Estimates of the Population Prevalence of Injection Drug Users among Hispanic Residents of Large US Metropolitan Areas

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ABSTRACT *Little information exists on the population prevalence or geographic distribution of injection drug users (IDUs) who are Hispanic in the USA. Here, we present yearly estimates of IDU population prevalence among Hispanic residents of the 96 most populated US metropolitan statistical areas (MSAs) for 1992–2002. First, yearly estimates of the proportion of IDUs who were Hispanic in each MSA were created by combining data on (1) IDUs receiving drug treatment services in Substance Abuse and Mental Health Services Administration (SAMHSA)'s Treatment Entry Data System, (2) IDUs being tested in the Centers for Disease Control and Prevention (CDC) HIV-Counseling and Testing System, and (3) incident AIDS diagnoses among IDUs, supplemented by (4) data on IDUs who were living with AIDS. Then, the resulting proportions were multiplied by published yearly estimates of the number of IDUs of all racial/ethnic groups in each MSA to produce Hispanic IDU population estimates. These were divided by Hispanic population data to produce population prevalence rates. Time trends were tested using mixed-effects regression models. Hispanic IDU prevalence declined significantly on average (1992 mean=192, median=133; 2002 mean=144, median=93; units are per 10,000 Hispanics aged 15–64). The highest prevalence rates across time tended to be in smaller northeastern MSAs. Comparing the last three study years to the first three, prevalence decreased in 82% of MSAs and increased in 18%. Comparisons with data on drug-related mortality and hepatitis C mortality supported the validity of the estimates. Generally, estimates of Hispanic IDU population prevalence were higher than published estimates for non-Hispanic White residents and lower than published estimates for non-Hispanic Black residents. Further analysis indicated that the proportion of IDUs that was Hispanic decreased in 52% and increased in 48% of MSAs between 2002 and 2007. The estimates resulting from this study can be used to investigate MSA-level social and economic factors that may have contributed to variations across MSAs and to help guide prevention program planning for Hispanic IDUs within MSAs. Future research should attempt to determine to what extent these trends are applicable to Hispanic national origin subgroups.*

KEYWORDS *Hispanics/Latinos, Racial/ethnic health disparities, Injection drug use, HIV/AIDS, Drug policy*

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Hispanic injection drug users (IDUs) are a particularly vulnerable population for a number of reasons. In the USA, IDUs who are Hispanic are more likely to be infected with HIV and hepatitis C than IDUs who are non-Hispanic White.[1,2] Hispanics infected with HIV are twice as likely as non-Hispanic Whites to be diagnosed late in the course of their infection.[3] Hispanic IDUs may be less likely to utilize HIV prevention services, or services for drug users, than non-Hispanics due to greater concern about stigma regarding drug use, HIV/AIDS, or the association between HIV/AIDS and homosexuality.[4–7]

Research on Hispanic IDUs is hampered by the lack of information on their number and geographic location over time. Such information could be used to better target HIV and hepatitis C prevention programs among Hispanic IDUs and to compare trends in injection drug use, HIV, and hepatitis C across racial/ethnic groups. Data on overall IDU prevalence and on IDU prevalence among non-Hispanic White and non-Hispanic Black residents aged 15–64 of the 96 largest US metropolitan statistical areas (MSAs) have been published for the 1992–2002 period.[8,9] The current study fills a crucial gap by providing estimates of IDU population prevalence among Hispanic residents aged 15–64 in the same set of MSAs during the same time period. To extend the analysis to more recent years, we also examine change in the estimated proportion of IDUs who were Hispanic from 2002 to 2007.

METHODS

We use the term "Hispanic" to indicate self-reported Hispanic or Latino ethnicity to be consistent with our sources of data. The federal Office of Management and Budget (OMB) defines people of Hispanic ethnicity as "persons who trace their origin or descent to Mexico, Puerto Rico, Cuba, Central and South America, and other Spanish cultures."[10] The sources used in this study categorized participants into Hispanic, non-Hispanic Black, non-Hispanic White, and other categories.

We use MSA as the geographic unit of analysis because MSAs are defined by the OMB to represent socially and economically integrated entities, made up of contiguous counties that contain a central city of 50,000 people or more.[11] They are likely to reflect social and economic integration among IDUs.[12] We obtained yearly estimates of the MSA populations aged 15–64 for Hispanics and for residents of all racial/ethnic groups from publically available Census data.[13]

To estimate Hispanic IDU prevalence, we multiplied yearly estimates of the proportion of IDUs who were Hispanic (averaging proportions from three sources, described below) in each MSA by yearly published estimates of the number of IDUs of all racial/ethnic groups in each MSA. Since overall IDU prevalence estimates were available for 1992–2002, the timeframe for the current study is also 1992–2002. The calculation is summarized in formula 1.

$$\text{HIDU}_{ij} = \text{ProportionH}_{ij} \times \text{IDUN}_{ij}/\text{PopulationH}_{ij} \qquad (1)$$

where HIDU_{ij}=estimated prevalence of IDUs among Hispanic residents, aged 15–64, in study year i, MSA j; ProportionH_{ij}=estimated proportion of IDUs who were Hispanic in study year i, MSA j; IDUN_{ij}=published estimated number of IDUs of all racial/ethnic groups, aged 15–64, in study year i, MSA j; PopulationH_{ij}=number of residents who were Hispanic, aged 15–64, in study year i, MSA j.

Combining Source Data

The proportions of IDUs who were Hispanic were estimated by combining three data series: (1) HIV-Counseling and Testing Services (CTS),[14] (2) Treatment Episode Data Set (TEDS),[15] and (3) data on incident AIDS diagnoses among people who reported injection drug use as the route of HIV acquisition, supplemented with data on people living with AIDS who reported injection drug use as the route of HIV acquisition.[16]

HIV-Counseling and Testing Services   CTS data on IDUs receiving HIV-counseling and testing services were obtained from the CDC by special arrangement.[14] We calculated the proportions of IDUs receiving services in CTS data who were Hispanic as an indicator for the proportions of the IDU populations who were Hispanic. Of the 95 MSAs included in analyses of the proportions of IDUs who were Hispanic, 77 contributed CTS data. Complete yearly data were available for 52 MSAs; data were available for some years for 25 additional MSAs. Data were incomplete for three reasons: (1) Some health departments reported only aggregated data that could not be matched geographically to the MSAs in our study, (2) data from cells that contained fewer than five individuals were redacted (removed) by the CDC in order to protect against loss of participant confidentiality, and (3) we excluded existing data for 1 year from two MSAs in order to avoid proportion estimates that could be unreliable due to small numbers of IDUs of all racial/ethnic groups (fewer than 20).

Treatment Episode Data Set   TEDS data indicate the number and characteristics of people entering substance abuse treatment programs that receive funding from the federal government. TEDS data are managed by the Substance Abuse and Mental Health Services Administration (SAMHSA) and are publically available.[17] We calculated the proportions of IDUs entering drug treatment in TEDS data who were Hispanic as an indicator for the proportions of the IDU populations who were Hispanic. Of the 95 MSAs included in analyses of the proportions of IDUs who were Hispanic, complete yearly data were available for 88 MSAs, and data were available for some years for three additional MSAs. Data from four MSAs could not be used because route of drug administration (injection or non-injection) was not collected or coded. We excluded data for 1 year in three MSAs in order to avoid proportion estimates that could be unreliable due to small numbers of IDUs of all racial/ethnic groups (fewer than 20).

IDU Incident AIDS Diagnoses and People Living with AIDS   We obtained data representing incident AIDS diagnoses (IAIDS) and people living with AIDS (PLWA) attributed to injection drug use from the CDC by special arrangement. We calculated the proportions of IDUs who were Hispanic in IAIDS data, with adjustment for HIV prevalence (described below), as an indicator for the proportions of the IDU populations who were Hispanic. IAIDS data may be more likely to capture IDUs who did not access HIV-counseling and testing or drug treatment services. However, IAIDS data were sparse in some years in some MSAs. We excluded Hispanic proportion data for some years from 28 MSAs in order to avoid proportion estimates that could be unreliable due to small numbers of IDUs of all racial/ethnic groups (fewer than 20). After this exclusion, yearly Hispanic IDU proportions were available for 52 MSAs and for some years for 32 additional MSAs. Fortunately, PLWA data were more complete and were consistent with IAIDS data (the average Pearson correlation between Hispanic proportions of IDUs in

IAIDS and PLWA data across study years was 0.96), so we used the proportion of IDU PLWA who were Hispanic as a proxy where IAIDS data were missing. After filling in these data, 93 of the 95 MSAs included in analyses of the proportions of IDUs who were Hispanic contributed yearly IAIDS data. Hispanic IAIDS data were not available for two MSAs because states in which parts of the MSAs were located did not agree to provide the data by race/ethnicity.

Adjustment of IDU Incident AIDS Diagnoses for the Proportion of IDUs Testing Positive for HIV. The proportion of IDU IAIDS cases that are Hispanic can be influenced by a number of factors, including racial/ethnic differences in HIV prevalence, utilization and effectiveness of HIV counseling and testing and HAART, and other factors related to progression to AIDS. To reduce potential bias due to variation among MSAs in relative HIV prevalence by race/ethnicity, we adjusted the proportion of IDUs who were Hispanic in IAIDS data (P_{IAIDS}) for HIV prevalence among IDUs in CTS data using the following formula:

$$P_{ij\,IAIDS\_adj} = \left(H_{ij\,IAIDS}/H_{ij}\right)/\left(T_{ij\,IAIDS}/T_{ij}\right) \qquad (2)$$

where $H_{ij\,IAIDS}$=the number of Hispanic IDU IAIDS cases in study year i, MSA j; H_{ij}=the proportion of Hispanic IDUs testing positive for HIV in CTS data in study year i, MSA j; $T_{ij\,IAIDS}$=the number of IAIDS cases of IDUs of all racial/ethnic groups in study year i, MSA j; T_{ij}=the proportion of IDUs of all racial/ethnic groups testing positive for HIV in CTS data in study year i, MSA j.

This formula assumes that the yearly HIV proportions of Hispanic IDUs and of IDUs of all racial/ethnic groups in who test positive for HIV in CTS data in each MSA reflect HIV prevalence in their respective underlying populations. It is important to note that CTS data represent the number of tests and positive results, not the number of individuals testing positive.

Imputations to Estimate Missing HIV Test Result Data. CTS Data on the proportion testing positive for HIV among Hispanic IDUs and among IDUs of all racial/ethnic groups were incomplete due to inconsistent reporting, removal by the CDC of test result data from small cells (fewer than five positive results) to protect participant confidentiality, and exclusion of data on the proportion positive that would have been based on fewer than 20 Hispanic IDUs.

We imputed values to fill in missing CTS HIV data for Hispanic IDUs in two steps. First, in a binomial mixed-effects regression, we imputed values as a function of (a) year, (b) the proportion of IDUs of all racial/ethnic groups testing positive for HIV, and (c) the proportion of IDUs tested who were Hispanic. Next, in MSAs where Hispanic IDU HIV data were missing for some years, we imputed missing values using predicted values from a linear mixed-effects regression on time. Mixed-effects regressions were performed using the SAS procedure PROC GLIMMIX (version 9.2). We imputed values to fill in missing CTS HIV data for IDUs of all racial/ethnic groups in a parallel manner, using year, the proportion of all CTS clients testing positive for HIV, and the proportion of CTS clients tested who were IDUs as predictors for the mixed-effects binomial regression. We used average values predicted by the binomial regressions of yearly proportions testing positive for HIV among Hispanic IDUs and IDUs of all racial/ethnic groups for 22 of the 93 MSAs contributing IAIDS data because CTS HIV test result data for those MSAs were missing for all study years.

