

Chapter Eight

HIV/AIDS in Cleveland: A Case Study of One Community

David Bruckman

Introduction

Measurement of the progression of HIV/AIDS among African Americans in United States relies on prompt, accurate, and complete reporting of incident HIV and new AIDS diagnoses through CD4 levels. The City of Cleveland, Ohio has been fortunate in several factors: three large teaching medical systems, each with centralized centers of excellence having highly competent infectious disease departments; neighborhood clinics that report cases responsively though their internal laboratories or their contracted agencies; and the existence of a centralized HIV/AIDS surveillance database within the public health system that has collected cases reported since the early 1980s. These three factors have allowed the Cleveland Department of Public Health (CDPH), the central reporting agency for all cases reported by agencies in Cuyahoga County, to provide its citizens with quarterly prevalence and exposure reports and detailed annual epidemiological summaries that report incidence rates and temporal trends among groups by race/ethnicity, age, and exposure history to HIV. This chapter describes the social and economic context of HIV transmission in the Cleveland area and provides an epidemiological analysis of HIV/AIDS among Black/African Americans in Cleveland.

Demographic and Economic Context

Cleveland lies on the northern coast of Ohio against Lake Erie, the second largest city in the state behind Columbus, the state capital. Since 1980, the proportion of Black/African Americans in Cleveland has grown each decade from 43.8%, 46.6% and then 51.0%, while the overall population has decreased

David Bruckman
Cleveland Department of Public Health, Cleveland, OH

from 573,822 to 478,403 in 2000 (US Bureau of the Census, 2005a). According to the Population Estimate Program of the US Census, there were 452,208 residents in Cleveland at midyear 2005, with 41.5% White and 1.4% Asian/Pacific Islanders (US Bureau of the Census, 2005b). While 7.3% of surveyed residents are Hispanic, these residents tend to be underrepresented, especially among children (West, Robinson, & Knavery, 1998).

With Lake Erie setting the northern border, Cleveland is surrounded by some 50 other municipalities within Cuyahoga County. Fewer than 1.4 million residents live in the County, where 27.7% are Black/African American overall. Most Black/African Americans in Cleveland reside in the eastern and central neighborhoods or statistical planning areas. (See map.)

African Americans constitute the majority population within 17 of 36 neighborhoods, reflecting majority presence from Downtown to North Collinwood to the northeast and to Lee-Miles to the southeast. Cleveland was, and by many still is, considered by many to be heavily segregated, and this disparity has prompted legal action. In 1976, the federal district court under Judge Frank J. Battisti ordered Cleveland public schools to be desegregated (*Reed v. Rhodes*, 1976, 1978, 1979, 1980). The resulting mandated busing of students contributed to a 34% drop in student enrollment during the first 4 years of implementation and the

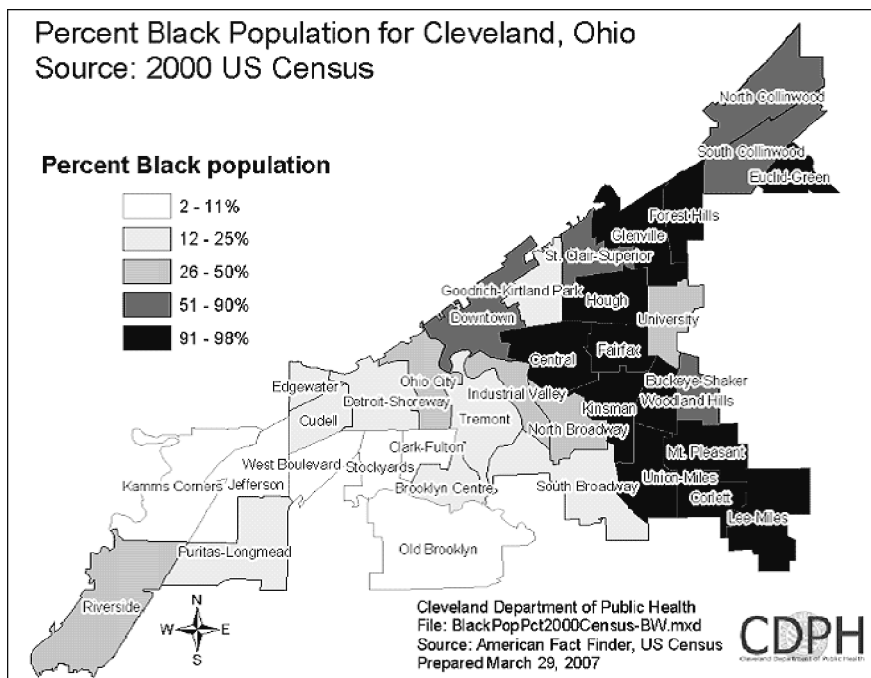


Fig. 8.1 Black/African American Population Distribution across Statistical Planning Areas of Cleveland, 2000 (US Bureau of the Census, 2000).

migration of families out of Cleveland. With a lower student population and smaller tax base, funding for schools dropped precipitously (Ohio Historical Society, 2005).

The out-migration of White and Black residents was hastened by the economic decimation resulting from oil shortages and inflation of the 1970s and a wide contraction of the heavy steel, automotive, and large-scale manufacturing base that has lasted to this current day. Currently, the largest employers in Cleveland are hospitals and direct medical care, local universities, and government. Cleveland serves as the headquarters of two major banks and several financial agencies due to the location of 1 of the 12 Federal Reserve Banks.

During the past decade, poverty has gripped the city and the region. In 2003, Cleveland's poverty rate was 31.1%, nearly twice the rate of Columbus (16.5%), the capital city, and national levels (12.7%). Lower economic prosperity, unmitigated deterioration of the tax base and quality schools, and fewer job opportunities have contributed to Cleveland's ranking as one of the three poorest major cities in the United States, with the ignominious title of "Nation's Poorest Major City" for the years 2003 and 2005 (Smith & Davis, 2004; Webster & Bishaw, 2006). A study by the Center for Community Solutions determined that approximately two-thirds of African American and Hispanic youth live in severely distressed areas, and three-quarters of youths living in predominately African American neighborhoods were in homes in poor condition (Salling, 2006).

