As you get settled…

Get ready to participate in interactive polling by:

Pointing your web browser to pollev.com/surveys

OR Texting SURVEYS to +17474443548

Downloading the pollev app and signing up for “surveys” as a participant
Visualizing HIV in the United States

George Washington University

Patrick Sullivan, DVM, PhD
Emory University
Thursday, February 4, 2016
Poll 1

- Have you ever heard of AIDSVu before today?
  A. Nope!
  B. Heard of it, but never used it
  C. Heard of it and used it
  D. It’s my browser homepage!
“Surveillance is the conscience of the epidemic” - James Curran

### Table 1a. Diagnoses of HIV Infection and Diagnoses of Infection Classify

<table>
<thead>
<tr>
<th>Age at diagnosis</th>
<th>2011 No.</th>
<th>2011 Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;13</td>
<td>192</td>
<td>0.4</td>
</tr>
<tr>
<td>13–14</td>
<td>53</td>
<td>0.6</td>
</tr>
<tr>
<td>15–19</td>
<td>2,240</td>
<td>10.4</td>
</tr>
<tr>
<td>20–24</td>
<td>8,054</td>
<td>36.4</td>
</tr>
<tr>
<td>25–29</td>
<td>7,484</td>
<td>35.2</td>
</tr>
<tr>
<td>30–34</td>
<td>6,209</td>
<td>30.3</td>
</tr>
<tr>
<td>35–39</td>
<td>5,285</td>
<td>27.0</td>
</tr>
<tr>
<td>40–44</td>
<td>5,753</td>
<td>27.4</td>
</tr>
<tr>
<td>45–49</td>
<td>5,564</td>
<td>25.1</td>
</tr>
<tr>
<td>50–54</td>
<td>3,951</td>
<td>17.5</td>
</tr>
<tr>
<td>55–59</td>
<td>2,312</td>
<td>11.4</td>
</tr>
<tr>
<td>60–64</td>
<td>1,229</td>
<td>6.9</td>
</tr>
<tr>
<td>&gt;65</td>
<td>948</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Race/ethnicity:
- American Indian
- Asian
- Black/African
- Hispanic/Latin

<table>
<thead>
<tr>
<th>Race/ethnicity</th>
<th>2011 No.</th>
<th>2011 Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>212</td>
<td>9.3</td>
</tr>
<tr>
<td>Asian</td>
<td>982</td>
<td>6.5</td>
</tr>
<tr>
<td>Black/African</td>
<td>23,168</td>
<td>60.4</td>
</tr>
<tr>
<td>Hispanic/Latin</td>
<td>10,159</td>
<td>19.5</td>
</tr>
</tbody>
</table>
AIDSVu is a compilation of interactive, online maps that allows users to visually explore the HIV epidemic in the U.S. alongside critical resources such as HIV testing and treatment center locations.

AIDSVu’s mission is to make HIV prevalence data widely accessible and locally relevant.

AIDSVu provides users with an intuitive, visual way to connect with complex information about persons living with an HIV diagnosis at national, state and local levels.
### Historical Context

**2011 updates:**
- 12 cities with Zip Code level data
- County-level data
- Testing locator

**2012 updates:**
- 15 cities
- Census tract data (2 cities)
- Treatment locator
- Social determinants of health

**Updates: 2013**
- 20 cities
- New diagnosis & transmission category
- HIV Continuum
- White House National HIV/AIDS Strategy Report

**Updates: 2014**
- 33 cities
- Neighborhood data (2 cities)
- Census tract data (3 cities)
- City evaluations (2 cities)
- 17 city profiles

**Updates: 2015**
- 34 cities
- Neighborhood data (2 cities)
- Census tract data (3 cities)
- 29 enhanced city profiles
- Population Profile Pages
- Redesigned interface

**Updates: 2016**
- 38-40 cities
- ZIP Code new diagnoses
- State-level mortality
- 2-way stratification at state level
- Neighborhood data (2 cities)
- Census tract data (3 cities)
- 35 enhanced city profiles

**Coming June 2016**
• National Map
• State/city pages
• Resource locators
• Prevent new HIV infections
• Improve linkage to prevention, care and treatment
• Reduce HIV-related health disparities
INDICATOR 1  Increase the percentage of people living with HIV who know their serostatus to at least 90 percent.

INDICATOR 2  Reduce the number of new diagnoses by at least 25 percent.

INDICATOR 3  Reduce the percentage of young gay and bisexual men who have engaged in HIV-risk behaviors by at least 10 percent.

INDICATOR 4  Increase the percentage of newly diagnosed persons linked to HIV medical care within one month of their HIV diagnosis to at least 85 percent.

INDICATOR 5  Increase the percentage of persons with diagnosed HIV infection who are retained in HIV medical care to at least 90 percent.

INDICATOR 6  Increase the percentage of persons with diagnosed HIV infection who are virally suppressed to at least 80 percent.

INDICATOR 7  Reduce the percentage of persons in HIV medical care who are homeless to no more than 5 percent.

INDICATOR 8  Reduce the death rate among persons with diagnosed HIV infection by at least 33 percent.