Averaged Proportions of IDUs Who Were Hispanic

We created a complete data set of the proportions of IDUs who were Hispanic from the three data sources—CTS, TEDS, and IAIDS (supplemented with PLWA data and adjusted for HIV prevalence)—using predicted values from a binomial mixed-effects regression. We modeled Hispanic proportions using events/trials syntax with the number of Hispanic IDUs in the numerator and the number of IDUs of all racial/ethnic groups in the denominator.[18] Data sources were stacked so that each MSA and year was represented by as many cases as there were data sources (one, two, or all three sources). Data were available from all three sources for 72 MSAs, from any two sources for 18 MSAs, and from only one source for 5 MSAs. The model used all the available data to estimate parameters, even where some data were missing, under the assumption that the data were missing at random, conditional on the observed data. Dummy codes were used to compare data sources. We used a quadratic polynomial model of time to maintain consistency with procedures used to produce the overall IDU estimates.[8] Intercepts were set to vary randomly using residual pseudo-likelihood estimation. Standard errors of the fixed effects were adjusted using the sandwich method.[18]

The resulting complete sets of proportions were averaged to create single yearly estimates of the proportion of IDUs who were Hispanic. These proportions were then multiplied by published estimates of the number of IDUs of all racial/ethnic groups to produce estimates of the Hispanic IDU populations.

Published Population Data for IDUs of All Racial/Ethnic Groups

Procedures used to estimate the populations of IDUs of all racial/ethnic groups in these MSAs are described in detail elsewhere.[8] Briefly, we began with annual national estimates of the number of drug treatment entrants who were IDUs, the number of IDUs who were tested for HIV, the number of arrestees for heroin and cocaine possession multiplied by the proportion of treatment entrants treated for heroin or cocaine dependence who reported that they injected drugs, and regression-based interpolations and extrapolations of published estimates for the years 1992 and 1998.[19,20] These national estimates were allocated to each MSA using multiplier methods and then smoothed to reduce stochastic variation with locally weighted regression.

Calculating Hispanic IDU Population Prevalence

By multiplying estimates of the proportions of IDUs who were Hispanic by the published estimated numbers of IDUs of all racial/ethnic groups, we created estimates of the numbers of IDUs who were Hispanic. We calculated Hispanic IDU population prevalence by dividing these estimates by their respective Hispanic populations, aged 15–64. We used the published[8] prevalence of IDUs of all racial/ethnic groups as the prevalence of IDUs who were Hispanic in the San Juan–Bayamon, Puerto Rico MSA because CTS data were not collected, TEDS data were not collected by race/ethnicity, and IAIDS data indicated that few IDUs with AIDS were non-Hispanic.

Reliability

We assessed reliability of the data with yearly Pearson correlations of the three Hispanic IDU proportions (CTS, TEDS, IAIDS).

Validity

We assessed the validity of the Hispanic IDU prevalence estimates by assessing their correlations with two indicators of Hispanic injection drug use—drug-related mortality and hepatitis C mortality—among Hispanics. Mortality data were extracted from the Multiple Cause of Death data tabulated by the National Vital Statistics System.[21] In these data, ICD-9 coding was used to identify causes of death between 1992 and 1998, and ICD-10 coding was used thereafter. Our coding of drug-related deaths was based on that of the European Monitoring Centre for Drugs and Drug Addiction.[22] We coded drug-related deaths as "deaths happening shortly after consumption of one or more psychoactive drugs and directly related to this consumption," and "accidental and unintentional drug poisoning deaths" that occurred after consuming cocaine, heroin, or psychostimulants. Route of drug administration was not used in the ICD coding, so we could not restrict drug-related deaths to those that were IDU-related. We restricted our analysis to deaths that occurred in the MSA of residence. Hepatitis C mortality data were available starting in 1999, when ICD-10 codes to identify hepatitis C (B17.1 and B18.2) were implemented.

Trend Analysis

We used a polynomial mixed-effects model with restricted maximum-likelihood estimation to investigate change in Hispanic IDU prevalence across time among MSAs. Although this selection of MSAs is not, strictly speaking, a sample, we use statistical significance tests as a heuristic guide. We log-transformed Hispanic IDU population prevalence rates before analysis because the rates were right-skewed.

To assess change across time in individual MSAs, we calculated percent change values comparing the earliest (1992–1994) and latest (2000–2002) 3 years of data. We use the average of 3 years to maximize the reliability of the comparisons within MSAs.

To assess trends after the period for which overall IDU prevalence data have been published, we examined the proportion of IDUs that was estimated to be Hispanic. First, we entered the proportions of IDUs who were Hispanic in CTS, TEDS, and IAIDS data from 2002 to 2007 into a polynomial mixed-effects model to assess overall time trends. Then we averaged across the three data series to create an overall estimate of the proportion of IDUs that was Hispanic. Finally, we calculated percent change values comparing proportions averaged over 2002–2004 to those averaged over 2005–2007, the most recent period with available data.

RESULTS

Results from the binomial regression model of the proportions of IDUs who were Hispanic by data source are in Table 1. Anti-logit transforming the intercept gives the average predicted Hispanic proportion value among IAIDS cases—0.061 in 1992. Both the linear (years since 1992) and quadratic (years since 1992 squared) slopes are positive, but only the linear term is significant, indicating a linear increase over time on average. The CTS dummy code was not significant, indicating that Hispanic IDU proportions in CTS data were not different from those in IAIDS data. However, the TEDS dummy code was significant in the positive direction, indicating that TEDS Hispanic IDU proportions were almost 20% higher than those in IAIDS —0.073 on average in 1992.

TABLE 1 Binomial mixed-effects regression results for the proportions of injection drug users who were Hispanic in three data sources, 1992–2002

	Estimate	Standard error
Intercept	−2.7336**	0.1667
Years since 1992	0.0132*	0.0060
Years since 1992 squared	0.0008	0.0006
Source		
HIV-Counseling and Testing Services	−0.0352	0.0687
Treatment Episode Data Set	0.1870**	0.0527
Incident AIDS Diagnoses	1.0	–
Intercept variance	2.7394	0.4034

$N=96$ metropolitan statistical areas
*$p<0.05$; **$p<0.01$

Pearson correlations among the three estimates of the proportions of IDUs who were Hispanic showed good consistency. Correlations between CTS and TEDS proportions ranged from 0.90 to 0.93 across years (mean=0.91), while those between CTS and IAIDS ranged from 0.51 to 0.85 (mean=0.74) and those between TEDS and IAIDS ranged from 0.60 to 0.80 (mean=0.71).

We calculated a single yearly proportion of IDUs who were Hispanic in each MSA by averaging the set of proportions from the three sources. We multiplied the averaged proportions by published estimates of the populations of IDUs of all racial/ethnic groups and divided the results by the respective Hispanic MSA populations to produce population prevalence estimates.

Descriptive data for the yearly Hispanic IDU population prevalence estimates are in Table 2. The estimates show a substantial decline from 1992 (mean=192, median=133) to 2002 (mean=144, median=93; units are per 10,000 Hispanics aged 15–64). Hispanic IDU prevalence declined more sharply initially, then more slowly, with fluctuations, forming a slightly curvilinear relationship with time. Figure 1 depicts average IDU prevalence among Hispanic residents, compared with previously published data for non-Hispanic Black and non-Hispanic White residents across

TABLE 2 Estimated prevalence of Hispanic injection drug users per 10,000 Hispanic residents aged 15–64, 1992–2002

Year	Mean	SD	Minimum	Maximum	Median	IQR
1992	192	189	21	1068	133	68, 239
1993	178	178	16	931	110	58, 232
1994	178	184	16	1070	115	61, 217
1995	168	175	11	905	101	53, 222
1996	162	173	11	874	95	51, 208
1997	158	172	9	840	95	49, 198
1998	155	172	8	807	95	47, 191
1999	154	173	9	915	99	51, 182
2000	148	164	7	787	95	45, 181
2001	147	162	8	865	99	49, 168
2002	144	160	6	809	93	45, 165

$N=96$ metropolitan statistical areas
SD standard deviation, *IQR* interquartile range
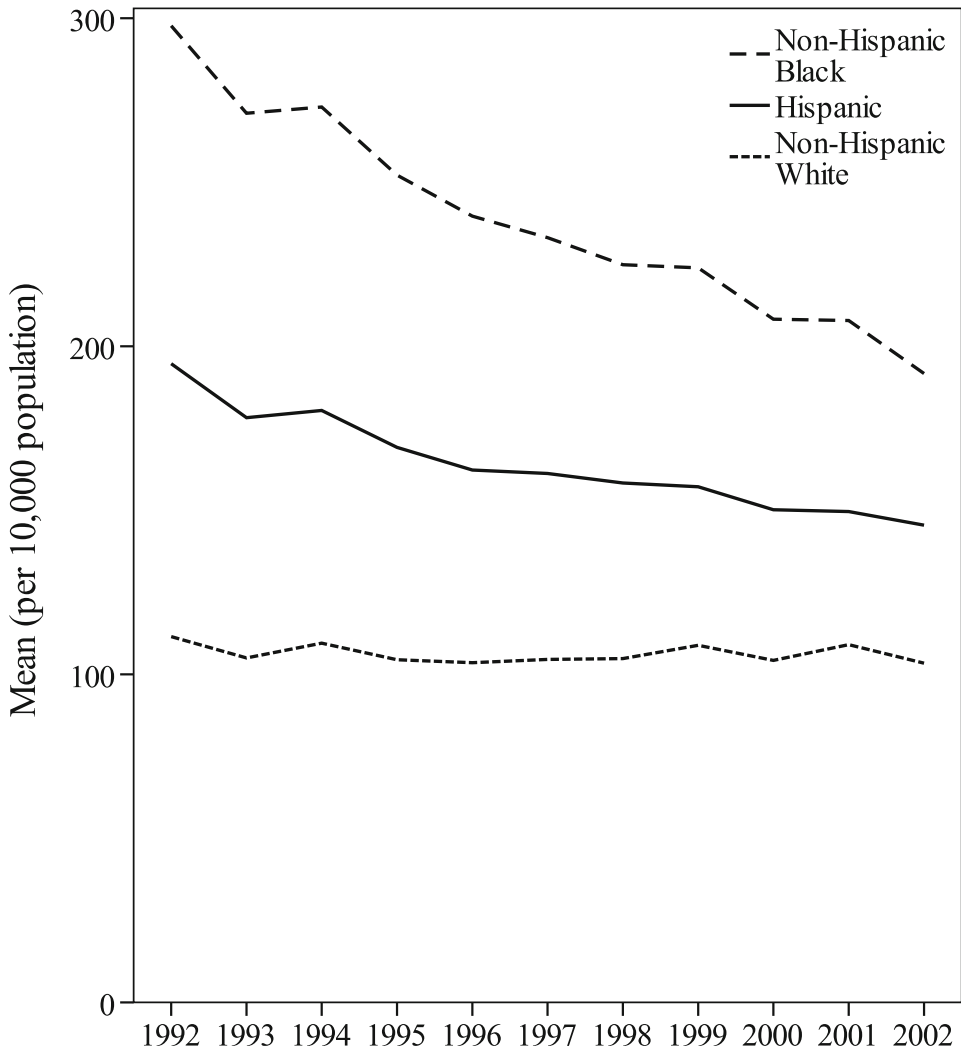
FIGURE 1. Average population prevalence of injection drug users by racial/ethnic group and year, 1992–2002. $N = 96$ metropolitan statistical areas. Data for non-Hispanic White and non-Hispanic Black IDUs were previously published[9] and exclude the San Juan, Puerto Rico MSA.

time.[9] Generally, estimates of Hispanic IDU population prevalence were higher than published estimates for non-Hispanic White residents and lower than published estimates for non-Hispanic Black residents.

