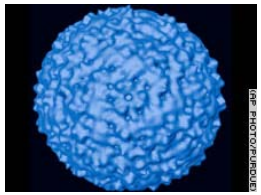
Maricopa County Department of Public Health
Division of Epidemiology/BDPR
1010 E. McDowell, Ste 300
Phoenix, AZ 85006

Maricopa County Department of Public Health

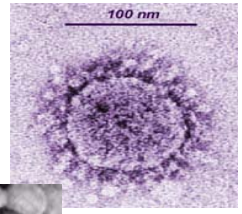
Quarterly Epidemiologic Report

November—December 2003

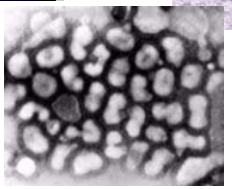
"Look who's coming for winter"



West Nile Virus



SARS



Influenza

Inside this issue:

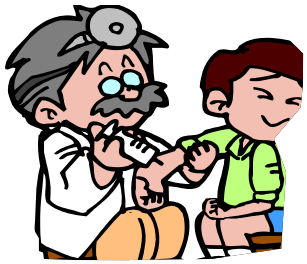
- Updates on: Influenza, West Nile Virus and SARS
- HIV/AIDS Epidemiological Profile for Maricopa and Pinal Counties—Highlights
- GIS and Epidemiology

Cover images: WNV 3-D, high-resolution image - Purdue University; Influenza image courtesy of CDC; and SARS image courtesy of University of Leicester

Influenza Update

Influenza Surveillance 2003-2004

Background



The Maricopa County Department of Public Health (MCDPH) Division of Epidemiology/BDPR began its annual influenza surveillance for the 2003-2004 season in October. Currently, a total of 52 sites (10 hospital emergency departments, 20 Cigna health care centers, 6 long term care centers, 15 schools and the ASU Student Health and Wellness Center) have been recruited to report, on a weekly basis, the number of patients with influenza-like illness (ILI). The Cigna health care centers and the ASU Student Health and Wellness Center are participants in the Centers for Disease Control and Prevention's (CDC) Sentinel Surveillance Program.

There are two case definitions being used this year. For the health care centers and ASU the case definition is fever plus either cough or sore throat. For the hospitals, long term care centers and schools the case definition is fever of 102° or higher, plus two of the following: headache, chills, myalgia, cough, coryza, or sore throat.

For more information on influenza surveillance in the United States conducted by CDC, go to: http://www.cdc.gov/flu/weekly/fluactivity.htm. *(continued on page 5)*

The Maricopa County Flu Report is on the web:
http://www.maricopa.gov/public_health/epi/flu.asp

MCDPH Division of Epidemiology/BDPR
Contact Numbers (all 602 area code)

Anis Ahmed	Epidemiologist	372-2615
Vjollca Berisha	Senior Epidemiologist	372-2611
John Carlson	Epidemiologist	372-2641
Marcos Coria	MCH Data Analyst	372-2632
Alisa Diggs-Gooding	Epidemiologist	372-2612
Andrew Edmonds	Surveillance Data Analyst	372-2619
Abrium Escárzaga	BT Epidemiologist	372-2643
Joesette Frausto	Executive Assistant	372-2605
Natalie Fuller	Surveillance Data Analyst	372-2613
Jeanette Gibbon	Epidemiologist	372-2642
Ron Klein	Disease Surveillance Sup	506-6722
Chris Mahon	Program Admin, CHN	506-6771
Karen Moffitt	Senior Epidemiologist	372-2636
Liva Nohre	Senior Epidemiologist	372-2631
Lawrence Sands	Director, BDPR	372-2650
Sarah Santana	Director, Epidemiology	372-2601
Mare Schumacher	Deputy Director, Epi	372-2602
Jennifer Stewart	Epidemiologist	372-2617
Heather Wanatowicz/ Kristin Cass	Administrative Supervisor	372-2604
Gary West	Statistical Programmer	372-2603

