Using a Geographic Information System (GIS) to Evaluate Utilization of Sexually Transmitted Diseases and HIV Services in a Northern California County with Substantial HIV Late Presentation

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Background

San Mateo County (SM) physically sits between two high STD morbidity counties, San Francisco County (SF) to the north, and Santa Clara County (SC) to the south. SM has a higher prevalence of HIV late presentation (62%) than SF (39%) and the nation (43%). Regionally, STD clinics have been important sites for HIV voluntary counseling and testing (VCT).

From 2002 -2007, all 3 counties housed at least one categorical County STD Clinic. In January 2008, the SC Clinic, which operated a full week schedule, closed due to budget limitations.

Objective

To evaluate utilization of STD and HIV services at County and neighboring county STD clinics (SF and SC) in 2006.

Figure 1. *Number of Chlamydia and gonorrhea cases by region, San Mateo County, California, 2006*

Methods

Residential zip code information on all SM residents who visited one of the three County Bay Area STD Clinics (SM, SF and SC Clinics) in 2006 were mapped using ArcGIS 9.1 by zip code.

For the SC Clinic, individual visit information for 2006 was not available electronically. Patient records were sampled instead and used as a proxy.

These data were compared with all confirmed SM STD cases reported to the Health Department in 2006.

Results

In 2006, there were 2,063 cases of Chlamydia, gonorrhea and syphilis in SM. About 40% (826) of cases came from zip codes 94303 (E. Palo Alto), 94014, 94015 (Daly City) and 94080 (S. San Francisco)

Figure 2. *Chlamydia, gonorrhea & syphilis cases by Zip Code, San Mateo County, California, 2006*

SM STD Clinic (located in the middle of the county) had 2,109 visits and performed 721 HIV tests in 2006. The majority of these visits were from Mid (38%) and South county areas (26%), which are geographically closest to the clinic. Yet, 6% of the visits were from zip code 94080 (S. San Francisco), which is closer to the SF Clinic than the SM STD Clinic.

Figure 3. *SM STD Clinic Visits by SM Residents by Zip Code, 2006*

SF Clinic had a reported 1,219 visits (out of a total 21,688 visits) from SM residents. Though this represents only 5.5% of SF Clinic's total volume, this is almost 60% of SM Clinic's total volume. 75% of SF visits from SM residents were from North county, where 40% of all confirmed STD cases in SM reside.

Figure 4. *SF Clinic Visits by SM Residents by Zip Code, 2006*

SC Clinic had a total of 6200 patient records that dated from 2000-2007. 6.7% (414 patients) was systematically sampled. 1.7% (7 patients) of those SC patients were found to have come from SMC.

Figure 5. *Sample SC Clinic Patients by SM Residents by Zip Code, 2000-07*

Challenges/Limitations

- Electronic data are unavailable for SC Clinic.
- Individual visit information from SC Clinic was unavailable.
- The sample size of 414 from the SC Clinic may not be representative of the client population
- Data sampled from SC Clinic may not be an accurate representation of SM residents' visits in 2006.

Conclusions

Inter-jurisdictional use of STD clinical services between these three counties is common. North county SM residents have higher STD morbidity compared to Mid county and the Coast and have significant use of SF STD services. South county SM residents do not appear to access SC Clinic Services, rather, they access SM STD Clinic services.

Individuals utilizing STD Clinic services may not access care in their resident county due to the nature of work/life schedules, confidentiality, clinic locations/schedules and/or Bay Area geography.

Given the shared clinical populations, approaches that are inter-jurisdictional may be most effective in prevention outreach and reducing morbidity. STD and HIV morbidity service seeking appear not to be confined by local health jurisdiction (LHJs) boundaries. Regional prevention approaches between LHJs may be cost effective and acceptable for some behavioral risk populations.

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