Yearly Pearson correlations with drug-related mortality rates and hepatitis C mortality rates among Hispanics are in Table 3. Correlations with drug-related mortality ranged from 0.36 to 0.62 (mean = 0.48). Correlations with hepatitis C mortality ranged from 0.43 to 0.73 (mean = 0.58).

Results of the polynomial mixed-effects model testing for trend over time in logged Hispanic IDU population prevalence rates are in Table 4. The antilog of the intercept, representing Hispanic IDU population prevalence in 1992, is 132.4 Hispanic IDUs per 10,000 Hispanics. The average annual logged linear decline is –0.070; however, the positive polynomial term (0.0028) indicates a flattening of the slope over time. The

TABLE 3 Pearson correlations of estimated Hispanic injection drug user population prevalence rates with mortality rates for drug-related deaths and hepatitis C deaths among Hispanics, 1992–2002

	Drug-related mortality	Hepatitis C mortality
1992	0.56	–
1993	0.62	–
1994	0.47	–
1995	0.36	–
1996	0.45	–
1997	0.54	–
1998	0.54	–
1999	0.50	0.50
2000	0.42	0.43
2001	0.40	0.73
2002	0.41	0.66

$N=96$ metropolitan statistical areas

antilog of the average year-to-year decline, including linear and quadratic terms, was 8.6 per 10,000 from 1992 to 1993 but lessened to 1.4 per 10,000 from 2001 to 2002. The predicted value for 2002 is 87.1 per 10,000, which approximates the observed median estimate.

The sum of the number of Hispanic IDUs in these MSAs by Census region is presented in Figure 2. An increase in the most recent years of the study period is evident for the northeast region, with less change in the other regions.

MSA-specific results are presented in the Appendix. The largest populations of Hispanic IDUs were generally in the MSAs most populated by Hispanics. Averaging the most recent 3 years (2000–2002), the five MSAs with the largest Hispanic IDU populations were Los Angeles–Long Beach, CA (40,375); New York, NY (36,999); San Juan–Bayamon, PR (15,333); Boston, MA–NH (9,872); and San Antonio, TX (9,266). However, the highest IDU prevalence rates among Hispanic residents tended to be in smaller northeastern MSAs. Averaging the most recent 3 years, the five MSAs with the highest prevalence rates (per 10,000 Hispanic residents) were

TABLE 4 Linear mixed-effects regression results of logged Hispanic injection drug user population prevalence, 1992–2002

	Estimate	Standard error
Fixed effects		
Intercept	4.8857*	0.0885
Years since 1992	−0.0702*	0.0061
Years since 1992 squared	0.0028*	0.0004
Random effects		
Intercept variance	0.7486	0.1091
Years since 1992 variance	0.0028	0.000545
Years since 1992 squared variance	0.00468	0.001968
Residual variance	0.00664	0.000380

$N=96$ metropolitan statistical areas
*$p<0.01$
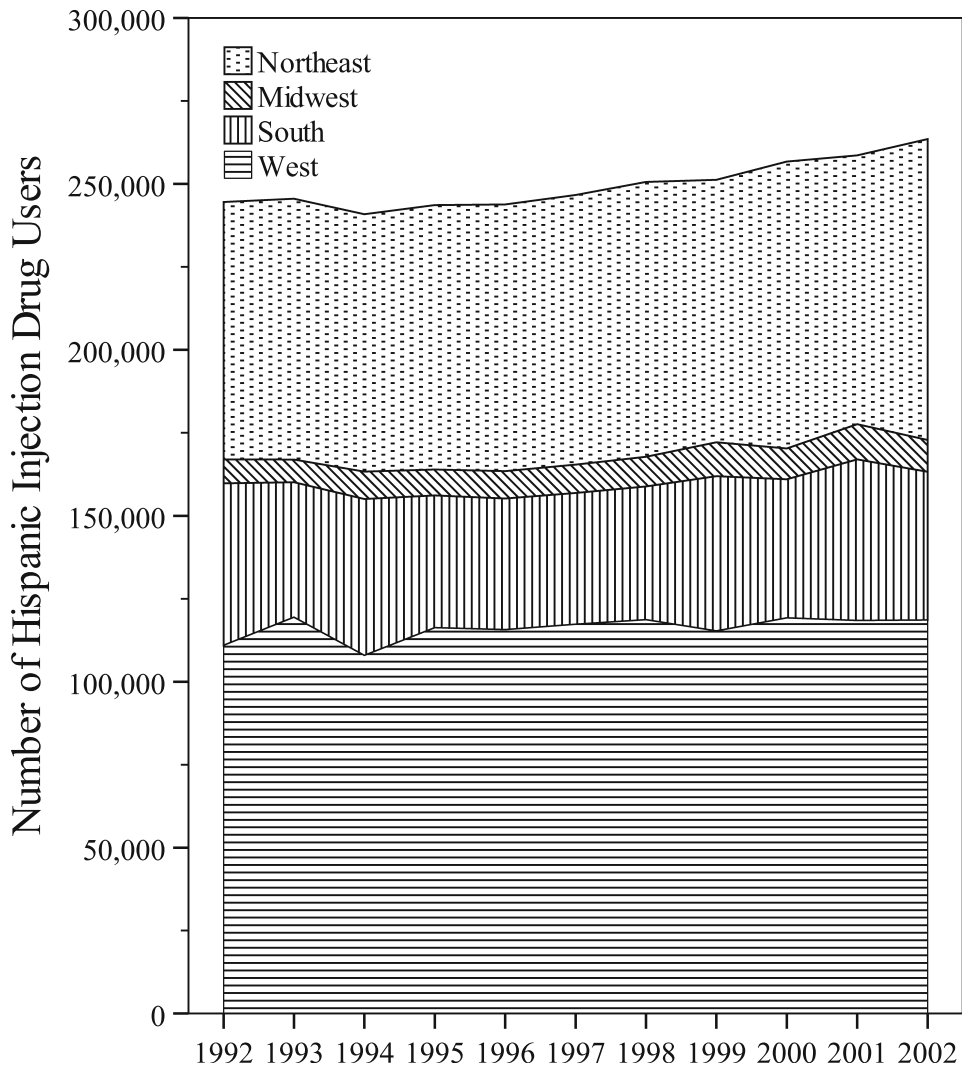
FIGURE 2. Sum of Hispanic injection drug users by Census region and year, 1992–2002. *N*=96 metropolitan statistical areas.

Allentown–Bethlehem–Easton, PA (756); Springfield, MA (752); Hartford, CT (694); Harrisburg–Lebanon–Carlisle, PA (652); and Buffalo–Niagara Falls, NY (533).

We calculated percent change values comparing averages of the earliest (1992–1994) and latest (2000–2002) 3 years of data. Hispanic IDU population prevalence decreased in 79 MSAs—by 10% or more in 70 MSAs and by 50% or more in 13 MSAs. Prevalence increased in 17 MSAs—by 10% or more in eight MSAs (Boston, MA–NH 38%; Baltimore, MD 35%; Honolulu, HI 25%; Toledo, OH and Stockton–Lodi, CA 14%; Pittsburgh, PA and Springfield, MA 12%) and by 50% or more in one MSA (Youngstown–Warren, OH 64%).

Lastly, to extend the analysis to more recent years, for which overall IDU prevalence has not been published, we compared the proportion of IDUs that was Hispanic between 2003 and 2007. This proportion did not change significantly

between 2003 and 2007 (linear estimate [Est.]=–0.0057, standard error [SE]= 0.1158; quadratic Est. = 0.0004, SE=0.0046) across MSAs. We then compared change in the proportion averaged over 2002–2004 to the proportion averaged over 2005–2007 (change could not be estimated for four MSAs with missing data—Gary, IN; San Juan–Bayamon, PR; Tucson, AZ; and Wichita, KS). Of the remaining 92 MSAs, the proportion of IDUs that was Hispanic decreased in 42 (52%) and increased in 44 (48%). Of these 44, 19 increased by more than 10%, and 13 increased by more than 20% (Dayton–Springfield, OH 60%; Greenville–Spartanburg–Anderson, SC 53%; Las Vegas, NV–AZ 49%; New Orleans, LA 45%; Norfolk–Virginia Beach–Newport News, VA–NC 39%; Atlanta, GA 37%; Little Rock–North Little Rock, AR 33%; Richmond–Petersburg, VA 32%; St. Louis, MO–IL 29%; Baltimore, MD 26%; Tacoma, WA 23%; Jacksonville, FL 23%; Detroit, MI 22%).

DISCUSSION

Results from this study greatly expand the data available on Hispanic IDUs in the USA. Multiple sources of data on the proportions of IDUs who were Hispanic showed consistency, and comparisons with data on drug-related mortality and hepatitis C mortality supported the validity of the estimates. Hispanic IDU population prevalence declined from the early 1990s to the early 2000s in most MSAs. This is evident both in trend tests on mean values, in inspection of median and interquartile range values, and in comparisons of early versus late study years within MSAs. A substantial decline in IDU prevalence was previously observed among African American residents of these MSAs on average during this period, while IDU prevalence among non-Hispanic Whites was little changed.[9,23] The decline in Hispanic IDU prevalence is similar to the decline in overall IDU prevalence during this time period.[8] Mortality from AIDS, overdose, and other causes is likely to have contributed to the reduction in IDU prevalence among Hispanics, just as these causes are likely to have contributed to the reduction in IDU prevalence overall. In addition, the increase in heroin purity, as well as increasing consumption of prescription opioids, may have contributed to the reduction in injecting as a form of drug consumption during this time period.[24,25]

MSAs with the highest Hispanic IDU prevalence in the years from which the most recent data were available tended to be in the northeast. The ten MSAs with the highest Hispanic IDU prevalence in 2000–2002 were all in Pennsylvania, New York, New Jersey, Massachusetts, or Connecticut. However, MSAs with increasing prevalence were dispersed geographically. MSAs with the largest Hispanic IDU *populations* across time were also dispersed geographically in MSAs with the largest overall Hispanic populations. More recent data on the proportions of IDUs who were Hispanic showed increases in almost half of the MSAs studied. Research is needed to determine if these increases have translated into increases in Hispanic IDU prevalence and if more recent prevalence trends differ by region.