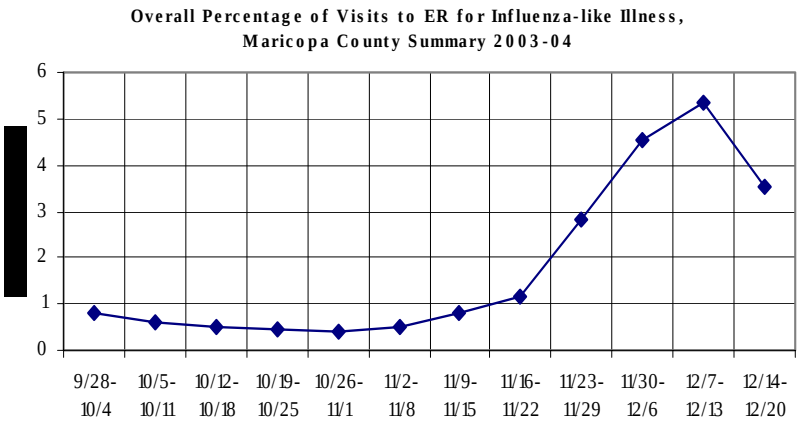
To report communicable diseases, unusual health occurrences, and public health emergencies (all 602 area codes unless otherwise noted)

	Business hours M-F 8a-5p	After 5p
Bite reports	506-7387	506-2752
Communicable diseases	506-6868 or 506-6767	480-303-1100
Death/birth certificates, funeral homes, human remains	506-6805	450-9982 or 420-2839
HIV (reports)	506-6426 or 506-6871	Next business day
Public health emergencies	480-303-1100	480-303-1100
Rabies exposure	506-7387	253-3334
STDs (other than HIV)	506-6364 or 506-6147	Next business day
TB	372-6661	480-303-1100

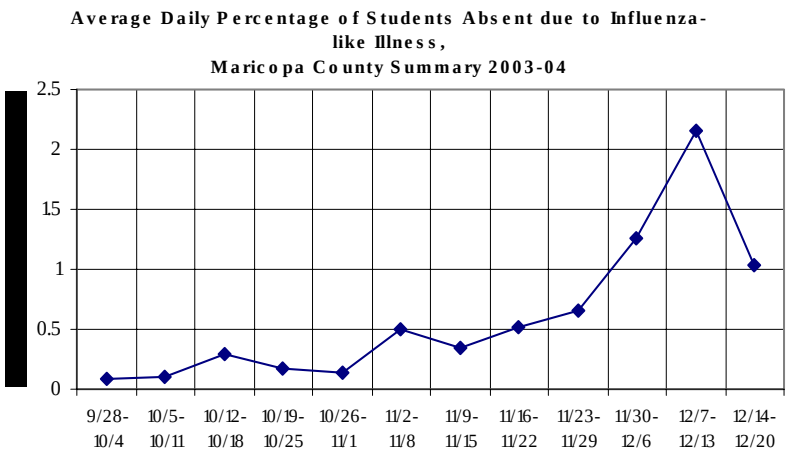
For change of name or address or to be removed or added to this mailing list, please e-mail Jeanette Gibbon at: jeanettegibbon@mail.maricopa.gov or call (602) 372-2642.

Influenza Report (cont.)

The graph below shows the overall percent of visits to hospitals for influenza-like illness for Maricopa County for the 2003-2004 season.



The graph below shows the average daily percent of students absent due to influenza-like illness for Maricopa County for the 2003-2004 season.



HIV/AIDS Epidemiological Profile-Highlights

Purpose

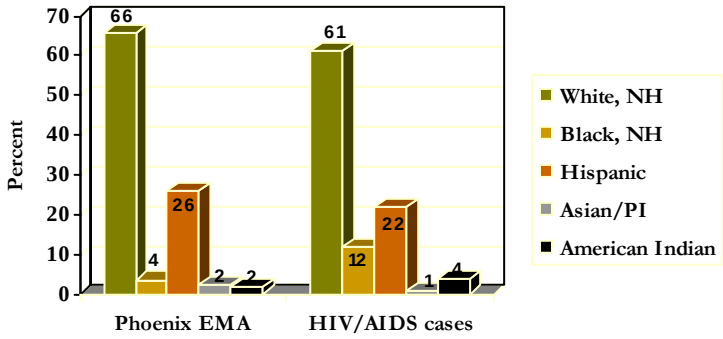
The purpose of this epidemiological profile was to provide a scientifically based, detailed description of the current HIV/AIDS epidemic in the Phoenix EMA (Maricopa and Pinal Counties).

