
Wave 3	VBS 2011	RDS 2012	RDS 2013

VBS = venue-based sampling
RDS = respondent-driven sampling

NHBS Data Collection

- Formative Research
- Interview Instrument
  - Demographics
  - Health care utilization
  - Sexual orientation
  - Sex behaviors
  - Drug use
  - HIV testing
  - Health conditions
  - HIV prevention awareness/use

NHBS Data Collection

- Recruitment Data (venue characteristics or referral networks)
- HIV Testing
- Supplemental Testing
- Local Questions

NHBS Data Reports

- MMWR articles
- Journal articles
- Conference presentations
- CPG presentations
- MSM Response Team presentations
- New IDEHA website
- Coming soon – JHU website and blog
- Later this morning – data presentations on each target population

Maryland Infectious Disease and Environmental Health Administration

http://ideha.dhmh.maryland.gov