The extent to which these findings are applicable among Hispanic national origin subgroups is unclear. For example, AIDS cases have been attributed to injecting drugs at a higher proportion among Puerto Rican-born Hispanics than among Hispanics born in the mainland USA or in other countries.[26–28] According to national treatment data, Puerto Rican clients more often report using opiates than other Hispanic clients on admission,[29] and IDUs in Puerto Rico are less likely to utilize drug treatment services than Puerto Rican IDUs in the mainland.[30] In

addition, injection drug use and risk behaviors have been reported to be more prevalent among Hispanics of Puerto Rican decent, particularly among those born in Puerto Rico, than among Hispanics with origins in Mexico and other countries.[31–33] Conversely, risk reduction practices have been found to be more frequently reported among Hispanic IDUs of US or Puerto Rican origin than among Hispanics of Mexican origin (particularly those residing in border areas) or other national origin.[31,34] Comparing trends in drug use and HIV among Hispanic subgroups in the USA is complicated by the dearth of health data with detailed information regarding national origin and by the large number and diversity of national origin subgroups. Although data on AIDS diagnoses show the distribution of AIDS cases among US Hispanic IDUs by national origin, the lack of population denominators precludes the calculation of prevalence or incidence by national origin, either nationally or by MSA.[26] There may also be differences in interpreting survey questions regarding drug use based on national differences in language and stigma regarding drug use that could bias existing data.[35]

Research is needed to understand the determinants of IDU prevalence trends among Hispanics in these MSAs. Although the overall trend in Hispanic IDU prevalence was downward, prevalence increased in 17 MSAs when comparing early and late study years. It is also important to note that the total population of Hispanic IDUs in these MSAs increased in later study years, as can be seen in Figure 2. The study period corresponds with a substantial increase in the Hispanic population in the USA. Between 1990 and 2000, the US Hispanic population increased by 57.9%, representing almost 13 million new Hispanic residents.[36] Hispanic immigration trends may have masked underlying trends in IDU prevalence among non-immigrant Hispanic populations. Our findings may actually conflate increases in non-immigrant (including Puerto Rican) Hispanic IDU prevalence offset by increases in Hispanic immigrant populations, who may be less likely to inject drugs.[37,38]

Results of the present study are consistent with results from our cross-sectional study that found little difference in IDU prevalence between Hispanic and non-Hispanic White MSA residents in 1998.[39] Although the mean prevalence rates differ, as can be seen in Figure 1, the 1998 median prevalence rates among Hispanic (95 per 10,000) and non-Hispanic White (93 per 10,000)[39] MSA residents are quite similar. IDU prevalence appears to have differed more greatly between Hispanic and non-Hispanic White MSA residents during earlier study years (1992–1997).

Limitations

The data were subject to several limitations. Injection drug use among Hispanics varies by national origin subgroup and immigrant or non-immigrant status, but only limited data on these characteristics were available. Hispanic immigrant IDUs, especially those with undocumented status, may avoid participating in the US Census, HIV testing, and/or utilizing drug treatment services.

CTS and TEDS data may underrepresent Hispanic IDUs because they may be less likely to utilize HIV testing and drug treatment services.[6,7] This bias may be somewhat balanced by the likelihood that IAIDS data overrepresents Hispanics, as a result of their greater likelihood to progress to AIDS, once HIV-infected[40]; however, there are few data available to test this. CTS data represent only a small proportion of all HIV tests done in the USA and can include results for individuals tested more than once. Thus, they are an imperfect proxy for HIV prevalence among IDUs. In

addition, changes in the completeness of reporting of CTS, TEDS, or IAIDS data over time may have biased the results.

While we adjusted IAIDS data for the proportions of IDUs who tested positive for HIV, we could not adjust for relative progression to AIDS or mortality, and those potential differences could have biased our IAIDS data. Further, average pseudo-likelihood HIV prevalence values were used in 22 MSAs where MSA-specific HIV test result values were missing. These values may not have represented the actual HIV prevalence well in some of those MSAs.

CONCLUSION

Estimates of IDU population prevalence among Hispanic residents of large MSAs showed a significant decline between 1992 and 2002; however, prevalence estimates increased in a substantial proportion of MSAs, and the proportion of IDUs that was Hispanic increased between 2002 and 2007 in almost half of the MSAs studied. These estimates can be used to study MSA-level policies and socioeconomic factors that may account for variations in trends across MSAs and across racial/ethnic groups and can be used to help guide prevention program planning for Hispanic IDUs within MSAs. Future research should also attempt to determine reasons for any differences in trends that might exist among Hispanic national origin subgroups and among immigrant and non-immigrant Hispanics.

ACKNOWLEDGMENTS

APPENDIX

TABLE 5 MSA-specific estimates of the number of Hispanic injection drug users and population prevalence rate of injection drug users among Hispanics (per 10,000 Hispanics aged 15–64), with 95 % confidence intervals, 1992–2002. N=the 96 most populated US metropolitan statistical areas

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
Akron, OH	1992	27	9	79	99	33	289
	1993	24	8	72	84	28	251
	1994	29	10	85	98	34	287
	1995	26	9	78	84	29	251
	1996	28	9	82	86	28	252
	1997	29	10	85	86	30	252
	1998	30	10	89	86	29	256
	1999	37	12	108	102	33	297
	2000	34	11	100	89	29	261

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	2001	41	14	122	102	35	302
	2002	39	13	114	92	31	270
Albany–Schenectady–Troy, NY	1992	647	266	1,410	589	242	1,284
	1993	576	238	1,252	502	207	1,091
	1994	594	245	1,287	495	204	1,074
	1995	551	228	1,190	440	182	951
	1996	548	227	1,178	422	175	906
	1997	536	223	1,147	395	164	846
	1998	558	233	1,188	396	165	843
	1999	538	225	1,140	368	154	779
	2000	630	264	1,327	409	171	862
	2001	572	241	1,197	356	150	745
	2002	737	311	1,533	435	184	905
Albuquerque, NM	1992	5,093	2,788	7,412	333	182	484
	1993	4,807	2,641	6,973	305	167	442
	1994	5,121	2,824	7,401	312	172	451
	1995	4,889	2,707	7,037	287	159	413
	1996	4,864	2,706	6,971	276	153	395
	1997	4,839	2,705	6,901	268	150	383
	1998	4,877	2,742	6,919	264	148	374
	1999	5,073	2,870	7,156	268	152	379
	2000	4,988	2,840	6,996	256	146	359
	2001	5,232	3,000	7,293	261	150	364
	2002	5,185	2,993	7,182	251	145	348
Allentown–Bethlehem–Easton, PA	1992	2,038	952	3,591	1,068	499	1,881
	1993	1,879	880	3,300	924	433	1,622
	1994	2,315	1,087	4,048	1,070	502	1,871
	1995	2,088	984	3,635	905	426	1,575
	1996	2,168	1,025	3,756	874	413	1,514
	1997	2,224	1,056	3,832	840	399	1,447
	1998	2,272	1,084	3,892	807	385	1,382
	1999	2,744	1,316	4,671	915	439	1,558
	2000	2,305	1,111	3,897	725	350	1,226
	2001	2,886	1,399	4,844	865	419	1,451
	2002	2,403	1,171	4,004	679	331	1,131
Ann Arbor, MI	1992	19	6	57	21	7	64
	1993	19	6	55	21	7	61
	1994	19	6	57	20	6	61
	1995	20	7	59	20	7	60
	1996	20	7	59	19	7	57
	1997	21	7	62	19	6	57
	1998	22	7	66	20	6	59
	1999	23	8	67	20	7	57
	2000	25	8	72	20	6	58
	2001	26	9	76	20	7	59
	2002	28	9	82	21	7	61
Atlanta, GA	1992	244	86	680	42	15	118

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval Lower limit	Upper limit	Rate	95 % confidence interval Lower limit	Upper limit
	1993	229	81	638	34	12	96
	1994	244	86	681	31	11	88
	1995	228	81	636	25	9	68
	1996	228	81	635	21	7	58
	1997	228	81	634	17	6	48
	1998	227	80	631	15	5	42
	1999	240	85	668	14	5	38
	2000	220	78	611	11	4	31
	2001	236	84	655	11	4	30
	2002	205	73	570	9	3	25
Austin–San Marcos, TX	1992	3,708	1,611	7,330	278	121	550
	1993	3,403	1,481	6,702	239	104	470
	1994	4,068	1,775	7,982	267	117	525
	1995	3,647	1,595	7,128	223	98	436
	1996	3,639	1,596	7,079	209	92	406
	1997	3,493	1,537	6,761	188	83	365
	1998	3,341	1,476	6,430	169	75	325
	1999	3,697	1,640	7,073	175	78	334
	2000	3,111	1,386	5,912	136	61	259
	2001	3,328	1,489	6,281	137	61	259
	2002	2,710	1,218	5,080	107	48	201
Bakersfield, CA	1992	2,713	1,173	5,405	252	109	502
	1993	2,543	1,102	5,048	225	97	447
	1994	2,790	1,211	5,518	231	100	457
	1995	2,641	1,150	5,203	211	92	416
	1996	2,668	1,165	5,232	205	89	402
	1997	2,738	1,199	5,341	200	88	391
	1998	2,765	1,215	5,364	192	84	373
	1999	3,099	1,368	5,977	204	90	393
	2000	2,858	1,266	5,475	181	80	346
	2001	3,186	1,418	6,063	193	86	368
	2002	2,960	1,323	5,594	171	76	323
Baltimore, MD	1992	160	58	441	69	25	191
	1993	195	70	539	80	29	221
	1994	200	72	551	77	28	213
	1995	227	82	627	84	30	232
	1996	246	88	678	87	31	239
	1997	266	96	734	88	32	244
	1998	291	105	801	92	33	252
	1999	327	118	901	97	35	268
	2000	352	127	968	98	35	270
	2001	396	143	1,089	104	37	285
	2002	424	153	1,168	104	37	286
Bergen–Passaic, NJ	1992	1,781	755	3,676	149	63	308
	1993	1,785	758	3,671	143	61	293
	1994	1,680	715	3,444	129	55	264
	1995	1,654	706	3,376	121	52	248

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1996	1,593	681	3,238	112	48	227
	1997	1,554	667	3,143	104	45	210
	1998	1,551	668	3,120	100	43	200
	1999	1,586	685	3,173	98	42	197
	2000	1,606	697	3,192	96	42	191
	2001	1,586	691	3,133	91	40	181
	2002	1,676	733	3,288	94	41	183
Birmingham, AL	1992	7	2	25	21	6	76
	1993	6	2	22	16	5	58
	1994	7	2	27	16	4	60
	1995	6	2	23	11	4	44
	1996	7	2	24	11	3	38
	1997	7	2	24	9	3	32
	1998	7	2	25	8	2	28
	1999	9	3	32	9	3	30
	2000	8	2	27	7	2	23
	2001	10	3	34	8	2	27
	2002	8	2	30	6	1	22
Boston, MA–NH	1992	4,260	1,733	9,552	250	102	560
	1993	5,904	2,406	13,201	332	135	743
	1994	4,797	1,957	10,693	260	106	579
	1995	6,865	2,806	15,255	354	145	787
	1996	7,398	3,030	16,378	365	149	807
	1997	8,112	3,330	17,884	382	157	843
	1998	8,798	3,621	19,306	395	163	867
	1999	6,694	2,763	14,614	287	118	627
	2000	10,207	4,227	22,161	419	174	911
	2001	7,619	3,165	16,447	298	124	642
	2002	11,791	4,912	25,310	443	184	950
Buffalo–Niagara Falls, NY	1992	860	354	1,875	526	217	1,148
	1993	1,037	428	2,253	610	252	1,326
	1994	941	389	2,040	532	220	1,152
	1995	1,096	454	2,365	600	249	1,295
	1996	1,123	466	2,415	591	245	1,272
	1997	1,137	473	2,434	584	243	1,250
	1998	1,155	482	2,461	577	241	1,229
	1999	1,035	433	2,193	504	211	1,068
	2000	1,183	497	2,493	561	236	1,183
	2001	1,038	438	2,174	480	203	1,005
	2002	1,235	522	2,570	557	236	1,160
Charleston–North Charleston, SC	1992	32	10	97	55	17	167
	1993	25	8	77	43	14	132
	1994	28	9	86	47	15	146
	1995	23	7	70	37	11	112
	1996	22	7	67	34	11	103
	1997	24	8	72	33	11	98
	1998	25	8	77	31	10	95

