Utilizing Geographic Information Systems (GIS) Technology in the HIV Prevention Planning Process

Successes and Lessons Learned in Los Angeles County

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What is GIS?

• Collection of tools for capturing, storing, analyzing and displaying geographically referenced information

• Includes:
  ▪ Hardware (computers, servers, etc.)
  ▪ Software (ArcGIS, MapInfo, etc.)
  ▪ Geographic data
What can we do with GIS?

• Analyze relationships within geographic areas
  ▪ HIV risk
  ▪ HIV positivity
  ▪ Service utilization and barriers

• Target services at smaller levels of geography
  ▪ Zip code
  ▪ Census tract
Data Layers

Basic Geography

Geocoded Data

Quantities per Geography
Density Maps

SPA 1: Antelope Valley
SPA 2: San Fernando
SPA 3: San Gabriel
SPA 4: Metro
SPA 5: West
SPA 6: South
SPA 7: East
SPA 8: South Bay

Ryan White Care Clients

- <=5
- 6-9
- 10-14
- 15-19
- 20-24
- 25-29
- 30-34
- 35-39
- >=40

* Density per 25 sq. Miles
Los Angeles County

Square Miles: 4,086
Population¹: 10.3 Million

- Latino/a 47%
- White 28.9%
- Asian/PI 12.6%
- African-American 9.0%
- Native American 0.3%

Proportion of:
- California Population²: 29%
- California AIDS Cases³: 36%
- U.S. AIDS Cases³: 5%

Living with HIV/AIDS³: 60,000 (Estimated)

¹United Way, Los Angeles (2008)
²U.S. Department of Commerce (2008)
³Los Angeles County HIV Epidemiology Program (2008)
Strategizing Prevention Services

• Unique challenges in strategizing prevention services in Los Angeles County
  - Land area
  - Population Diversity

• County divided into 8 Service Planning Areas (SPAs)

• GIS was identified as a tool for improved prevention services planning beyond the SPA level
2009-13 HIV Prevention Plan

• First HIV Prevention Plan for Los Angeles County to use results from GIS analyses

• Two sources of geographic data used
  ▪ Los Angeles Coordinated HIV Needs Assessment (LACHNA)
  ▪ HIV Counseling and Testing data
Los Angeles County HIV Needs Assessment

• Conducted in 2007 as part of the Community Services Assessment (CSA)
  ▪ HIV Risk
  ▪ Perceptions
  ▪ Service Utilization

• Geographic data elements collected at census tract level
  ▪ Home
  ▪ Work
  ▪ Hang-out
  ▪ Services received
HIV Counseling and Testing

• Data include
  ▪ HIV testing and testing history
  ▪ HIV risk
  ▪ Service referrals

• Geographic data elements collected at zip code level
  ▪ Home
  ▪ Services received
HIV Prevention Planning Process

• Analyzed both sources of data
  ▪ HIV positivity/PLWHA
  ▪ HIV risk behaviors

• Identified 40 highly-impacted zip codes within Los Angeles County for increased prevention focus

• Increased HIV testing
  ▪ HIV Counseling and Testing Week
  ▪ New testing services recommended
Geographic Areas Identified for Increased Services

SPA 1: Antelope Valley
SPA 2: San Fernando
SPA 3: San Gabriel
SPA 5: West
SPA 8: South Bay
Challenges in Using GIS

• Must have good geographic data to start with
  ▪ Data elements should be standardized
  ▪ Missing information can skew results

• Confidentiality of identifiers
  ▪ Cannot show geocoded addresses
    ▪ Mask
    ▪ Buffer
    ▪ Quantities per geography
What’s Next

• Continue to use GIS to plan for HIV prevention and care services by assessing
  ▪ Service utilization patterns
  ▪ Barriers to service access
  ▪ Transportation challenges
  ▪ Testing site capacity
  ▪ Clinic capacity
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