Foreclosure rates in Cleveland during the first four months of 2006 were third highest in the nation with 95 per 100,000 residents, surpassed only by Detroit and Dallas-Fort Worth (Fitch, 2006). Nationally, the annual foreclosure rate was 29 per 100,000 residents. Compounding these problems has been a spate of predatory lending throughout Ohio. Poor enforcement of existing laws and agreements between government and banks has allowed predatory lending firms a relatively open field. With the recent change in gubernatorial leadership in 2006, the state attorney general Marc Dann has made predatory lending a priority of his 2006-2009 term (Dann, 2007).

African Americans in Cleveland and throughout major Ohio cities have been victims of housing bias. Almost one-third of all reports of housing discrimination in Northeast Ohio during 2002-2004 relate to minority populations (The Housing Research and Advocacy Center, 2003). In January 2004, the United States Department of Housing and Urban Development awarded \$1.3 million in grants to Ohio agencies that investigate allegations of housing discrimination and work closely with citizens, area development corporations, and government to promote fair housing. Two of the seven Ohio agencies receiving such awards were located in Cleveland and work specifically in areas with low-moderate income and minority representation (US Department of Housing and Urban Development, 2004). However, in the past two decades, segregation of African Americans in Cleveland and Cuyahoga County has only marginally improved despite the efforts of many municipalities to enact fair housing laws (Dillman, Pleasants, Roskilly, & Farmby, 2006).

Health Indicators

In the midst of these economic pressures, African Americans experience reduced access to medical care and services. Two-thirds of Cleveland neighborhoods with predominately African American populations lie in areas that lack a threshold number of primary care physicians. Based on Health and Human Service Department regulations, much of eastern Cleveland can be officially designated as Health Professional Shortage Areas (HPSA). In fact, a majority of African Americans in all of Cuyahoga County reside in these HPSA areas (Lenahan, 2005). The incidence of low-birth weight babies and higher infant mortality are greater among African American mothers compared with both White non-Hispanic and Hispanic mothers (Cuyahoga County Board of Health, 2004; Lenahan, 2005). Low birth weight infants (under 2,500 grams) and infant mortality are associated with maternal health factors such as maternal smoking, morbid obesity, diabetes, less than 12 years education, poor nutrition, and lack of prenatal care (David & Collins, 1997; Goldenberg & Culhane, 2007).

African American teens in Cleveland appear to be more sexually active and take greater risks during and among sexual encounters. First, 2003 birth rates to teens aged 15–19 in Cleveland are twice as high as rates for Cuyahoga County and Ohio. Sixty-nine percent of these births were to African American teen mothers. Second, the impact of sexually transmitted disease (Chlamydia, gonorrhea, and syphilis) cannot be understated as a sentinel marker for risky sexual behavior. Chlamydia is the most frequently reported sexually transmitted disease (STD) infection in the United States, Ohio, and Cleveland (Centers for Disease Control and Prevention, 1996; Cleveland Department of Public Health, 2007; Ohio Department of Health, 2007). Many studies have shown that the presence of STDs increases the risk of acquiring HIV, either by physiological, sociological, or assortive and probabilistic means (Centers for Disease Control and Prevention, 2001; Fleming & Wasserheit, 1999; Halfors, Iritani, Miller, & Bauer, 2007; Laumann & Youm, 1999; Wasserheit, 1992). Administration of the Youth Risk Behavioral Survey at several middle and high schools in Cleveland during 2004 revealed earlier initiation of sex, more binge drinking, and marijuana use among African American students than their White and Hispanic counterparts. Seventy-one percent of students had ever engaged in sexual intercourse. Almost half were currently sexually active within the month of the survey. Most disturbing, only 40% of all students regardless of race and ethnicity did not use a condom during their last sexual intercourse at the time of the survey (Center for Adolescent Health, 2006).

Most cases of Chlamydia and gonorrhea reported for Cuyahoga County occur among those at 15–29 years of age at the time of diagnosis. At least 75% of Chlamydia and gonorrhea incident cases reported in 2005 were among Cleveland residents. In Cleveland, African Americans experience the highest annual incidence rates for Chlamydia and gonorrhea compared with White non-Hispanic and Hispanic residents. Chlamydia is now endemic

among African American teen females (aged 15–19). On average, one in ten young girls in Cleveland were reported as infected with Chlamydia in 2005 (10,775 per 100,000 group population), a level that has not substantially changed since in-depth analysis began in 2005 with testing for 2002–2003. For African American males and females aged 20–29, Chlamydia infection incidence rates were 5,083 and 3,384 per 100,000, from 3 to 11 times higher than their Hispanic and White non-Hispanic counterparts.

The third and most pressing factor rests entirely on new HIV/AIDS surveillance results identified and reported by CDPH. More African Americans have HIV/AIDS than any other race or ethnic group in Cuyahoga County and Cleveland. Fifty-nine percent (1,543) of some 2,622 Cleveland residents reported and living with HIV as of December 31, 2006 are African American (CDPH, 2007). Their prevalence of 692.6 per 100,000 (African American) population is second to only 1,039 Hispanics per 100,000 living with HIV. With Hispanics making up slightly over 7% of the population, the 333 cases reflect a greater prevalence rate; however, the absolute burden on the African American community is far greater.

In 2006, the CDPH reported that new HIV infections were appearing in middle- and high school-age adolescents (Cleveland Department of Public Health, 2006). In 2004–2005, 19 incidence cases of HIV were reported among teens aged 15–19 in Cuyahoga County, a majority of whom were African American males, most of whom reported male–male (MSM) sexual exposure risk. Twelve cases were Cleveland residents at the time of diagnosis. One of 19 was later diagnosed as an incident AIDS case (i.e., being an incident AIDS case as having been initially diagnosed with HIV within the previous 12 months). In 2003, there were five incident HIV cases in Cleveland. Prior to 2003, HIV cases among teens were very rare. In fact, 60–65% of all incident diagnoses of HIV (only) and AIDS over all ages for Cleveland are African American. In 2006, 45% of all new HIV/AIDS cases were attributable to African American males. In retrospect, it was fortunate that these adolescents were reported so soon, as studies have shown an increase in the incidence of HIV-positive young gay Black males, many of whom were unaware of infection and not seeking routine (annual) HIV screening (Centers for Disease Control and Prevention, 2002; MacKellar et al., 2005; Valleroy et al., 2000). In light of these cases, CDPH initiated a Rapid Assessment and Response Evaluation with the assistance of an Epidemiological Investigation Service intern from the Centers for Disease Control and Prevention (CDC). The project targeted youth to determine perceptions, behaviors, and barriers to seeking screening and treatment. Based on the initial findings, CDPH encouraged several of its funded agencies to work more closely with lesbian, gay, transsexual and bisexual adolescents and young adults to encourage HIV testing, prevention education, and esteem building.