General Demographics of the Phoenix EMA

The population of the Phoenix EMA is 3,251,876. It is predominantly white, non-Hispanic (66%), followed by Hispanic (26%), black, non-Hispanic (4%), American Indian (2%) and Asian (2%). The Phoenix EMA is approx 50% male and 50% female. The distribution of males and females by race/ethnicity shows blacks (52%) and Hispanics (53%) have higher proportions of males while whites (51%), Asians (52%) and American Indians (52%) have higher proportions of females.

Demographics and Risk Exposure Among Persons Reported with HIV/AIDS

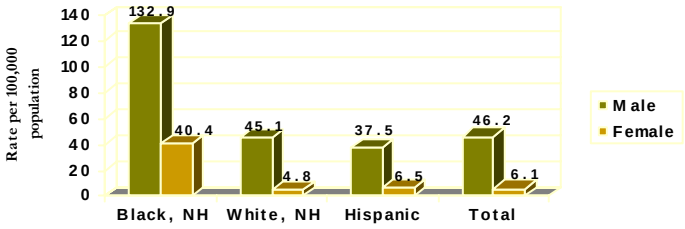
Of persons reported with HIV/AIDS in the Phoenix EMA, 88% were male. Comparing the race/ethnicity of the general population of the EMA to the proportion of those reported with HIV/AIDS cases, whites are slightly underrepresented with 66% in the general population and 61% with reported HIV/AIDS cases; Hispanics are also slightly under-represented with 26% in the general pop and 22% with reported HIV/AIDS cases; blacks are over-represented with only 4% in the general population, but 12% with reported HIV/AIDS cases. See figure below. *(continued on page 4)*



HIV/AIDS Epidemiological Profile (cont.)

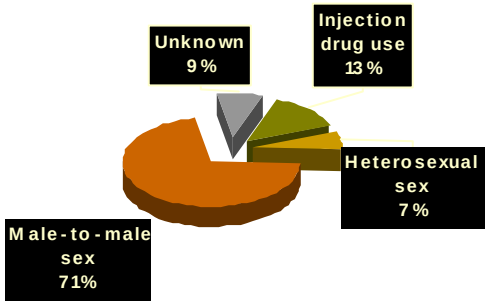
HIV/AIDS Rates by Race/Ethnicity and Sex

Blacks (both men and women) have higher reported rates of HIV/AIDS. In fact, the rate of HIV/AIDS reports in black males is almost 3 times that of white males and for black females the rate is over 8 times that of white females (see figure below).



Distribution of Persons Reported with HIV/AIDS by Exposure Category

Male-to-male sexual activity continues to be the exposure category with the largest numbers and proportions of reports, although injection drug use is increasing (see figure below). The majority of persons reported with HIV/AIDS in the EMA were 25-44 years old (70%), followed by 45-64 year old (22%) and 13-24 year old. (7%). *(continued on page 10)*



Is it the Flu or a Cold?

Is it the Flu or a Cold?

Colds and flu are both highly contagious and, in the initial stages, a bad cold and a mild case of flu might seem alike. However, flu is a serious illness that can have life-threatening complications, unlike colds. The table* below provides a comparison of the symptoms for each illness. ☯

Symptoms	Cold	Flu
Fever	Rare in adults and older children, but can be as high as 102°F in infants and small children	Usually 102°F, but can go up to 104°F (usually lasts 3-4 days)
Headache	Rare	Sudden onset; can be severe
Muscle aches	Mild	Usual, often severe
Tiredness and weakness	Mild	Often extreme, can last 2 or more weeks
Extreme exhaustion	Never	Sudden onset; can be severe
Runny nose	Often	Sometimes
Sneezing	Often	Sometimes
Sore throat	Often	Sometimes
Cough	Mild hacking cough	Usual; can become severe

**From Centers for Disease Control and Prevention (CDC) website: www.cdc.gov/flu/about/coldflu.htm*

Bioterrorism Preparedness Alert: Due to the orange alert instituted in December, the Maricopa County Dept. of Public Health will be conducting enhanced surveillance for disease events. This surveillance will last until the alert is over. Report unusual disease occurrences, all cases and suspect cases to the health department immediately. MCDPH week days (602) 506-6767, after hours (480) 303-1100 or ADHS hotline 1 (800) 496-9660. Email a daily status report to surv@mail.maricopa.gov.