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1999	30	10	91	33	11	101
	2000	27	9	83	28	9	87
	2001	31	10	94	31	10	95
	2002	29	9	88	28	9	86
Charlotte–Gastonia–Rock Hill, NC–SC	1992	49	17	146	44	15	131
	1993	42	14	123	31	10	92
	1994	49	16	144	29	10	86
	1995	44	15	129	21	7	63
	1996	45	15	131	17	6	51
	1997	45	15	134	14	5	42
	1998	46	16	136	12	4	34
	1999	54	18	160	11	4	33
	2000	49	17	144	9	3	25
	2001	59	20	174	9	3	28
	2002	51	17	149	8	3	22
Chicago, IL	1992	4,103	1,628	9,696	66	26	157
	1993	3,618	1,437	8,530	55	22	131
	1994	4,184	1,664	9,839	61	24	143
	1995	3,676	1,464	8,622	51	20	119
	1996	3,715	1,482	8,685	48	19	113
	1997	3,692	1,475	8,601	46	18	106
	1998	3,813	1,527	8,847	45	18	103
	1999	4,558	1,830	10,527	51	20	117
	2000	4,000	1,610	9,195	42	17	97
	2001	4,958	2,001	11,343	51	20	116
	2002	4,372	1,768	9,952	43	18	99
Cincinnati, OH–KY–IN	1992	79	26	233	128	42	377
	1993	66	22	195	98	33	290
	1994	78	26	229	108	36	317
	1995	65	22	192	84	28	248
	1996	65	22	191	77	26	227
	1997	66	22	193	73	24	212
	1998	68	23	200	68	23	201
	1999	85	29	251	79	27	232
	2000	76	26	224	63	21	185
	2001	96	32	281	73	24	215
	2002	85	28	249	61	20	179
Cleveland–Lorain–Elyria, OH	1992	1,421	565	3,327	410	163	961
	1993	1,251	498	2,922	345	137	805
	1994	1,447	577	3,371	385	153	897
	1995	1,294	517	3,005	330	132	766
	1996	1,318	528	3,053	323	129	747
	1997	1,342	538	3,096	318	128	734
	1998	1,368	550	3,143	313	126	719
	1999	1,570	632	3,590	347	140	794
	2000	1,467	593	3,339	311	126	708
	2001	1,672	677	3,786	343	139	776

TABLE 5   *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	2002	1,572	638	3,543	313	127	705
Columbus, OH	1992	120	42	339	126	44	356
	1993	111	39	313	105	37	297
	1994	131	46	369	115	40	323
	1995	119	42	335	95	33	267
	1996	123	43	344	89	31	250
	1997	127	44	355	84	29	236
	1998	133	47	373	81	28	226
	1999	159	56	446	88	31	246
	2000	149	52	416	74	26	208
	2001	182	64	509	83	29	232
	2002	173	60	482	74	26	206
Dallas, TX	1992	1,868	720	4,709	64	25	161
	1993	1,596	616	4,016	50	19	127
	1994	2,014	777	5,056	59	23	148
	1995	1,815	701	4,549	49	19	123
	1996	1,919	742	4,797	48	18	119
	1997	2,060	798	5,136	47	18	118
	1998	2,213	858	5,498	47	18	116
	1999	2,769	1,076	6,857	54	21	134
	2000	2,523	982	6,226	46	18	114
	2001	3,278	1,278	8,059	56	22	138
	2002	2,882	1,125	7,060	47	18	114
Dayton–Springfield, OH	1992	12	4	39	23	8	73
	1993	11	3	34	20	5	61
	1994	12	4	37	21	7	64
	1995	10	3	32	17	5	53
	1996	10	3	32	16	5	51
	1997	10	3	32	15	5	49
	1998	11	3	34	16	4	50
	1999	13	4	40	18	6	56
	2000	13	4	41	17	5	54
	2001	16	5	49	20	6	62
	2002	16	5	50	19	6	60
Denver, CO	1992	5,008	2,166	9,975	318	137	633
	1993	4,556	1,975	9,043	268	116	532
	1994	4,853	2,108	9,598	269	117	532
	1995	4,934	2,149	9,718	256	112	504
	1996	5,172	2,259	10,141	251	110	492
	1997	5,429	2,378	10,591	247	108	481
	1998	5,681	2,498	11,021	243	107	472
	1999	4,547	2,007	8,767	182	80	351
	2000	5,717	2,535	10,952	216	96	414
	2001	4,504	2,006	8,571	161	72	307
	2002	5,666	2,534	10,706	195	87	368
Detroit, MI	1992	403	149	1,124	69	25	191
	1993	425	158	1,183	70	26	194

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1994	418	155	1,162	66	25	184
	1995	465	172	1,292	70	26	195
	1996	493	183	1,370	70	26	195
	1997	515	191	1,429	70	26	195
	1998	532	198	1,474	70	26	193
	1999	469	175	1,299	59	22	164
	2000	555	206	1,533	67	25	185
	2001	481	179	1,329	55	21	153
	2002	586	218	1,616	65	24	179
El Paso, TX	1992	10,476	7,374	12,461	372	262	443
	1993	8,651	6,110	10,270	297	210	352
	1994	9,862	6,989	11,682	328	232	388
	1995	8,004	5,694	9,457	260	185	307
	1996	7,564	5,404	8,914	242	173	285
	1997	7,363	5,285	8,653	230	165	271
	1998	6,930	4,999	8,119	213	153	249
	1999	7,397	5,365	8,638	224	162	261
	2000	6,104	4,452	7,104	181	132	211
	2001	5,966	4,378	6,920	175	128	203
	2002	5,243	3,870	6,059	152	112	176
Fort Lauderdale, FL	1992	686	264	1,722	74	29	186
	1993	574	221	1,437	56	22	140
	1994	697	269	1,744	62	24	155
	1995	585	226	1,460	47	18	118
	1996	597	231	1,487	44	17	109
	1997	615	238	1,526	41	16	102
	1998	631	245	1,562	39	15	96
	1999	769	299	1,897	43	17	107
	2000	663	258	1,628	34	13	84
	2001	814	317	1,992	39	15	95
	2002	692	270	1,688	31	12	74
Fort Worth–Arlington, TX	1992	1,957	760	4,850	170	66	422
	1993	1,647	640	4,073	134	52	332
	1994	2,006	781	4,951	152	59	376
	1995	1,732	675	4,266	122	48	301
	1996	1,774	692	4,358	116	45	285
	1997	1,820	711	4,457	110	43	270
	1998	1,859	727	4,538	105	41	255
	1999	2,242	879	5,452	117	46	284
	2000	1,955	768	4,734	95	37	229
	2001	2,342	922	5,649	106	42	256
	2002	2,047	807	4,918	87	34	210
Fresno, CA	1992	5,130	2,622	8,057	278	142	436
	1993	7,532	3,863	11,789	388	199	607
	1994	5,865	3,018	9,143	289	149	451
	1995	7,590	3,921	11,782	361	187	561
	1996	7,784	4,038	12,024	354	184	547

TABLE 5   *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1997	8,087	4,216	12,427	353	184	542
	1998	8,430	4,419	12,881	354	186	541
	1999	9,116	4,807	13,846	369	194	560
	2000	8,857	4,700	13,366	345	183	521
	2001	9,787	5,226	14,669	370	198	555
	2002	9,010	4,843	13,412	329	177	489
Gary, IN	1992	304	110	777	95	34	242
	1993	262	95	669	79	29	203
	1994	327	119	833	97	35	246
	1995	312	114	794	89	32	226
	1996	336	123	854	92	34	233
	1997	361	132	915	95	35	241
	1998	384	140	971	97	35	245
	1999	387	142	975	95	35	239
	2000	407	149	1,023	97	35	243
	2001	419	154	1,049	97	36	244
	2002	439	161	1,096	100	37	250
Grand Rapids–Muskegon– Holland, MI	1992	205	76	513	96	35	240
	1993	173	64	433	75	28	187
	1994	200	75	500	79	30	198
	1995	180	67	451	65	24	162
	1996	183	68	456	59	22	148
	1997	185	69	460	55	20	136
	1998	197	74	488	53	20	132
	1999	215	81	532	53	20	131
	2000	218	82	539	50	19	122
	2001	234	88	575	50	19	123
	2002	243	91	596	50	19	122
Greensboro–Winston– Salem–High Point, NC	1992	50	17	152	62	21	190
	1993	41	13	123	42	13	126
	1994	49	16	147	40	13	119
	1995	40	13	121	26	8	78
	1996	40	13	120	21	7	62
	1997	41	13	122	17	5	50
	1998	42	14	125	14	5	41
	1999	53	17	158	14	5	43
	2000	43	14	128	10	3	29
	2001	53	17	158	11	4	33
	2002	43	14	129	8	3	25
Greenville–Spartanburg– Anderson, SC	1992	30	9	91	54	16	164
	1993	23	7	72	36	11	113
	1994	28	9	87	39	13	122
	1995	24	8	73	28	9	86
	1996	24	8	74	24	8	75
	1997	25	8	77	21	7	65
	1998	26	8	80	18	6	57
	1999	30	10	94	18	6	56

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	2000	29	9	91	15	5	47
	2001	35	11	106	17	5	50
	2002	33	11	103	15	5	45
Harrisburg–Lebanon– Carlisle, PA	1992	481	193	1,100	656	263	1,501
	1993	451	181	1,028	577	232	1,316
	1994	568	225	1,260	685	271	1,519
	1995	532	211	1,179	603	239	1,337
	1996	604	239	1,333	631	250	1,393
	1997	713	283	1,569	698	277	1,537
	1998	819	326	1,794	749	298	1,641
	1999	1,031	412	2,248	887	355	1,935
	2000	836	335	1,813	678	272	1,470
	2001	923	370	1,991	717	288	1,547
	2002	761	306	1,633	561	226	1,205
Hartford, CT	1992	5,073	2,588	7,978	968	494	1,523
	1993	5,043	2,581	7,903	931	476	1,458
	1994	5,201	2,671	8,117	927	476	1,447
	1995	5,126	2,643	7,966	894	461	1,389
	1996	5,154	2,669	7,972	861	446	1,332
	1997	5,128	2,668	7,890	824	429	1,268
	1998	5,070	2,652	7,757	790	413	1,209
	1999	4,990	2,626	7,589	749	394	1,140
	2000	5,002	2,648	7,557	719	381	1,087
	2001	4,953	2,639	7,433	688	367	1,032
	2002	5,028	2,696	7,493	675	362	1,006
Honolulu, HI	1992	253	92	660	68	25	177
	1993	242	88	628	65	24	168
	1994	279	101	726	75	27	195
	1995	256	93	664	69	25	180
	1996	261	95	675	70	26	181
	1997	270	98	699	71	26	185
	1998	281	102	724	74	27	192
	1999	351	128	903	96	35	246
	2000	294	108	756	80	30	207
	2001	385	141	986	101	37	259
	2002	318	116	811	80	29	205
Houston, TX	1992	8,186	3,323	18,410	154	62	345
	1993	6,399	2,602	14,352	113	46	255
	1994	8,057	3,281	18,017	135	55	303
	1995	6,339	2,586	14,129	101	41	225
	1996	6,330	2,587	14,057	95	39	212
	1997	6,386	2,615	14,122	91	37	201
	1998	6,329	2,599	13,932	85	35	187
	1999	7,807	3,215	17,098	99	41	216
	2000	6,172	2,550	13,444	74	31	161
	2001	7,533	3,122	16,316	86	36	186
	2002	5,936	2,467	12,785	64	27	139

