

proportions of African, Aboriginal and Caribbean populations. The ecological approach used in this study suggests that certain phenomena exist at the population level that may not exist at the individual level, which can be used to target population-level prevention programs.

Epidemiology poster session 4: Methodological aspects: Neighbouring / mapping

P1-S4.13 MAPPING HIGH RISK ACTIVITIES OF HIV/AIDS IN GAOXIN AND YANTAN DISTRICT OF ZIGONG CITY

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¹J Zhang, ¹Y Yang, ¹H Zhou, ¹C Yang, ²Q Li, ²G Song, ²Y Xie, ³J Blanchard, ³N Yu, ¹X Ma. ¹Sichuan University, ChengDu, China; ²Zigong CDC, China; ³University of Manitoba, Winnipeg, Canada

Background Zigong is located in the south of Sichuan Province of China. As a key area with a large number of migrants, Zigong has long been confronting the danger of HIV/AIDS. The goal of “Zigong geographic mapping on HIV/AIDS high-risk population” research project is to provide information on the location, type and volume of the female sex workers (FSWs) in Gaoxin (urban) and Yantan District (rural) to provide baseline information for HIV/AIDS prevention policy and programs in future.

Methods This study adopted a “geographical approach” to map the location and spots of the activities of sex trade and estimated the number of FSWs involved in the activities. This included two sequential steps: 1) Systematic information gathering from key informants (KI) suggested the locations (“hot spots”) where FSWs congregate. 2) The “hot spots” were validated through site visit and insiders; the information about the number and characteristics of FSWs in each spot were collected.

Results In Gaoxin District: 59 high-risk spots were confirmed and 16 clusters were marked in 10 zones. The most common type of sex trade spots was hair salon/massage room/foot massage room. 72.9% of the spots were both “seeking risk” and “taking risk”, while 22.0% and 3.4% were only “seeking risk” and “taking risk” respectively. 39.0% of the spots had more than three clients per FSW per day. The estimated number of total FSWs in this urban area was 303. 38.5% of FSWs were in hotel/small lodge, while 29.3% and 27.3% were in small tea house/bar/KTV and hair salon/massage room/foot massage room respectively. The peak season, peak date and peak time of the most spots was summer, the whole week, afternoon and night. In Yantan District: 12 high-risk spots were confirmed and half were concentrated in Yantan Town. The most common type was small tea house/bar/KTV. Nine spots were both “seeking risk” and “taking risk”, while three were “taking risk” only. Five spots had more than three clients per day for each FSW. The estimated number of FSWs was 42, and 74.4% worked in the small tea house/bar/KTV. The peak season, peak date and peak time of the most spots was spring and summer, the whole week, and night, respectively.

Conclusions The mapping approach provided direct and visible geographic distribution information, which enables a quick mastery of the distribution of high risk spots and the number of high risk population, for public health intervention planning and program implementation.

P1-S4.14 DOES CORE THEORY APPLY IN RURAL ENVIRONMENTS?

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¹D Gesink, ¹A Sullivan, ²T Norwood, ³M Serre, ³W Miller. ¹University of Toronto, Toronto, Canada; ²Cancer Care Ontario, Canada; ³University of North Carolina, Chapel Hill, USA

Background The expansion of core theory to include geographically defined core areas of elevated infection has been based primarily on

spatial investigations into sexually transmitted infections (STIs) in large urban areas. It is uncertain whether core theory is applicable for rural environments. Our objective was to evaluate the concept of geographical core areas for gonorrhoea and syphilis in North Carolina, a rural state with urban pockets.

Methods We analysed geotagged gonorrhoea and syphilis cases reported to the North Carolina State Health Department’s sexually transmitted disease surveillance program from 1 January 2005 to 31 December 2007 for gonorrhoea and from 1 January 2000 to 31 December 2007 for syphilis. Incident gonorrhoea and syphilis rates were estimated using census tract level population estimates for the total North Carolina population from the US census. Rates were mapped by census tract and quarter. Rurality was measured at the census tract using two different definitions: percent rural and rural-urban commuting area (RUCA). RUCAs were used to classify North Carolina census tracts into rural, small town, micropolitan, or urban. SatScan was used to identify spatiotemporal clusters of significantly elevated rates of infection. Clusters were classified as outbreak or core based on duration. Clusters lasting the entire study period were considered potential core areas, while clusters of shorter duration were considered outbreak areas. Clusters were overlaid on maps of rurality and qualitatively assessed for correlation.

Results On average, gonorrhoea rates are low in the western mountains and higher in the eastern coastal part of the state. Most of the clusters were located in urban RUCAs or very low percent rural. Clusters for rural and small town RUCAs were of short duration and usually covered several census tracts and sometimes more than one county. Consequently, they were considered outbreak areas rather than core areas. Similar results were found for syphilis.

Conclusions We found that core areas of elevated STIs were limited to the urban centers in rural environments. Significant clusters of infection in rural environments appear to be due to outbreaks. Rural environments may have core areas but not enough infection to sustain ongoing transmission. Bridge contacts may be more important for STI transmission in rural environments.

Epidemiology poster session 4: Modelling

P1-S4.15 REVISITING HIV EPIDEMIC APPRAISALS FOR ASSISTING IN THE DESIGN OF EFFECTIVE HIV PREVENTION PROGRAMS

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¹S Mishra, ²S K Sgaier, ³L Thompson, ³S Moses, ⁴B M Ramesh, ⁵M Alary, ³J F Blanchard. ¹Imperial College, London, UK; ²Bill & Melinda Gates Foundation, India; ³Centre for Global Public Health, Canada; ⁴Karnataka Health Promotion Trust, Bangalore, India; ⁵Centre de recherche FRSQ du CHA universitaire de Québec, Québec, Canada

Background There is substantial heterogeneity in the size and trajectory of HIV, driven largely by differences in the population sexual structure, which determines overall HIV transmission dynamics. Two standard methods have been developed to appraise epidemics and guide prevention strategies. The numerical proxy method classifies epidemics based on HIV prevalence thresholds. The Modes of Transmission (MOT) model estimates the distribution of incidence over 1 year among subgroups. Neither approach explicitly captures the drivers of the epidemic and can therefore lead to misguided prevention priorities. Using data from India, we explored the limitations of current methods and propose an alternative approach.

Methods We compared outputs of the traditional methods in five countries with published results, and applied the numeric and MOT model to India, and to six districts within India. We developed an alternative approach based on a qualitative understanding of local