INDICATOR 9  Reduce disparities in the rate of new diagnoses by at least 15 percent in the following groups: gay and bisexual men, young Black gay and bisexual men, Black females, and persons living in the Southern United States.

INDICATOR 10 Increase the percentage of youth and persons who inject drugs with diagnosed HIV infection who are virally suppressed to at least 80 percent.
You want to help a provider understand why she should consider routinely screening for HIV in her practice. Which epidemiologic measure would be best?

A. HIV Incidence in the area
B. HIV Prevalence Rate in the area
C. HIV Case Count in the area
Rates of Persons Living with an HIV Diagnosis, by County, Georgia, 2012

Note. Data include persons with a diagnosis of HIV infection, regardless of the stage of disease at diagnosis, and have been statistically adjusted to account for reporting delays and missing risk-factor information, but not for incomplete reporting.

Data Source: Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Division of HIV/AIDS Prevention.

* Data are not shown to protect privacy. ** State health department requested not to release data.
Prevalence of Persons Living with HIV, 4 Georgia Counties, 2010

Rate of HIV per 100,000 population

<table>
<thead>
<tr>
<th>Georgia County</th>
<th>Persons living with HIV/100,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baker</td>
<td>1400</td>
</tr>
<tr>
<td>Clay</td>
<td>400</td>
</tr>
<tr>
<td>Dekalb</td>
<td>1200</td>
</tr>
<tr>
<td>Fulton</td>
<td>1300</td>
</tr>
</tbody>
</table>
Prevalence and case counts of people living with HIV in 4 Georgia Counties, 2010

Baker: 38 cases, 220 rate per 100,000
Clay: 22 cases, 120 rate per 100,000
Dekalb: 6171 cases, 970 rate per 100,000
Fulton: 9703 cases, 144 rate per 100,000
Counts and rates

- **Use RATES:**
  - To talk about concentration of infection/likelihood of undiagnosed cases
  - To talk about risk of new infections
  - To compare the impact of the epidemic in different groups (men vs women, by race, by age)

- **Use COUNTS**
  - To talk about service needs
  - To estimate future costs
- DC Maps
  - Overall
  - Race
  - Age
• In ***ONE WORD***, what kinds of areas are underserved by existing prevention and treatment services? Answer as often as you like!

Notes. Data represent persons living with an HIV or AIDS diagnosis in the District of Columbia at the end of 2012 and who were reported as of 12/31/2014.


* Data are not shown to protect privacy. ** State health department requested not to release data. † Data not available because the data source does not publish these data for this jurisdiction.
Use Case #1

Using data to target door-to-door HIV testing in high prevalence areas (Philadelphia):

- AIDSVu data from city directly
- Prevalence is relatively stable (2011)
- Fine geographic level (census tract)
- Residence at diagnosis

Source: Amy Nunn, Brown University
• Philadelphia
• Chicago/NYT
Analysis of relationships between “Tweets” and HIV prevalence:

- AIDSVu county-level prevalence data from CDC partnership
- Coarser geographic areas
- 2010 data
- Residence at diagnosis

Fig. 1. Flowchart of tweets, USA, 2012.

**Table 2**
Multivariate analysis of factors associated with county HIV prevalence, United States, 2012. The model includes an offset of the number of people living in that county to adjust for population.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Coefficient</th>
<th>Standard error</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proportion of HIV-related tweets</td>
<td>265.0</td>
<td>12.4</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Percent living in poverty</td>
<td>2.1</td>
<td>0.4</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>GINI index</td>
<td>4.6</td>
<td>0.6</td>
<td>&lt;.0001</td>
</tr>
<tr>
<td>Percent without health insurance</td>
<td>1.3</td>
<td>0.4</td>
<td>&lt;.01</td>
</tr>
<tr>
<td>Percent with a high school education</td>
<td>-1.1</td>
<td>-3.1</td>
<td>&lt;.01</td>
</tr>
</tbody>
</table>

Poll 4

- Which group is most at risk for having unsuppressed viral load, given that they have been diagnosed with HIV infection?
  A. 13-24 year olds
  B. 25-44 year olds
  C. 45-59 year olds
  D. 60+ year olds
  E. It depends on the city
MAPPING THE HIV CARE CONTINUUM

A new way to identify places where we can improve HIV testing, care and treatment.

NEW HIV DIAGNOSIS, LATE HIV DIAGNOSIS, LINKED TO HIV CARE, ENGAGED IN HIV CARE, SUPPRESSED HIV VIRAL LOAD
The HIV Care Continuum Among Those Newly Diagnosed with HIV, by Demographic Groups, 2006-2010

<table>
<thead>
<tr>
<th></th>
<th>New HIV Diagnoses¹</th>
<th>Late HIV Diagnoses²</th>
<th>Linked to HIV Care³</th>
<th>Engaged in HIV Care⁴</th>
<th>Supressed HIV Viral Load⁵</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-44</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>45-59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60+</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

¹ Higher ratio = Worse
² Higher ratio = Worse
³ Higher ratio = Worse
⁴ Better ratio = Worse
⁵ Lower ratio = Worse
Prioritizing metropolitan Atlanta areas for a new grant program focused on linkage and retention to HIV care