Additionally, relevant to the startling STD incidence rates is a sustained increase in HIV and AIDS incidence among 20- to 29-year-old residents in the past decade. Since January 2004, 25% of new HIV cases and 20% of new AIDS cases are among residents aged 20–29 at the time of diagnosis. The chart below shows that more than 25% of incident AIDS cases among African Americans

were in this age group. This differs substantially from 10 years ago, where slightly over 3% of incident HIV and AIDS cases in 1995–1996 were aged 20–29 at the time of diagnosis. Sixteen of 21 (76%) Black males aged 20–29 at the time of diagnosis of HIV or AIDS in 2006 reported MSM behavior, with another 4 (19%) reporting bisexual behavior. Only one male reported solely high-risk heterosexual contact as the primary route of HIV exposure. In the previous year, 64% of new HIV/AIDS cases among Black males aged 20–29 reported MSM and 18% reported bisexual behavior.

Finally, maps developed by CDPH and presented to Cuyahoga County health officials showed a diffusion of high Chlamydia and gonorrhea incidence rates beyond those municipalities directly adjacent to the eastern and southern Cleveland borders. Therefore, both by age and geography, the possibility of undetected cases of HIV and STDs in adolescent and young adults throughout the entire county has never been greater.

High rates of unsafe sexual activity, high birth rates to teens, and a potential for HIV to spread among middle and high school students amidst the endemic transmission of Chlamydia and gonorrhea among teens led CDPH Director Matt Carroll and Mayor Frank G. Jackson, in 2006, to take the progressive action of establishing a new sexual health curriculum for the Cleveland Municipal School District (CMSD), one that built off of a 2002 plan to deliver a comprehensive health plan (City of Cleveland, 2006; Cleveland Municipal School District, 2006). Waves of layoffs of Cleveland school teachers, guidance counselors, nurses, social workers, and physical education staff have curtailed many supplemental programs including personal health education (Catalyst Cleveland, 2006; Okoben & Reed, 2005).

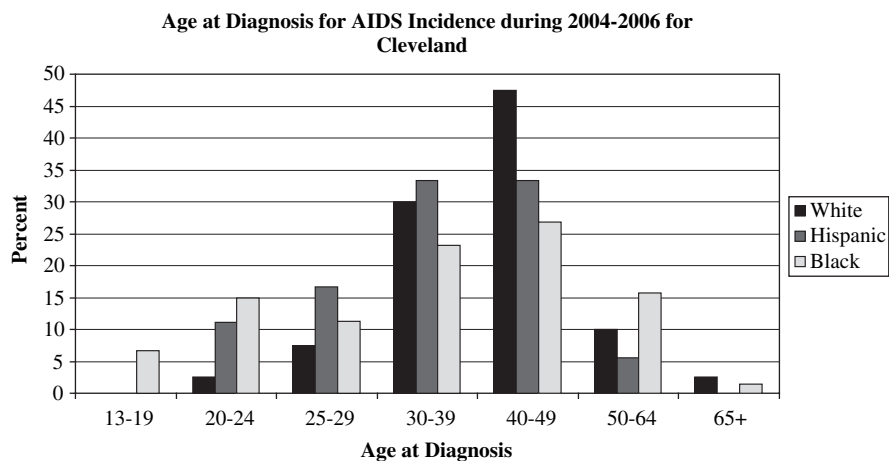


Fig 8.2 Age Distribution (Percent) of White, Non-Hispanic, Black/African American-Non-Hispanic and Hispanic Persons from Cleveland at Time of Initial AIDS Diagnosis. Cases reported in 2004, 2005, and 2006. (Cleveland Department of Public Health, 2007).

The new comprehensive sexual health curriculum was jointly developed by city and county health agencies alongside CMSD. Cuyahoga County Health Commissioner Terry Allan secured critical TANF funding from county commissioners to support development and implementation of the curriculum. Messages are age/grade appropriate. When fully completed, the curriculum will extend from grades K through 12. (For example, personal cleanliness and appropriate touching would be applied in K–6 school levels.) Abstinence plus comprehensive health education is stressed, with materials that include information about condom use and contraceptives. Parents can opt out, removing their children from the curriculum. Prevention information is based on CDC, National Institutes of Health and Ohio Department of Health information. All 7th, 8th, 11th, and 12th grade students were the first to receive the curriculum in 2006. Other grades are being included with each year.

A presentation of this curriculum by curriculum leaders from CDPH and CMSD at the Ohio Health Coalition meeting in Columbus, Ohio in April 2007 drew a near-capacity attendance (in the largest conference room at the meeting.) Representatives of other major municipal school systems in Ohio and at least six other states have contacted the CDPH HIV Prevention Unit office, whose office at CDPH leads the initiative, for additional information. According to David Merriman, Project Coordinator of the CDPH HIV Prevention Unit, most parents with whom he has spoken and those contacting curriculum instructors have expressed their encouragement and support for the initiative. Very few parents have opted out and removed their children from the program.

HIV/AIDS in Cleveland

On a larger scale, the HIV/AIDS epidemic is a mature chronic disease in that HIV appeared in Cuyahoga County early in the 1980s with racial and exposure distributions that were similar to many major East Coast cities that have a large African American presence. Based on CDPH HIV data, 90% of HIV/AIDS cases reported in the early 1980s in Cleveland were male and mostly White non-Hispanic. By 1986, Hispanic and African American males accounted for 53% of the reported cases, although the combined population of Hispanics and African Americans represented 51% of the Cleveland population in 1990 (United States Bureau of the Census, 1990). Of these, 50% of the men reported having sex with men (MSM), 16.5% self-identified as bisexual, and 20% reported having engaged in injection drug use (IDU). Only 4% reported high-risk heterosexual contact as the primary route of HIV transmission. The mean age among males was 32 years at the time of diagnosis. However, these data from the 1980s and 1990s may be confounded by secular changes related to HIV and AIDS surveillance, treatment, counseling, and disease definition (Centers for Disease Control, 1992).