West Nile Virus Summary

Enhanced surveillance for West Nile Virus (WNV) has ended for the 2003 mosquito season. This includes mosquito pool testing, dead bird collection, and sentinel chicken flock surveillance. The table below shows the final numbers (as of Dec. 18, 2003) for WNV activity in Arizona and Maricopa County for 2003.

WNV was found in 12 of Arizona's 15 counties. WNV is now established in Arizona and is anticipated to pose a health risk to humans and horses in the future. For the latest information on WNV call the ADHS 24-hr hotline (1-800-314-9243). ☯

	Arizona	Maricopa County
Dead birds (Chandler, Mesa, Tempe, Phx Zoo Wickenburg, Litchfield Park)	54	26
Mosquito pools (Tempe, Ahwatukee, SW Phx, Chandler, Gilbert, Peoria)	98	26
Chicken flocks (N Phx, Gilbert, Mesa, Peoria)	26	8
Human (5 Maricopa County, out of state exposures, 2 Maricopa County, out of county exposures)	13	7
Equine	130	24

SAVE THE DATE!

What: 18th National Conference on Chronic Disease Prevention and Control

When: February 18 - 20, 2004

Where: Marriott Wardman Park Hotel, Washington, DC

Theme: *Investing in Health: The Dollars and Sense of Prevention*

Registration: www.18thchronicconference.org

Influenza Update (cont.)

MCDPH produces a weekly influenza report throughout the influenza season, October 1st through March 31st. This report is made available on the MCDPH website: http://www.maricopa.gov/public_health/epi/flu.asp on a weekly basis.

Influenza Activity Report Summary

Week ending December 20, 2003 (week 51)

Symptoms may include: headache, fever, body aches, chills, tiredness, nasal congestion, cough and sore throat.

Laboratory surveillance: During week 51, 219 unsubtyped influenza type A viruses and 3 influenza type B viruses were identified. Isolates were confirmed at 14 area locations (for a complete list see full report on the website).

Pneumonia and Influenza (P&I) Mortality Surveillance: P&I data for week 51 is currently unavailable.

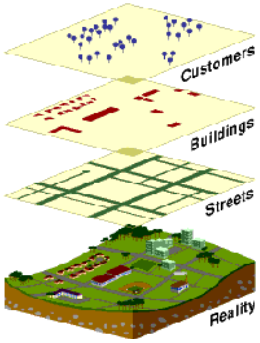
Influenza-like Illness Surveillance: During week 51, 1.99% of patient visits to ASU Student Health and Wellness Center were due to ILI. Data for Cigna Health Care Centers was not yet available. The overall percent of emergency room visits for ILI was 3.51%. The average daily percent of students absent due to ILI was 1.04% and the average daily percent of students absent due to illness was 4.43%. Due to differences in case definitions, as well as wide variability between national and local-level data, it is not appropriate to apply any national baselines or thresholds to the information represented in this report.

See page 14 for a graph of the overall percent of visits to emergency rooms for ILI and the average daily percent of students

Highlights from the 1998-2002 Health Status Report will be available for the next QER.

GIS and Epidemiology

Background



GIS stands for Geographic Information System. It is an "organized collection of computer hardware, software, geographic data and personnel designed to efficiently capture, store, update, manipulate, analyze and display all forms of geographically referenced information." [ESRI Inc. 1999] Simply put, it is a system of combining layers of information about a place. Depending on the type and amount of information, one can learn a great deal about a place and use this compilation of data for a variety of purposes. For example, a business can identify the best location for a new store, law enforcement can detect patterns in crime, and planners can find the best route for a new road.

How can Epidemiologists use GIS Software?

Just as businesses and law enforcement benefit from GIS, epidemiologists can use GIS with its own data. For example, during 2003 Maricopa County reported over 1,100 cases of aseptic meningitis. Using data from the communicable disease report database, the addresses of patients affected with aseptic meningitis were geocoded* and mapped across the valley using GIS software. Next, population data by zip code was used from the US Census 2000. These two layers were joined by summing all aseptic meningitis cases within a zip code which was then turned into rates with the population for each zip code. According to this map there was a larger concentration of cases in the central to northwest central part of the valley. This map may help determine if further analysis is needed and if there is some underlying cause for the pattern. See map on page 7.