- AIDSVu ZIP-code level data on HIV linkage rates
- Intermediate geographic areas
- Residence at diagnosis among cases diagnosed 2006-2010
- Data obtained directly through state health department
- Georgia on CDC list of 18 states with complete laboratory reporting

Source: HIVContinuum.org
Use Case #4: Telemedicine in Alabama

Rates of Persons Living with an HIV Diagnosis, by County, Alabama, 2010 (AIDSVu)

Using Maps to Focus HIV Care Resources

While HIV remains concentrated in urban centers, accessing appropriate care in rural areas remains a challenge, particularly in the South. Medical AIDS Outreach in Montgomery, Alabama used mapping to improve delivery of HIV-related clinical care expertise via telemedicine. This was done by overlaying an AIDSVu state map of HIV cases by county with a state map of healthcare provider shortage areas by county. Medical AIDS Outreach assessed how these data overlapped to determine where rural telemedicine clinics would have most impact to fulfill unmet needs for HIV care.
Rates of Persons Living with HIV

Health Professional Shortages Areas

Identify Health Professional Shortages
Identify Telemedicine Hubs

Telemedicine Hubs and Spokes

Health Professional Shortages Areas
Connecting Race and Place: A County-Level Analysis of White, Black, and Hispanic HIV Prevalence, Poverty, and Level of Urbanization

Adam S. Vaughan, MPH, MS, Eli Rosenberg, PhD, R. Luke Shouse, MD, MPH, and Patrick S. Sullivan, DVM, PhD

Adam S. Vaughan, Eli Rosenberg, and Patrick S. Sullivan are with the Department of Epidemiology, Rollins School of Public Health, Emory University, Atlanta, GA. R. Luke Shouse is with the Division of HIV/AIDS Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, Centers for Disease Control and Prevention, Atlanta, GA.

Correspondence should be sent to Adam S. Vaughan, Department of Epidemiology, Rollins School of Public Health, Emory University, 1518 Clifton Rd NE, Atlanta, GA 30322 (e-mail: asvaugh@emory.edu). Reprints can be ordered at http://www.ajph.org by clicking the “Reprints” link.

Contributors

All authors contributed to the interpretation of findings and to the writing of the report. A. S. Vaughan and E. Rosenberg performed the analysis. A. S. Vaughan and P. S. Sullivan conceptualized the analysis. A. S. Vaughan wrote the first and final drafts.

Peer Reviewed

Source: Vaughan AS. AJPH 2014: 104 (7):e77-e84
Defining Urbanicity

2006 NCHS Urban-Rural Code
- Large Central Metro
- Large Fringe Metro
- Medium Metro
- Small Metro
- Micropolitan
- Noncore

Data Source: CDC, NCHS Urban-Rural Classification Scheme for Counties; www.cdc.gov/nchs/data_access/urban_rural.htm
County-level HIV Prevalence and Prevalence Ratios, United States, 2009

Black/White PRR
Hispanic/White PRR
Black Rate (per 100,000)
Hispanic Rate (per 100,000)
White Rate (per 100,000)
Adjusted Black-White Disparities

- Large central metro
- Large fringe metro
- Medium metro
- Small metro
- Micropolitan
- Noncore

PRR (Ref = White)

- 10% Poverty
- 20% Poverty
- 30% Poverty
Caveats & Limitations of AIDSVu Maps

- Data on AIDSVu may differ from data released in state and local HIV surveillance reports.
- Maps are inclusive of incarcerated persons and should be interpreted with caution.
- AIDSVu maps do not reflect undiagnosed cases.
- Caution should be exercised when comparing maps because the scales change when viewing data overall and by race/ethnicity, sex and age group breakdowns.
• What kind of data would like to “mash up” with HIV prevalence data? It might be census, service data, location-based data ....
What can AIDSVu do for you?

• Easy access to quick facts about the US HIV epidemic, calculated consistently across areas
• Slide decks for talks or projects
• Downloadable data for analyses
• Tool to raise awareness of HIV through infographics
• Teaching tool to illustrate or reinforce important aspects of epidemiology: rates, counts, rate ratios, prevalence versus new diagnoses, social determinants of health ....
Tour

- Slide decks
- Downloadable data
- Infographics
What can you do for AIDSVu?

- Sign up for news and updates: bit.ly/AIDSVUUNews
- Like us on Facebook (facebook.com/AIDSVu)
- Follow us on Twitter (@AIDSVu)
- Retweet and repost infographics
- Use AIDSVu data and acknowledge AIDSVu
- Send us your ideas about what else we should be mapping! (info@AIDSVu.org)
- Tell us how YOU AIDSVu!
  http://aidsvu.org/how-do-you-aidsvu/
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• Cory Woodyatt
• Elizabeth Pembleton
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• Public Health – City of Philadelphia
• Georgia Department of Public Health
• Medical AIDS Outreach of Alabama
• Sean Young
• Amy Nunn
• Adam Vaughan

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www.AIDSVu.org

Facebook.com/AIDSVU

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Patrick Sullivan: patrick@aidsvu.org; info@aidsvu.org