No longer could HIV/AIDS in Cleveland be called “a gay white man’s disease” (Greeley, 1995; Mundell, 2007). Since 1997, African Americans have accounted for a near constant 60–65% of incident HIV and AIDS reports. African American males have represented from 40 to 48% of incident HIV and AIDS cases annually since 1997, while African American females represented 11–24% of incident cases, exceeding 20% in 1998 and 2003. For 2006, more than three-quarters (76.1%) of the 161 incident HIV (non-AIDS) and AIDS cases in Cleveland in 2006 were male. Sixty-five percent were African American non-Hispanic, 18.0% White non-Hispanic, and 6.8% Hispanic.

Since 2004, a greater proportion of younger (13–29) and older (50–64) adult African Americans are appearing as incident HIV and AIDS cases. Most cases are males. (See previous figure.) The increase has been slow but steady in percentage and absolute numbers. Most of the older men have reported high-risk heterosexual behavior, with some MSM and lesser IDU activity. None reported bisexuality in 2006 incidence reports. Whether this increase is due to more screening, awareness of STDs, availability of drugs for erectile dysfunction or random chance, more time and investigation are needed to determine if the trend continues.

Transmission reported by IDU was and still is highest among Hispanic persons; however, nearly 25% of all HIV/AIDS cases during the first two decades of the epidemic. HIV exposure through IDU was reported to be as high as 61% of incident HIV/AIDS Hispanic cases. By the end of 2006, only 11% of prevalent cases were attributable to IDU, and IDU use is currently reported in only 20% of Hispanic males with HIV/AIDS. Any history of IDU was reported by 12% of those African Americans currently living with HIV (CDPH, 2007) but was reported in as many as a quarter of annual incident cases two decades ago, mostly among older males. No IDU has been reported in the past 5 years among incident HIV and AIDS cases among African American adolescents and young adults aged 15–29.

Surveillance

Reporting of new cases has significantly improved since the early 1990s. Because diagnoses of new HIV seroconversion, CD4 levels, and AIDS diagnoses are reported to the CDPH through passive surveillance, greater efforts were established by 1985 by Dr. John Neill at CDPH to begin tracking suspected cases. A refinement of AIDS diagnosis in 1992 for 1993 surveillance changed the landscape of surveillance, allowing for a clearer case definition and encouraging more states to establish surveillance (Centers for Disease Control and Prevention, 1992). Reporting of these HIV and AIDS diagnoses is mandated by law (Ohio Department of Health, 2005). Viral loads are also often reported by primary care medical centers and laboratories; this marker

is often tested alongside CD4 lymphocyte counts, the sentinel marker for progression to AIDS. The viral load is just one biomarker useful in monitoring compliance with highly active antiretroviral therapy (HAART) (Kojima et al., 1993; Levine, 1988; Little et al., 1999). Some active surveillance is performed by the Office of Biostatistics at CDPH. On request, CDPH has received completed audits of all HIV-positive patients who have been treated at specific clinics in Cleveland. Data base records are updated and reconciled and new information on patients is shared among HIV state and federal surveillance offices of the Ohio Department of Health and the CDC.

Reporting from local medical centers, clinics, and laboratories has been reliable and prompt. Since 2000, an average of 19% of incident cases reported to CDPH lack risk factor information. For reports on males, the average is 21%. This is significantly fewer missing data than occurs at the national level, where more than one-third of all reports to the CDC lack risk factor information (Centers for Disease Control and Prevention, 2006). Because there are under 200 incident diagnoses of HIV and AIDS annually for Cleveland (and under 300 for Cuyahoga County), having complete information is key to provide accurate surveillance and valid estimates.

Obtaining prevalence rates through passive surveillance presents many challenges. Rates may be biased positively (overestimated) due to the lack of information relating to migration, changes in addresses, and death. Deaths are difficult to track and access to official death records from the Ohio Department of Health (ODH) lags by approximately 2 years. Although the Vital Statistics Office of ODH rigorously processes and reconciles death certificates with other state and national offices, the process is resource-intensive. By February 2007, CDPH had received only the official 2003 death records in electronic format. Receipt of the 2004 death records is anticipated shortly, but this delay in reconciling deaths among HIV/AIDS patients hampers accurate adjustment and confers a positive bias. The overall negative bias in rates occurs from underreporting and lack of testing among persons at high risk of acquiring HIV.

Biases due to lack of reporting information has been greatly reduced through the efforts of the Disease Intervention Specialists (DIS). DIS agents receive reports from CDPH and directly from several health and testing agencies. DIS agents contact individuals with incident HIV and AIDS diagnoses to encourage partner notification, provide educational and supportive messages, and assist in referral to appropriate services. The skilled, compassionate, and well-trained agents are at the frontline of initiating care and networks for newly diagnosed persons. They are directly involved in counseling and cases tested at the CDPH health centers and encourage those who were tested anonymously to be retested confidentially. Only those testing positive through confidential testing (providing name, address, and other personal health identifiers) are eligible to receive support from state and federal services. Such diligence in contacting newly diagnosed HIV-positive persons and notifying partners vastly improves surveillance reporting for

cases of HIV/AIDS among African Americans and Hispanics. Most homeless in Cleveland are African American, and obtaining stable addresses and residence information is difficult. Many have a long history of potential exposure to HIV, and recall bias is inevitable. Distrust of medical and government officials exists. In addition, among Hispanics, a language barrier may hamper the delivery of service, contact, or education. Successful enumeration and description of cases leads to more accurate surveillance that can ultimately lead to more funding for prevention and care.

Those infected with HIV in both African American and Hispanic communities battle stigmatization at home, in the church, and in receiving medical care. Fortunately in Cleveland, federal aid is widely available through Ryan White Acts and other entitlements for services, medical care, and housing. Agencies such as the Free Clinic of Greater Cleveland have become national models for the provision of free or reduced-price care to the community. More agencies have been hiring and training bilingual case workers and staff. Their efforts to care for and refer HIV-positive patients to some of the many services in Cleveland have led to the common knowledge among the national gay community that Cleveland is one of many resource-rich cities for people suffering with HIV/AIDS in the nation.

Surveillance data culled and analyzed to produce quarterly and annual reports and to monitor potential trends among groups at risk. Statistical analyses and mapping of incident cases of HIV and AIDS are analyzed for trends among new cases, while monitoring of prevalent cases provides ample evidence of the potential burden of existing cases on social, governmental, and medical systems. Age is a major factor, as younger persons contract HIV through unsafe behavior, compounded by the lack of experience to the high mortality rate of AIDS prior to combination therapy. Maps of incident cases are developed through specialized mapping software (e.g., ArcGIS, ESRI International, Inc.). These maps provide the Unit with critical information where outreach may be needed. Together, behavior patterns, location, and age are the primary determinants for groups at risk.