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
Indianapolis, IN	1992	134	46	382	132	45	376
	1993	126	43	358	109	37	310
	1994	134	46	381	102	35	291
	1995	121	42	344	80	28	228
	1996	117	40	334	67	23	191
	1997	115	40	327	57	20	162
	1998	117	40	333	50	17	143
	1999	140	48	398	52	18	148
	2000	130	45	370	43	15	122
	2001	157	54	445	47	16	134
	2002	149	51	421	42	14	118
Jacksonville, FL	1992	237	85	642	138	49	373
	1993	177	63	479	98	35	266
	1994	223	80	604	117	42	318
	1995	177	64	479	87	32	236
	1996	182	65	492	81	29	220
	1997	187	67	506	78	28	210
	1998	195	70	527	77	28	208
	1999	241	87	651	90	33	244
	2000	212	76	571	74	26	199
	2001	267	96	719	85	31	230
	2002	234	84	629	69	25	185
Jersey City, NJ	1992	2,677	1,208	4,969	193	87	359
	1993	2,185	988	4,040	154	70	284
	1994	2,377	1,078	4,379	163	74	301
	1995	1,935	880	3,548	129	59	237
	1996	1,806	824	3,296	117	53	213
	1997	1,674	767	3,040	105	48	191
	1998	1,617	744	2,919	99	45	178
	1999	1,807	835	3,242	108	50	194
	2000	1,758	817	3,132	103	48	184
	2001	1,943	907	3,438	113	53	201
	2002	1,983	930	3,483	116	54	203
Kansas City, MO–KS	1992	203	73	553	61	22	166
	1993	185	66	502	52	18	141
	1994	209	75	568	54	20	148
	1995	187	67	509	45	16	123
	1996	191	68	518	43	15	116
	1997	195	70	528	40	14	108
	1998	192	69	520	36	13	99
	1999	209	75	565	37	13	99
	2000	184	66	497	30	11	81
	2001	199	72	537	31	11	82
	2002	175	63	472	25	9	69
Knoxville, TN	1992	13	3	45	53	12	183
	1993	12	3	42	45	11	156
	1994	14	4	50	46	13	166

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1995	13	4	45	39	12	134
	1996	13	4	48	34	11	127
	1997	14	4	50	34	10	120
	1998	14	4	50	30	9	108
	1999	17	5	60	33	10	117
	2000	15	4	52	25	7	88
	2001	17	5	61	27	8	96
	2002	15	4	54	22	6	78
Las Vegas, NV–AZ	1992	1,046	403	2,634	136	52	342
	1993	885	341	2,222	103	40	259
	1994	1,138	440	2,853	115	44	288
	1995	1,010	391	2,528	88	34	221
	1996	1,069	414	2,668	83	32	206
	1997	1,152	447	2,869	77	30	191
	1998	1,197	465	2,971	70	27	174
	1999	1,374	534	3,398	72	28	178
	2000	1,244	485	3,066	59	23	145
	2001	1,394	544	3,423	61	24	149
	2002	1,245	487	3,045	51	20	125
Little Rock–North Little Rock, AR	1992	20	6	61	61	18	188
	1993	17	5	53	46	14	144
	1994	20	6	61	48	14	147
	1995	18	6	55	37	12	114
	1996	18	6	56	31	10	96
	1997	19	6	58	30	9	91
	1998	19	6	60	27	9	85
	1999	21	7	65	27	9	83
	2000	19	6	61	22	7	71
	2001	21	7	67	23	8	74
	2002	19	6	60	20	6	62
Los Angeles–Long Beach, CA	1992	35,172	16,887	59,778	153	73	259
	1993	38,308	18,448	64,866	163	79	276
	1994	34,217	16,529	57,707	144	69	242
	1995	37,321	18,090	62,662	155	75	260
	1996	37,129	18,066	62,036	151	74	253
	1997	37,625	18,388	62,526	149	73	248
	1998	38,317	18,818	63,302	147	72	243
	1999	37,282	18,409	61,201	139	69	228
	2000	39,701	19,717	64,732	144	72	235
	2001	40,338	20,153	65,309	143	71	232
	2002	41,086	20,645	66,039	143	72	229
Louisville, KY–IN	1992	49	12	194	109	27	430
	1993	43	11	171	84	22	335
	1994	60	15	237	107	27	423
	1995	53	13	210	85	21	338
	1996	58	15	228	83	21	326
	1997	62	16	244	79	20	309

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1998	66	16	257	73	18	285
	1999	78	20	306	76	19	296
	2000	71	18	279	61	15	239
	2001	88	22	344	70	17	273
	2002	79	20	309	59	15	231
Memphis, TN–AR–MS	1992	38	12	125	55	17	181
	1993	39	12	127	50	16	164
	1994	39	12	127	44	14	144
	1995	37	11	122	36	11	120
	1996	37	11	120	31	9	102
	1997	37	11	122	28	8	91
	1998	39	12	129	25	8	83
	1999	50	15	163	28	9	93
	2000	47	14	152	24	7	76
	2001	58	17	189	28	8	90
	2002	55	16	178	25	7	81
Miami, FL	1992	5,238	2,309	10,089	75	33	145
	1993	3,823	1,689	7,338	54	24	104
	1994	4,429	1,962	8,468	61	27	117
	1995	3,337	1,482	6,354	44	20	84
	1996	3,160	1,408	5,988	40	18	76
	1997	2,943	1,315	5,548	36	16	69
	1998	2,906	1,304	5,447	35	16	66
	1999	3,396	1,530	6,326	40	18	74
	2000	2,831	1,282	5,239	32	14	59
	2001	3,265	1,485	6,000	36	16	66
	2002	2,817	1,287	5,139	31	14	56
Middlesex–Somerset– Hunterdon, NJ	1992	843	342	1,894	145	59	325
	1993	837	340	1,875	135	55	302
	1994	799	325	1,784	121	49	271
	1995	795	324	1,769	114	46	253
	1996	782	319	1,734	105	43	233
	1997	772	316	1,705	97	40	215
	1998	785	322	1,726	94	38	206
	1999	800	329	1,749	91	37	198
	2000	829	342	1,804	89	37	194
	2001	847	351	1,832	87	36	187
	2002	880	365	1,892	86	36	185
Milwaukee–Waukesha, WI	1992	608	233	1,428	172	66	403
	1993	526	202	1,234	139	53	326
	1994	641	246	1,500	157	60	368
	1995	569	218	1,328	129	50	302
	1996	593	228	1,381	126	48	294
	1997	616	237	1,430	123	47	285
	1998	653	252	1,510	122	47	282
	1999	728	282	1,678	128	50	295
	2000	690	267	1,582	114	44	262

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	2001	788	306	1,800	124	48	284
	2002	735	286	1,670	110	43	251
Minneapolis–St. Paul, MN–WI	1992	276	100	739	97	35	260
	1993	230	84	615	73	27	195
	1994	274	99	732	80	29	213
	1995	230	84	615	60	22	161
	1996	233	85	622	54	20	145
	1997	248	90	660	51	19	137
	1998	263	95	699	49	18	129
	1999	336	122	893	56	20	148
	2000	300	109	794	45	17	120
	2001	396	144	1,049	56	20	149
	2002	349	127	922	47	17	124
Monmouth–Ocean, NJ	1992	376	143	979	137	52	357
	1993	324	123	843	111	42	289
	1994	347	132	900	112	43	292
	1995	320	122	830	97	37	253
	1996	319	121	825	91	35	236
	1997	323	123	833	87	33	224
	1998	339	130	873	86	33	222
	1999	322	123	827	78	30	200
	2000	372	142	952	85	32	218
	2001	327	125	835	70	27	180
	2002	414	159	1,052	84	32	213
Nashville, TN	1992	61	20	185	86	28	262
	1993	59	19	178	71	23	215
	1994	77	25	233	77	25	233
	1995	72	24	218	59	20	179
	1996	80	26	241	54	18	163
	1997	86	28	260	49	16	147
	1998	91	30	274	43	14	128
	1999	109	36	328	43	14	130
	2000	97	32	292	33	11	99
	2001	115	37	345	36	11	107
	2002	105	34	315	31	10	92
Nassau–Suffolk, NY	1992	909	355	2,225	69	27	168
	1993	903	353	2,206	64	25	157
	1994	897	351	2,186	61	24	148
	1995	960	376	2,334	62	24	151
	1996	993	390	2,410	61	24	148
	1997	1,050	413	2,539	61	24	149
	1998	1,115	439	2,688	62	24	150
	1999	929	367	2,230	49	19	118
	2000	1,222	483	2,920	62	24	148
	2001	955	379	2,273	46	18	110
	2002	1,336	530	3,166	62	24	146
New Haven–Meriden, CT	1992	4,887	2,208	9,054	551	249	1,021

TABLE 5   *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1993	4,567	2,069	8,430	493	223	910
	1994	4,768	2,166	8,767	494	224	908
	1995	4,668	2,126	8,545	463	211	848
	1996	4,722	2,157	8,602	445	203	810
	1997	4,790	2,197	8,681	430	197	779
	1998	4,788	2,206	8,627	413	190	744
	1999	4,614	2,135	8,260	381	176	683
	2000	4,698	2,185	8,355	371	173	661
	2001	4,541	2,123	8,017	345	161	609
	2002	4,604	2,163	8,071	335	157	588
New Orleans, LA	1992	240	85	666	63	22	176
	1993	198	70	549	52	18	145
	1994	252	89	698	66	23	182
	1995	209	74	579	54	19	148
	1996	214	76	592	55	19	151
	1997	221	78	610	56	20	154
	1998	228	81	630	57	20	158
	1999	289	103	798	72	26	199
	2000	242	86	668	60	21	165
	2001	307	109	845	74	26	203
	2002	259	92	713	60	21	166
New York, NY	1992	40,762	19,585	69,210	304	146	517
	1993	41,256	19,882	69,788	300	145	508
	1994	38,852	18,782	65,458	276	134	466
	1995	39,547	19,183	66,334	276	134	462
	1996	38,804	18,895	64,770	265	129	442
	1997	38,131	18,649	63,304	254	124	422
	1998	38,016	18,685	62,743	247	122	408
	1999	35,515	17,550	58,243	227	112	372
	2000	38,162	18,968	62,161	239	119	389
	2001	34,699	17,349	56,122	214	107	346
	2002	38,136	19,179	61,237	233	117	374
Newark, NJ	1992	4,137	1,722	8,853	288	120	617
	1993	3,583	1,494	7,643	240	100	511
	1994	3,850	1,608	8,186	249	104	529
	1995	3,406	1,425	7,216	212	89	450
	1996	3,353	1,406	7,075	201	84	424
	1997	3,309	1,391	6,949	191	80	400
	1998	3,318	1,399	6,932	184	78	384
	1999	3,351	1,418	6,962	180	76	374
	2000	3,359	1,427	6,937	175	74	361
	2001	3,231	1,378	6,632	162	69	332
	2002	3,452	1,477	7,041	167	71	340
Norfolk–Virginia Beach– Newport News, VA–NC	1992	116	41	324	49	17	137
	1993	116	41	324	47	17	132
	1994	138	48	385	55	19	154
	1995	130	46	363	50	18	139