The CDPH HIV Prevention Unit is responsible in Cuyahoga County for disbursing approximately \$2.1 million dollars annually in federal and state aid earmarked for HIV/AIDS-related services, prevention education, and screening. The Unit uses guidance from the CDC that directs funding to be based on behavior groups rather than on racial or ethnic groups. Agencies are invited to submit proposals in response to a formal request for proposal (RFP) announcement. CDPH receives over 30 proposals for Community Development Black Grant and housing for people with AIDS funding. Every 3 years, this number nearly doubles in response to the federal HIV funding cycle. The proposals submitted by individual agencies are graded based on merit, efficacy of behavior-based intervention, appropriateness of target population served, outcomes evaluation, and measurement of those served through some form of formal project evaluation. This has been a difficult task for many agencies since they often do not have staff with formal training in project evaluation. Some do not

have adequate computing resources. Proposal grading is provided by a select group of representatives from academia, medical and service agencies, governmental officials, and prevention specialists. Experts are chosen from these fields having multiple skill sets. These experts must lack a fiduciary or underlying association with the applicants, or recuse themselves from grading proposals where a conflict of interest may arise. Numeric grades are generated, ranked, and proposals reevaluated against the principal aims of the aims delineated in the RFP guidelines.

This process has been streamlined through the use of an internal evaluation process. For several years, the Unit has hired an academician expert in evaluation to review the funded agencies for the breadth and scope of their efforts. An outcome evaluation was included in the most recent report (Smith, 2007). Agencies are asked to provide comments of their experience to improve future performance. CDPH HIV Prevention Unit uses these evaluations to recalibrate its RFP process, provide feedback to the agencies, and inform local and state officials.

Agencies that recently applied for funding were encouraged to address specific groups not formally reached and to study evidence-based methods for effective interventions (Center on AIDS & Community Health, 2007). For example, those groups reaching youth can access non-traditional venues (e.g., hip-hop events, clubs, recreation centers, barbershops, beauty salons, jails, and shelters) where younger persons and those at the margins of society may congregate. To youth, context is as important as message and those agencies effective in reaching these groups have greater success in diffusing complex prevention messages into straight talk. For the 2007–2008 CDPH funding cycle, more than \$250,000, some 14% of the annual federal funding, will go to interventions that target youth as their primary or secondary populations. All six programs funded will reach minority youth.

Nearly 8% of disbursed funding will go to four interventions that target African American females as a primary or secondary population. This population is the target of a CDC social marketing campaign launched in October 2006 in Cleveland and Philadelphia. “Take Charge, Take the Test” targets African American females aged 15–34 in Cleveland and surrounding suburbs to seek routine and regular HIV testing, reduce stigma, encourage partners to be screened, and avoid risk behaviors. Abstinence is encouraged, and methods of protection from STD and HIV infection are similarly recommended. Handbills, posters, billboard, transit advertising, and radio spots blanketed a large portion of zip code areas in Cuyahoga County as a test demonstration. The CDPH Office of Biostatistics is working directly with the CDC and Research Triangle Institute, Inc (RTI, Inc., Triangle Park, NC) to evaluate the efficacy of the messages based on testing patterns and calls to a toll-free HIV hotline advertised in campaign material. Preliminary results of this pilot project were favorable. Increases in HIV testing were registered at the two CDPH health clinics and the Free Clinic of Greater Cleveland.

Conclusions

Local health departments (LHDs) in other cities are encouraged to consider several avenues to expand surveillance. Since most state-level agencies only report overall counts or rates for STDs and HIV/AIDS at the county or major city level, trends in incidence among target populations can easily be missed. Lack of incidence and subgroup analysis is detrimental to funding organizations, LHDs, and citizens.

For example, CDPH requested STD data from the Ohio Department of Health in late 2004 and 2006 to analyze underlying trends among teens and young adults. Reported incident rates for Chlamydia infections in Cleveland peaked in 2002–2003 at 1,081 per 100,000 only to drop 4.8% for 2004–2005. Regrettably, infection rates for African American males aged 15–19 and 20–24 increased by 26.5% and 76.9%, respectively. Without secondary analysis, these opposing trends among groups at highest risk would not have been uncovered. Therefore, LHDs should consider acquiring assistance in quantitatively and qualitatively examining surveillance data obtained from their state STD and HIV/AIDS surveillance units.

LHDs lacking staff who are trained in data analysis can partner with local academic centers to extend resources, leverage experience and knowledge, and expand surveillance activities (Covich, Parker, & White, 2005; Livingood, Goldhagen, Little, Gornto, & Hou, 2007). Academic experts from schools of public health (epidemiology and biostatistics) programs, medical education, sociological, psychological, and anthropological programs are ideal partners. Research, student internship, and potential job placement opportunities often arise from these partnerships. LHDs can vet student interns as potential hiring candidates, while academics can widen their research base and community service.

Many successful synergies have been applied to interventions with urban African American communities (Levine et al., 2003; VanDevanter, et al., 2002). Once a joint plan has been developed, a letter of proposal, memorandum of understanding, data sharing agreements, and possibly contracts for consulting can be used to formalize and make operational the partnership. Privacy rules concerning the use of public health information should be reviewed between agencies to ensure that all participants are aware of privacy and confidentiality concerns (Thacker, 2003). Due to the sensitive nature of STD and HIV surveillance data, state health departments may be deeply involved in the arrangement depending on the proposed activities.

One major issue is the final reporting of the results, whether those results will be part of an internal process to improve the activities and public service within the public health agencies or if reporting will be peer reviewed and reported as research. This issue of the definition of research is contentious, as the interpretation of the Common Rule of research when applied to public health activities relying on iterations to inform quality improvement or provide

feedback is not always clear (Bromley, 1991; Code of Federal Regulations, 2005; Doezema & Hauswald, 2002; Lynn, 2004). Since surveillance data is collected as part of a legal and social contract to prevent and control the spread and impact of disease through surveillance and other relevant activities, data are collected on the public without direct consent. Consent is implied as part of this social compact and analysis and public reporting of surveillance is to be routinely performed as a business activity of the public health agency (United States Department of Health and Human Services, 2005a). If the academic/LHD relationship involves the potential for direct contact with the public (e.g., surveys, interviewing, focus groups, etc.) often with the intent to publish the findings as research, then involvement with an Institutional Review Board (IRB) or Human Rights Board may be necessary or recommended by university or state statutes and officials, respectively. If the involvement does not span into research but remains in the realm of the mandates, process, or service improvement as a routine internal activity of the public health agency, IRB involvement may not be necessary (United States Department of Health and Human Services, 2005b).

Therefore, LHDs and their academic contacts should document their shared objectives with care and foresight. Established partnerships may be leveraged beyond surveillance, reporting, internal process improvement, and research. Partnerships are ideal candidates for federal funding for collaborative interventions requiring analysis of outcomes related to proposal aims and objectives.

Second, LHDs should consider analysis of surveillance data using some form of geographic information system that generate maps or spatial presentation. Maps can display patterns hidden in mere tables and charts. Maps may be used internally to provide exact location of cases, or be generalized to the census tract or neighborhood to provide a greater measure of confidentiality. In our experience, maps using the residence location of incident cases were highly useful to target areas where interventions may be critically needed. These maps provided greater equity and determination for funding recommendations in the CDPH RFP process.

Most LHD officials can generate basic epidemiological measures from initial data exploration, and most surveillance analysis can be performed without a background in advanced statistics. However, a background in epidemiological measures is recommended for those performing data analysis. Widely available programs such as Microsoft Excel (Microsoft Corporation, Bellvue, WA) can be used to sort and identify cases, generate counts of groups (e.g., by area) and subgroups (e.g., by age, race/ethnicity). Many websites exist that walk users of Excel through the steps and pitfalls in using Excel as a primary analysis tool (Last, 2007; University of Kansas, 2003). The number of new cases occurring annually (as a numerator) along with appropriate census data (denominator) can provide annual incidence rates (Gordis, 2004). Depending on the time range of the data, existing cases can be used to generate point or period prevalence. Prevalence is a useful indicator of the burden of HIV and AIDS on the local medical, social, and governmental systems. Persons new to data analysis should employ epidemiologists or biostatisticians for initial guidance and validation of

results. Expert users in sophisticated statistical programs such as SAS (SAS Institute, Cary, NC), SPSS (SPSS Inc., Chicago, IL), R (R Foundation for Statistical Computing, Vienna, Austria), or EpiInfo (CDC, Atlanta, GA) can more easily perform data preparation and analysis to generate categorical counts and rates.

Qualitative analyses can range from surveys and response cards to focus groups and interviews. Because of the nature of direct contact and requirement for consent, IRB involvement will be required. Skills for survey construction, data coding, appropriate discourse, and facilitation of focus group participants are advanced and well-documented. LHD staff considering use of qualitative analysis should seek expert advice as early as possible in the development stage (Miles & Huberman, 1994; Rea and Parker, 2005).

Third, community agencies should take a more open approach in seeking the advice of LHDs in determining how to best identify populations in need of outreach, testing, and service (Meyer, Armstrong-Coben, & Batista, 2005). Too often, agencies only make contact with LHDs in response to funding opportunities. Each party can quickly lose track of priorities, many of which are shared. This is especially important for those agencies involved with minority populations. A community agency can drive the need for additional surveillance of populations when no surveillance analyses may exist. In our experience, the uncovered risk for cross transmission of HIV into the youngest populations where STDs are endemic was a major catalyst for action. Focus groups with adolescents at higher risk of acquiring STDs and HIV were critical in promoting specific outreach initiatives and developing effective prevention messages (Keagy, 2006).

Lastly, it has been our experience that progress towards reducing the spread of HIV and STDs begins with the quantitative recognition of the problem and determining progressive, community-driven, and evidence-based solutions. These solutions can be achieved by any community—government, LHD, health delivery, and service organizations and community groups—dedicated to the task.

References

- Bromley, D.A. (1991). Federal policy for the protection of human subjects: Notices and rules (Part II). *Federal Register*, 56(118), 28001–18102.
- Catalyst Cleveland. (2006). Report Card On Reform. September/October 2006. Last accessed April 22, 2007; Available at <http://www.catalyst-cleveland.org/assets>
- Center for Adolescent Health, Case Western Reserve University (2006). 2004 Cleveland Municipal School District YRBS (Youth Risk Behavioral Survey) Report. Last accessed February 6, 2006; Available at <http://www.case.edu/>
- Centers for Disease Control and Prevention. (1992). 1993 revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. *Morbidity and Mortality Weekly Report, Recommendations and Reports*, 41(RR-17). Last accessed February 4, 2007; Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/00018871.htm>