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1996	138	48	385	50	17	140
	1997	146	51	408	51	18	142
	1998	151	53	420	51	18	141
	1999	183	64	509	59	20	163
	2000	165	58	459	50	17	138
	2001	195	69	543	56	20	157
	2002	179	63	498	49	17	136
Oakland, CA	1992	3,542	1,444	7,904	173	71	387
	1993	4,088	1,669	9,094	192	78	427
	1994	3,468	1,418	7,693	157	64	348
	1995	3,995	1,637	8,833	174	71	385
	1996	4,004	1,643	8,819	167	69	368
	1997	4,099	1,686	8,990	162	67	356
	1998	4,160	1,716	9,081	156	64	341
	1999	3,931	1,627	8,538	141	58	305
	2000	4,152	1,724	8,968	142	59	306
	2001	4,042	1,683	8,680	132	55	283
	2002	4,006	1,673	8,553	127	53	271
Oklahoma City, OK	1992	131	47	358	53	19	145
	1993	144	52	394	54	19	148
	1994	127	46	348	44	16	121
	1995	134	48	365	43	15	117
	1996	128	46	350	38	14	103
	1997	126	45	343	34	12	93
	1998	127	46	346	31	11	86
	1999	131	47	356	29	11	80
	2000	136	49	369	29	10	78
	2001	143	51	388	28	10	77
	2002	147	53	398	27	10	74
Omaha, NE–IA	1992	82	29	221	65	23	175
	1993	88	32	237	63	23	171
	1994	88	31	235	57	20	153
	1995	91	32	243	53	19	142
	1996	93	33	248	49	17	131
	1997	92	33	247	45	16	120
	1998	97	35	260	43	16	116
	1999	113	41	302	47	17	124
	2000	116	42	308	45	16	118
	2001	134	48	356	48	17	128
	2002	137	49	364	47	17	124
Orange County, CA	1992	8,395	4,004	14,394	202	96	347
	1993	9,012	4,311	15,395	209	100	357
	1994	7,641	3,666	13,000	171	82	290
	1995	8,176	3,936	13,848	176	85	299
	1996	7,962	3,848	13,421	166	80	279
	1997	8,012	3,889	13,432	159	77	266
	1998	8,130	3,965	13,549	153	75	256

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval Lower limit	95 % confidence interval Upper limit	Rate	95 % confidence interval Lower limit	95 % confidence interval Upper limit
	1999	7,357	3,607	12,183	134	66	222
	2000	7,969	3,930	13,108	140	69	230
	2001	6,797	3,371	11,100	116	58	189
	2002	7,726	3,854	12,527	129	64	209
Orlando, FL	1992	1,631	708	3,225	191	83	379
	1993	1,515	659	2,986	161	70	317
	1994	1,865	813	3,661	180	79	354
	1995	1,704	744	3,331	149	65	292
	1996	1,828	801	3,558	144	63	281
	1997	1,978	870	3,831	141	62	273
	1998	2,136	942	4,113	139	61	267
	1999	2,747	1,217	5,257	162	72	310
	2000	2,565	1,141	4,877	137	61	261
	2001	3,220	1,439	6,081	159	71	301
	2002	3,058	1,373	5,735	141	63	264
Philadelphia, PA–NJ	1992	5,583	2,220	13,153	453	180	1,066
	1993	5,432	2,162	12,766	423	168	995
	1994	6,094	2,429	14,284	457	182	1,070
	1995	5,818	2,322	13,600	419	167	979
	1996	5,973	2,387	13,916	411	164	958
	1997	6,098	2,442	14,157	403	161	935
	1998	6,332	2,542	14,641	402	161	929
	1999	7,353	2,958	16,924	451	181	1,038
	2000	7,046	2,843	16,141	417	168	954
	2001	8,447	3,417	19,253	482	195	1,098
	2002	8,091	3,280	18,352	444	180	1,008
Phoenix–Mesa, AZ	1992	3,387	1,415	7,153	122	51	257
	1993	3,398	1,423	7,155	112	47	236
	1994	3,640	1,527	7,638	109	46	230
	1995	3,668	1,542	7,667	101	42	211
	1996	3,769	1,588	7,846	95	40	199
	1997	3,928	1,660	8,139	92	39	190
	1998	4,266	1,808	8,793	93	39	191
	1999	5,023	2,136	10,295	102	43	209
	2000	5,100	2,177	10,390	97	41	197
	2001	6,270	2,687	12,693	112	48	226
	2002	6,256	2,690	12,583	105	45	211
Pittsburgh, PA	1992	101	35	288	110	38	313
	1993	94	32	268	100	34	285
	1994	110	38	315	114	40	328
	1995	102	35	291	104	36	297
	1996	106	37	304	105	37	300
	1997	110	38	313	106	37	303
	1998	116	40	332	110	38	314
	1999	138	48	395	128	44	365
	2000	133	46	378	117	40	331
	2001	153	53	435	126	44	357

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	2002	154	54	440	119	42	340
Portland–Vancouver, OR–WA	1992	784	295	2,100	189	71	506
	1993	875	330	2,342	188	71	504
	1994	786	297	2,101	152	57	405
	1995	913	345	2,438	157	59	418
	1996	942	356	2,511	146	55	388
	1997	978	370	2,602	135	51	360
	1998	1,026	388	2,726	129	49	343
	1999	929	352	2,461	106	40	281
	2000	1,111	422	2,938	117	45	310
	2001	1,054	400	2,779	104	39	273
	2002	1,222	464	3,215	113	43	298
Providence–Fall River– Warwick, RI–MA	1992	449	175	1,102	134	52	330
	1993	529	207	1,297	148	58	363
	1994	428	167	1,047	112	44	275
	1995	597	234	1,458	147	57	358
	1996	634	248	1,544	146	57	355
	1997	674	264	1,636	145	57	351
	1998	720	283	1,742	145	57	350
	1999	418	165	1,007	79	31	189
	2000	772	304	1,851	136	54	326
	2001	453	179	1,083	75	30	180
	2002	848	336	2,018	133	53	317
Raleigh–Durham–Chapel Hill, NC	1992	69	24	201	60	21	174
	1993	57	20	166	41	14	120
	1994	70	24	201	41	14	117
	1995	59	20	170	28	10	81
	1996	60	20	172	23	8	66
	1997	60	21	174	19	7	54
	1998	61	21	176	16	5	45
	1999	71	24	205	15	5	44
	2000	60	20	172	11	4	31
	2001	71	24	206	12	4	35
	2002	59	20	169	9	3	27
Richmond–Petersburg, VA	1992	86	28	260	114	37	345
	1993	73	24	221	89	29	268
	1994	89	29	267	98	32	295
	1995	76	25	230	77	25	232
	1996	78	26	235	71	24	214
	1997	81	26	243	67	21	200
	1998	83	27	249	61	20	184
	1999	93	31	280	62	21	187
	2000	86	28	259	51	17	154
	2001	95	31	285	52	17	155
	2002	90	29	269	45	14	134
Riverside–San Bernardino, CA	1992	10,684	5,099	18,297	213	102	365
	1993	11,645	5,575	19,869	221	106	376

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1994	9,310	4,470	15,821	168	81	285
	1995	10,404	5,013	17,603	179	86	302
	1996	10,103	4,886	17,010	166	80	279
	1997	10,266	4,986	17,190	160	78	267
	1998	10,271	5,013	17,098	151	74	251
	1999	9,366	4,596	15,492	130	64	214
	2000	9,582	4,729	15,742	125	62	206
	2001	8,768	4,352	14,303	108	54	176
	2002	8,407	4,197	13,615	97	49	158
Rochester, NY	1992	1,165	494	2,396	524	222	1,077
	1993	1,061	451	2,175	456	194	934
	1994	1,196	510	2,443	494	211	1,008
	1995	1,102	470	2,241	439	187	894
	1996	1,105	473	2,237	424	182	859
	1997	1,110	476	2,236	411	176	828
	1998	1,133	488	2,272	405	175	813
	1999	1,240	536	2,472	431	186	860
	2000	1,270	551	2,515	422	183	836
	2001	1,430	624	2,814	467	204	918
	2002	1,494	654	2,920	476	208	930
Sacramento, CA	1992	2,625	1,066	5,896	243	99	547
	1993	2,792	1,136	6,254	249	101	559
	1994	2,479	1,010	5,536	214	87	478
	1995	2,688	1,097	5,984	224	92	499
	1996	2,710	1,108	6,010	217	89	482
	1997	2,802	1,148	6,189	215	88	476
	1998	2,862	1,176	6,291	210	86	462
	1999	2,741	1,129	5,995	193	79	421
	2000	2,764	1,143	6,012	185	77	403
	2001	2,709	1,124	5,860	169	70	366
	2002	2,603	1,082	5,599	152	63	327
St. Louis, MO–IL	1992	102	35	294	56	19	161
	1993	82	28	236	43	15	124
	1994	96	33	276	48	17	139
	1995	78	27	226	38	13	109
	1996	77	26	221	36	12	102
	1997	76	26	220	33	11	96
	1998	78	27	226	33	11	95
	1999	92	32	266	37	13	106
	2000	82	28	237	31	11	90
	2001	100	34	287	36	12	102
	2002	89	31	257	30	10	86
Salt Lake City–Ogden, UT	1992	470	183	1,149	103	40	252
	1993	681	266	1,661	135	53	330
	1994	608	238	1,482	109	43	267
	1995	896	351	2,178	147	58	358
	1996	1,010	396	2,447	149	58	361

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1997	1,105	434	2,670	146	57	353
	1998	1,129	444	2,718	137	54	329
	1999	1,018	402	2,441	115	45	275
	2000	1,168	462	2,788	125	49	297
	2001	1,189	471	2,827	120	48	285
	2002	1,193	474	2,825	115	46	272
San Antonio, TX	1992	12,889	7,401	17,937	306	175	425
	1993	11,253	6,485	15,611	259	149	359
	1994	11,822	6,839	16,344	263	152	364
	1995	10,370	6,025	14,282	223	130	308
	1996	9,892	5,774	13,568	207	121	284
	1997	9,460	5,551	12,917	193	113	263
	1998	9,488	5,599	12,893	188	111	256
	1999	9,758	5,795	13,191	189	112	255
	2000	9,213	5,508	12,386	173	103	232
	2001	9,506	5,722	12,706	174	105	232
	2002	9,079	5,503	12,065	161	98	214
San Diego, CA	1992	6,729	3,000	12,749	185	82	350
	1993	7,761	3,469	14,653	207	92	390
	1994	7,085	3,175	13,324	183	82	344
	1995	7,805	3,507	14,617	196	88	367
	1996	7,879	3,551	14,685	191	86	357
	1997	8,099	3,663	15,015	189	85	350
	1998	8,152	3,702	15,025	182	83	335
	1999	8,224	3,752	15,063	176	80	322
	2000	8,258	3,786	15,024	170	78	309
	2001	8,279	3,814	14,958	165	76	298
	2002	8,226	3,808	14,756	158	73	284
San Francisco, CA	1992	3,491	1,393	8,158	207	82	483
	1993	3,874	1,548	9,030	224	89	522
	1994	3,499	1,400	8,133	198	79	460
	1995	3,943	1,579	9,140	219	88	507
	1996	4,002	1,606	9,246	216	87	500
	1997	4,112	1,653	9,464	215	86	495
	1998	4,163	1,677	9,543	211	85	485
	1999	3,910	1,580	8,921	195	79	444
	2000	4,210	1,706	9,559	205	83	465
	2001	4,106	1,668	9,276	199	81	450
	2002	4,100	1,669	9,215	200	81	448
San Jose, CA	1992	4,557	2,047	8,513	207	93	387
	1993	3,977	1,791	7,402	176	79	328
	1994	3,968	1,792	7,358	172	78	319
	1995	3,413	1,546	6,301	144	65	267
	1996	3,153	1,433	5,793	129	59	238
	1997	2,966	1,352	5,420	118	54	215
	1998	2,822	1,292	5,128	109	50	198
	1999	2,973	1,368	5,368	112	52	203