- Centers for Disease Control and Prevention (CDC) (1996). Ten leading nationally notifiable infectious diseases—United States, 1995. *Morbidity and Mortality Weekly Report*, 45, 883–884.
- Centers for Disease Control and Prevention (2001). *HIV Prevention Strategic Plan Through 2005*. Last revised January 2001; Last accessed April 18, 2007; Available at CDC National Prevention Information Network website, <http://www.cdcnpin.org/scripts/hiv/connect.asp>
- Centers for Disease Control and Prevention (2002). Unrecognized HIV infection, risk behaviors, and perceptions of risk among young black men who have sex with men, six U.S. cities, 1994–1998. *Morbidity & Mortality Weekly Report*, 51, 733–736.
- Centers for Disease Control and Prevention (2006). AIDS cases, by geographic area of residence and metropolitan statistical area of residence, 2004. *HIV/AIDS Surveillance Supplemental Report*, 12(2), 11, 16 (Tables 3b, 4b). Available at <http://www.cdc.gov/hiv/topics/surveillance/resources/reports>
- Center on AIDS & Community Health (2007). DEBI, diffusion of effective behavioral interventions. Last accessed April 25, 2007. Available at <http://www.effectiveinterventions.org/>
- City of Cleveland Office of the Mayor (2006). Mayor Jackson, CMSD and County announce Responsible Sexual Behavior program, present sample lesson as part of Comprehensive Health Plan. Last revised October 23, 2006; Last accessed February 24, 2007; Available at <http://www.city.cleveland.oh.us/pdf/press/2006102377.pdf>
- Cleveland Department of Public Health (CDPH) (2006). Findings among Cleveland residents living with HIV/AIDS: Provisional results for cases reported through December 31, 2005. Last updated June 15, 2006; Last accessed April 24, 2007; Available at <http://www.clevelandhealth.org/Assets/AcrobatFiles/HealthStatistics/>
- Cleveland Department of Public Health (CDPH) (2007). Cleveland (Only) HIV/AIDS prevalence report: Reported persons living with HIV/AIDS as of December 31, 2006 by selected characteristics, Cleveland resident cases, and prevalence per 100,000. Last updated March 27, 2007; Last accessed April 24, 2007. Available under Health Division, HIV/AIDS at <http://www.clevelandhealth.org/>
- Cleveland Municipal School District, (2006). Responsible sexual behavior curriculum delivery. Last accessed February 24, 2007; Available at http://www.cmsdnet.net/students/HealthFactSheets/sexual_behavior.htm
- Code of Federal Regulations. (2005). Title 45, Part 46, sections 46.101(a, b). Protection of human subjects.
- Covich, J. R., Parker, C. L., & White, V. A. (2005). The practice community meets the ivory tower: A health department/academic partnership to improve public health preparedness. *Public Health Reports*, 120(Suppl. 1), 84–90.
- Cuyahoga County Board of Health (2004). Child and Family Health Services (CFHS) *Community health indicators profiles, Phase IV, Vol. 2*. Last revised September 2004; Last accessed April 21, 2007; Available at <http://www.ccbh.net/cfhs/indicator.pdf>
- Dann, M. (2007) State of Ohio Attorney General Inaugural Address, Jan. 8, 2007. Last accessed February 4, 2007; Available at <http://www.ag.state.oh.us/press/07/01/pr070108d.asp>
- David, R. J. & Collins, J. W. (1997). Differing birth weight among infants of U.S.-born Blacks, African-Born Blacks, and U.S.-Born Whites. *New England Journal of Medicine*, 337(17), 1209–1214.
- Dillman, J. D., Pleasants, C. B., Roskilly, A. B., & Farmby, H. K. (2006). The state of fair housing in Northeast Ohio: April 2006. Housing Research and Advocacy Center, Cleveland. Last accessed April 24, 2007; Available at <http://www.thehousingcenter.org/>
- Doezema D, & Hauswald M. (2002). Quality improvement or research: A distinction without a difference? *Ethics & Human Research*, 24, 9–11.
- Fitch, S. (2006). Home foreclosure hot spots. *Forbes Magazine Online*. Last updated June 1, 2006; Available at <http://www.msnbc.msn.com/id/13086712/>

- Fleming, D. T. & Wasserheit, J. N. (1999). From epidemiological synergy to public health policy and practice: The contribution of other sexually transmitted diseases to sexual transmission of HIV infection. *Sexually Transmitted Infections*, 75, 3–17.
- Goldenberg, R. L. & Culhane, J. F. (2007) Low birth weight in the United States. *American Journal of Clinical Nutrition*, 85(suppl.), 584S–590S.
- Gordis, L. (2004). *Epidemiology*, 3rd edition. W.B. Saunders Co.
- Greeley, A. (1995) Concern about AIDS in minority communities. *FDA Consumer Magazine* Last accessed April 21, 2007; Available at http://www.fda.gov/fdac/features/095_aids.html
- Halfors, D. D., Iritani, B. J., Miller, W. C., & Bauer, D. J. (2007). Sexual and drug behavior patterns and HIV and STD racial disparities: The need for new directions. *American Journal of Public Health*, 97(1), 125–132.
- The Housing Research and Advocacy Center. (2003). Analysis of lending patterns in the City of Cleveland. Last accessed January 6, 2007; Available at <http://www.thehousingcenter.org/>
- Keagy, J. (2006). Cleveland youth RARE project & social marketing campaign for HIV, STD, and teen pregnancy reduction. Cleveland Department of Public Health, Cleveland, Ohio. Last revised September 2006. Last accessed May 19, 2007. Available at <http://www.clevelandhealth.org/Assets/ AcrobatFiles/RareProject Reports/YouthRAREReport.pdf>
- Kojima, E., Shirasaka, T., Anderson, B., Chokekijchai, S., Sei, S., & Yarchoan, R., et al. (1993). Monitoring the activity of antiviral therapy for HIV infection using a polymerase chain reaction method coupled with reverse transcription. *AIDS*, 7(suppl 2), S101–S105.
- Laumann, E. O. & Youn, Y. (1999). Racial/ethnic group differences in the prevalence of sexually transmitted diseases in the United States. *Sexually Transmitted Diseases*, 29, 13–19.
- Last, D. (2007). Audience Dialogue: Using Excel for survey analysis (1). Last accessed May 19, 2007. Available at <http://www.audiencedialogue.org/excel1.html>
- Lenahan, T. (2005). Shortage areas of primary medical professionals. *Public Health GIS and Information*, 63, 19–21. Last accessed April 21, 2007; Available at <http://www.cdc.gov/nchs/data/gis/cdcgis63.pdf>
- Levine, A. (1998). Antiretroviral therapy: Adherence. *Medscape HIV/AIDS eJournal*: 4(2). Last accessed April 21, 2007; Available at <http://www.medscape.com/viewarticle/408212>
- Levine, D. M., Bone, L. R., Hill, M. N., Stallings, R., Gelber, A. C., & Barker, A., et al. (2003). The effectiveness of a community/academic health center partnership in decreasing the level of blood pressure in an urban African-American population. *Ethnicity & Disease*, 13(3), 354–61.
- Little, S. J., McLean, A. R., Spina, C. A., Richman, D. D., & Havlir, D. V. (1999). Viral dynamics of acute HIV-1 infection. *Journal of Experimental Medicine*, 190, 841–850.
- Livingood, W. C., Goldhagen, J., Little, W. L., Gornto, J., & Hou, T. (2007). Assessing the status of partnerships between academic institutions and public health agencies. *American Journal of Public Health*, 97(4), 659–666.
- Lynn J. (2004). When does quality improvement count as research? Human subject protection and theories of knowledge. *Quality and Safety in Health Care*, 13, 67–70.
- Miles, M.B & Huberman, A. M. (1994). *Qualitative data analysis*, 2nd rev. ed. Thousand Oaks, California: Sage.
- MacKellar, D. A., Valleroy, L. A., Secura, G. M., Bel, S., & Bingham, T., et al. (2005). Unrecognized HIV infection, risk behaviors, and perceptions of risk among young men who have sex with men: opportunities for advancing HIV prevention in the third decade of HIV/AIDS. *Journal of Acquired Immune Deficiency Syndrome*, 15, 603–14.
- Meyer, D., Armstrong-Coben, A., & Batista, M. (2005). How a community-based organization and an academic health center are creating an effective partnership for training and service. *Academic Medicine*, 80(4), 327–333.
- Mundell, E. J. (2007). Advances, failures mark AIDS' first 25 years. Last revised June 5, 2007; Last accessed April 25, 2007; Available at http://www.drkoop.com/newsdetail/93/533060_2.html