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	2000	2,539	1,174	4,554	94	43	168
	2001	2,586	1,202	4,605	96	44	170
	2002	2,145	1,002	3,793	80	37	141
San Juan-Bayamon, PR (note: Data are from Brady et al.[8] Confidence intervals are not available; however, lower and upper values for the range of estimates for population prev alence rates are presented in lower and upper limit columns)	1992	17,484			146	118	187
	1993	15,106			125	68	180
	1994	17,194			141	120	173
	1995	15,626			127	94	166
	1996	16,013			129	107	160
	1997	16,405			131	120	154
	1998	16,548			131	120	148
	1999	16,182			127	114	142
	2000	15,935			124	108	131
	2001	15,034			116	102	131
	2002	15,031			115	95	128
Sarasota–Bradenton, FL	1992	111	40	292	93	33	244
	1993	105	38	278	80	29	211
	1994	129	47	341	90	33	237
	1995	123	45	325	77	28	204
	1996	133	48	350	76	27	199
	1997	144	52	380	75	27	197
	1998	157	57	413	74	27	195
	1999	200	72	523	86	31	224
	2000	190	69	498	74	27	193
	2001	242	88	631	86	31	224
	2002	229	83	595	75	27	196
Scranton–Wilkes-Barre–Hazleton, PA	1992	23	8	67	84	29	244
	1993	24	8	68	82	27	231
	1994	24	8	68	78	26	220
	1995	25	9	73	75	27	219
	1996	27	9	77	75	25	213
	1997	28	10	80	72	26	206
	1998	29	10	82	70	24	197
	1999	25	9	71	56	20	159
	2000	32	11	91	65	22	185
	2001	28	10	81	52	19	150
	2002	36	13	104	61	22	176
Seattle–Bellevue–Everett, WA	1992	825	310	2,219	181	68	487
	1993	1,079	406	2,897	218	82	585
	1994	947	356	2,540	177	67	476
	1995	1,137	428	3,046	196	74	525
	1996	1,161	437	3,105	183	69	491
	1997	1,185	447	3,166	169	64	453
	1998	1,212	457	3,232	159	60	425
	1999	1,134	428	3,017	139	52	369
	2000	1,234	467	3,275	141	53	375
	2001	1,162	440	3,076	125	47	330
	2002	1,267	480	3,350	130	49	344

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
Springfield, MA	1992	2,124	1,033	3,542	661	321	1,102
	1993	2,347	1,145	3,900	700	341	1,163
	1994	2,294	1,123	3,796	658	322	1,089
	1995	2,676	1,315	4,409	735	361	1,212
	1996	2,863	1,412	4,695	753	371	1,235
	1997	3,075	1,524	5,015	771	382	1,257
	1998	3,293	1,640	5,339	786	392	1,275
	1999	2,833	1,419	4,565	646	324	1,041
	2000	3,607	1,817	5,773	787	396	1,260
	2001	3,127	1,585	4,970	659	334	1,048
	2002	4,001	2,040	6,312	809	413	1,277
Stockton–Lodi, CA	1992	1,771	771	3,489	227	99	448
	1993	1,757	766	3,449	217	95	426
	1994	1,830	800	3,578	218	95	426
	1995	1,975	865	3,847	227	100	443
	1996	2,093	920	4,058	232	102	450
	1997	2,250	992	4,339	239	105	461
	1998	2,378	1,052	4,561	242	107	465
	1999	2,449	1,088	4,667	238	106	453
	2000	2,679	1,196	5,073	247	110	467
	2001	2,998	1,344	5,639	257	115	483
	2002	3,117	1,403	5,821	250	113	468
Syracuse, NY	1992	335	128	785	463	177	1,085
	1993	280	108	657	371	143	870
	1994	314	121	734	406	156	948
	1995	269	103	627	339	130	789
	1996	261	101	607	314	121	729
	1997	259	100	601	303	117	704
	1998	253	98	584	287	111	662
	1999	276	107	634	305	118	700
	2000	259	100	593	274	106	626
	2001	286	111	651	289	112	657
	2002	271	106	615	264	103	599
Tacoma, WA	1992	292	111	768	194	74	509
	1993	404	153	1,059	252	95	660
	1994	314	119	823	184	70	481
	1995	406	151	1,031	223	83	566
	1996	407	152	1,032	210	78	532
	1997	412	154	1,043	199	75	505
	1998	428	160	1,081	194	73	490
	1999	424	158	1,068	181	67	455
	2000	460	172	1,157	186	70	469
	2001	483	181	1,210	184	69	460
	2002	499	187	1,248	179	67	447
Tampa–St. Petersburg– Clearwater, FL	1992	1,073	412	2,726	105	40	268
	1993	878	338	2,227	81	31	206
	1994	1,100	423	2,786	97	37	245

TABLE 5   *Continued*

Metropolitan area	Year	Number	95 % confidence interval Lower limit	95 % confidence interval Upper limit	Rate	95 % confidence interval Lower limit	95 % confidence interval Upper limit
	1995	934	360	2,361	77	30	195
	1996	967	373	2,438	75	29	189
	1997	1,031	398	2,592	75	29	189
	1998	1,099	425	2,757	76	29	190
	1999	1,377	533	3,441	89	34	222
	2000	1,236	479	3,078	75	29	186
	2001	1,528	594	3,792	87	34	215
	2002	1,383	538	3,421	73	29	181
Toledo, OH	1992	170	63	429	131	48	329
	1993	148	55	373	110	41	277
	1994	177	66	446	128	48	323
	1995	153	57	385	107	40	270
	1996	156	58	392	106	39	266
	1997	163	60	407	108	40	269
	1998	178	66	445	114	42	286
	1999	210	78	521	132	49	327
	2000	209	78	517	127	47	313
	2001	254	95	627	150	56	370
	2002	252	94	620	144	54	355
Tucson, AZ	1992	2,940	1,327	5,444	260	117	482
	1993	3,072	1,391	5,668	258	117	476
	1994	3,315	1,504	6,092	262	119	482
	1995	3,463	1,576	6,337	261	119	478
	1996	3,625	1,656	6,602	263	120	479
	1997	3,818	1,750	6,915	267	122	483
	1998	3,936	1,812	7,088	266	123	480
	1999	4,127	1,909	7,385	270	125	484
	2000	4,207	1,955	7,477	264	123	470
	2001	4,398	2,055	7,762	266	124	470
	2002	4,432	2,081	7,766	257	121	451
Tulsa, OK	1992	66	23	182	58	20	161
	1993	64	23	178	52	19	144
	1994	74	26	204	55	19	150
	1995	74	26	204	50	18	137
	1996	79	28	218	48	17	132
	1997	85	30	236	46	16	127
	1998	88	31	243	42	15	116
	1999	96	34	266	41	14	113
	2000	91	32	251	35	12	98
	2001	103	37	283	37	13	101
	2002	93	33	257	31	11	85
Ventura, CA	1992	2,548	1,371	3,778	208	112	308
	1993	2,909	1,571	4,298	229	124	339
	1994	2,331	1,264	3,431	177	96	261
	1995	2,753	1,499	4,036	203	111	298
	1996	2,678	1,464	3,908	192	105	280
	1997	2,710	1,489	3,936	187	103	271

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	1998	2,816	1,556	4,068	187	103	269
	1999	2,340	1,301	3,360	149	83	214
	2000	3,009	1,684	4,295	184	103	263
	2001	2,608	1,470	3,700	155	87	220
	2002	3,244	1,840	4,571	186	106	263
Washington, DC–MD–VA–WV	1992	472	171	1,274	25	9	68
	1993	412	150	1,114	21	7	56
	1994	496	180	1,340	23	8	63
	1995	464	168	1,252	21	7	56
	1996	491	178	1,326	20	7	55
	1997	514	186	1,387	20	7	54
	1998	540	196	1,455	20	7	53
	1999	570	207	1,535	20	7	53
	2000	569	207	1,530	18	7	49
	2001	604	220	1,623	18	7	49
	2002	602	219	1,615	17	6	47
West Palm Beach–Boca Raton, FL	1992	670	257	1,697	125	48	316
	1993	531	204	1,342	91	35	230
	1994	665	256	1,679	106	41	267
	1995	540	208	1,359	79	31	200
	1996	545	206	1,329	74	28	181
	1997	569	216	1,386	72	27	175
	1998	583	221	1,416	69	26	167
	1999	699	266	1,692	77	29	186
	2000	615	238	1,524	63	24	156
	2001	708	275	1,749	67	26	167
	2002	650	248	1,558	58	22	138
Wichita, KS	1992	53	19	143	38	14	104
	1993	58	21	158	39	14	107
	1994	58	21	156	37	13	98
	1995	64	23	171	37	13	100
	1996	68	24	183	37	13	99
	1997	71	26	192	36	13	96
	1998	78	28	209	36	13	96
	1999	76	27	202	33	12	87
	2000	88	32	236	35	13	94
	2001	86	31	230	33	12	88
	2002	102	37	272	37	14	99
Wilmington–Newark, DE–MD	1992	299	111	757	316	117	799
	1993	238	89	604	233	87	591
	1994	333	124	842	298	111	753
	1995	298	111	754	243	91	615
	1996	332	124	839	249	93	628
	1997	368	137	928	253	94	639
	1998	397	148	999	255	95	641
	1999	434	162	1,089	256	96	643
	2000	436	163	1,091	239	89	597

TABLE 5 *Continued*

Metropolitan area	Year	Number	95 % confidence interval		Rate	95 % confidence interval	
			Lower limit	Upper limit		Lower limit	Upper limit
	2001	454	170	1,131	236	88	589
	2002	473	177	1,176	233	87	579
Youngstown–Warren, OH	1992	35	12	99	70	24	199
	1993	38	13	107	74	25	208
	1994	46	16	128	87	30	241
	1995	47	16	130	86	29	237
	1996	51	18	143	89	31	250
	1997	56	19	156	95	32	264
	1998	62	21	173	101	34	281
	1999	81	28	224	127	44	351
	2000	76	26	210	111	38	308
	2001	99	34	273	141	48	389
	2002	90	31	249	127	44	350

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