- Ohio Department of Health (2005). Ohio Administrative Code and Ohio Revised Code, Content applicable to communicable disease, Sections 3701—3-02 and 3701-3-13. Last revised April 2005; Last Accessed February 4, 2007; Available at <http://www.odh.ohio.gov/pdf/IDCM/sect2a.pdf>
- Ohio Department of Health (2007). Data information warehouse. Last updated March 1, 2007; Last accessed April 24, 2007; Available at <http://dwarehouse.odh.ohio.gov/datawarehousev2.htm>
- Ohio Historical Society (2005). *Reed v. Rhodes*, Ohio history central: An online encyclopedia of Ohio history. Last accessed at January 7, 2007; Available at <http://www.ohiohistory.org>
- Okoben J. & Reed, E. (2005). Nearly 500 teachers will be cut—Cleveland schools to send pink slips next week in first wave of layoffs. *Cleveland Plain Dealer*, April 23. Last accessed April 22, 2007; Available at <http://www.cleveland.com/clevelandschools/index.ssf?/clevelandschools/more/1114248889275150.html>
- Rea, L. M. & Parker, R. A. (2005). *Designing and conducting survey research: A comprehensive guide*, 3rd ed. Jossey-Bass, San Francisco, CA.
- Reed v. Rhodes*, 422 F. Supp. 708, 793 (N. D. Ohio 1976), *remanded per curiam*, 559 F.2d 1220 (6th Cir. 1978), *supplemental opinion on remand*, 455 F. Supp. 569 (N. D. Ohio 1978), *aff'd in relevant part and remanded on other grounds*, 607 F.2d 714 (6th Cir. 1979), *cert. denied*, 455 U.S. 935 (1980).
- Salling, M. (2006). Children living in severely distressed neighborhoods and poor housing. *Public Health GIS and Information*. (68), 19–22. Last accessed April 21, 2007; Available at <http://www.cdc.gov/nchs/data/gis/cdcgis68.pdf>
- Smith, R. L. & Davis, D. (2004). Cleveland No.1 in big-city poverty/Nearly half of children among the poor. *Cleveland Plain Dealer*. Last updated August 27, 2004; Last accessed April 24, 2007; Available at <http://www.cleveland.com> (archived) and UrbanOhio.com archives, <http://www.urbanohio.com/forum2/index.php?topic=978.0>
- Smith, M. K. (2007). Evaluation report of the HIV/AIDS Prevention Initiative and the HOPWA program 2005–2006, City of Cleveland (Year VII). Cleveland, OH: Cleveland State University.
- Thacker, S. B. (2003). HIPAA privacy rule and public health. Guidance from the CDC and the U.S. Department of Health & Human Services. *MMWR*, 52, 1–12. Last revised 4/11/2003. Last accessed May 25, 2007. Available at <http://www.cdc.gov/mmwr/preview/mmwrhtml/m2e411a1.htm>
- United States Bureau of the Census. 1990 decennial census for Cleveland, Ohio. Last accessed December 29, 2007; Available at <http://factfinder.census.gov>
- United States Bureau of the Census. 2000 census of population, general population characteristics, Cleveland, Ohio, Summary File (SF1). Available at <http://factfinder.census.gov>
- United States Bureau of the Census. 2005 American community survey, general population characteristics, Cleveland, Ohio. Available at <http://factfinder.census.gov>
- United States Bureau of the Census (2005a). 2005 Population Estimates, Population Estimates Program, Table T1. Available at <http://factfinder.census.gov>
- United States Department of Housing and Urban Development (2004). Bush Administration awards \$17.6 million in fair housing grants to continue fight against housing bias. News release HUD No. 04-0001OH. January 12, 2004. Last accessed May 19, 2007. Available at <http://www.hud.gov/local/oh/news/2004-01-12.cfm>
- United States Department of Health & Human Services (2005a). Office for Human Research Protections. Secretary's Advisory Committee on Human Research Protections (SACHRP) Appendix 1. Last revised February 59, 2005. Last accessed May 19, 2007. Available at <http://www.hhs.gov/ohrp/sachrp/appendix1.html>
- United States Department of Health & Human Services (2005b). Office for Human Research Protections. Code of Federal Regulations, Title 45 Public Welfare, Part 46 Protection of Human Subjects. Last revised June 23, 2005. Last accessed May 19, 2007. Available at <http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.htm>

- University of Kansas, Academic Computing Center (2003). Functions & data analysis tools. Last revised Feb. 14, 2003. Last accessed May 19, 2007. Available at http://www.techdocs.ku.edu/docs/excel_2000_functions.pdf
- Valleroy, L. A., MacKellar, D. A., Karon, J. M., Rosen, D. H., McFarland, W., & Shehan, D. A., et al. (2000). HIV prevalence and associated risks in young men who have sex with men. Young Men's Survey Study Group. *Journal of the American Medical Association*, 284, 198–204.
- VanDevanter, N., Hennessy, M., Howard, J. M., Bleakley, A., Peake, M., & Millet, S., et al. (2002). Developing a collaborative community, academic, health department partnership for STD prevention: the Gonorrhea Community Action Project in Harlem. *Journal of Public Health Management and Practice*, 8(6), 62–68.
- Wasserheit, J. N. (1992). Epidemiologic synergy: Interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases. *Sexually Transmitted Diseases*, 9, 61–77.
- Webster, Jr., B. H. & Bishaw, A. (2006). American community survey reports, ACS-02, income, earnings, and poverty data from the 2005 American Community Survey. Washington, DC: United States Bureau of the Census. Last revised August 2006; Last accessed January 6, 2007; Available at <http://www.census.gov/prod/2006pubs/acs-02.pdf>
- West, K., Robinson, J. G. & Knavery, A. (1998). What do we know about the undercount of children?, Presentation at the Annual Meeting of the Southern Demographic Association, Annapolis, Maryland, October 29–31.