(continued on page 7)

The Return of Severe acute respiratory syndrome (SARS)

Severe acute respiratory syndrome (SARS) is a viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV). SARS was first reported in Asia in February 2003. The illness spread to over two dozen countries worldwide over the ensuing months. A total of 8,422 people worldwide became sick with SARS, 916 died. In the U.S., there were 192 cases, all recovered. Although the SARS global outbreak was contained; health officials are preparing for a re-emergence of the illness. At the time of this publication, there were no reported cases of SARS in Maricopa County for the 2003-2004 season.

For more information on SARS go to:
http://www.cdc.gov/ncidod/sars/

Updated interim U.S. case definition for SARS (12/12/03)

Clinical criteria

Early illness

- Presence of 2 or more of the following: fever (might be subjective), chills, rigors, myalgia, headache, diarrhea, sore throat, or rhinorrhea

Mild-to-moderate respiratory illness

- Temperature of >100.4°F (>38°C) **And**
- One or more clinical findings of lower respiratory illness (e.g., cough, shortness of breath, or difficulty breathing)

Severe respiratory illness

- Meets clinical criteria of mild-to-moderate illness And
- One or more of the following:
  - Radiographic evidence of pneumonia, **or**
  - Acute respiratory distress syndrome, **or**
  - Autopsy findings consistent with pneumonia or acute respiratory distress syndrome without an identifiable cause

Epidemiologic Criteria

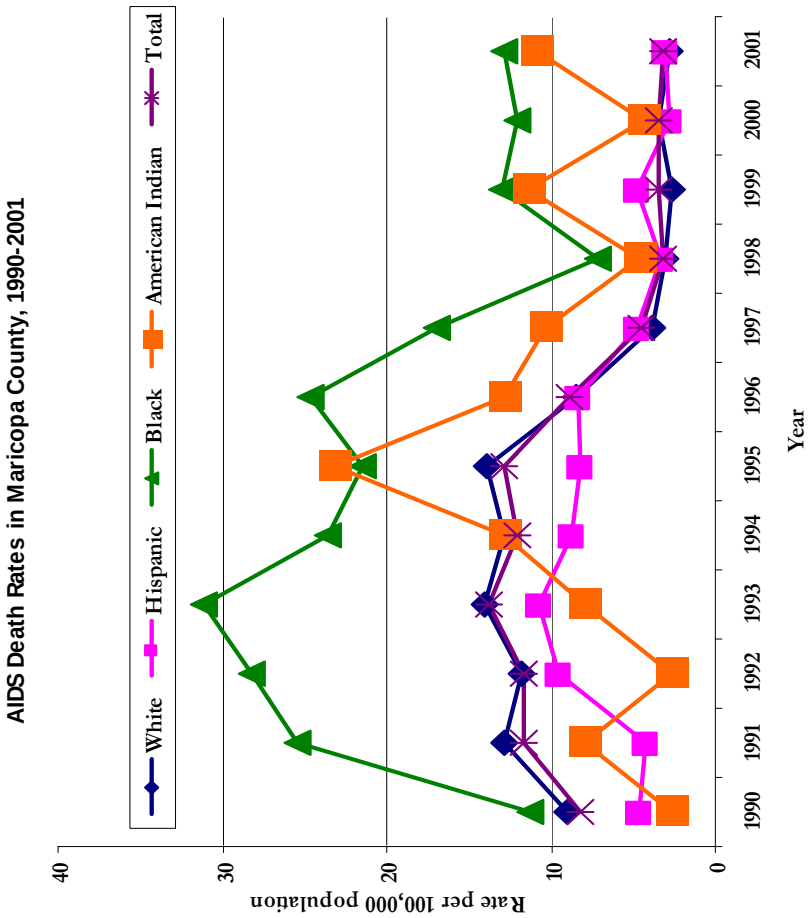
Possible exposure to SARS-associated coronavirus (SARS-CoV)

- Travel to a foreign or domestic location with documented or suspected recent transmission of SARS-CoV **Or**
- Close contact* with a person with mild-to-moderate or severe respiratory illness and history of travel in the 10 days before onset of symptoms to a foreign or domestic location with documented or suspected recent transmission of SARS-CoV ☯

Excerpt from http://www.cdc.gov/ncidod/sars/factsheet.htm

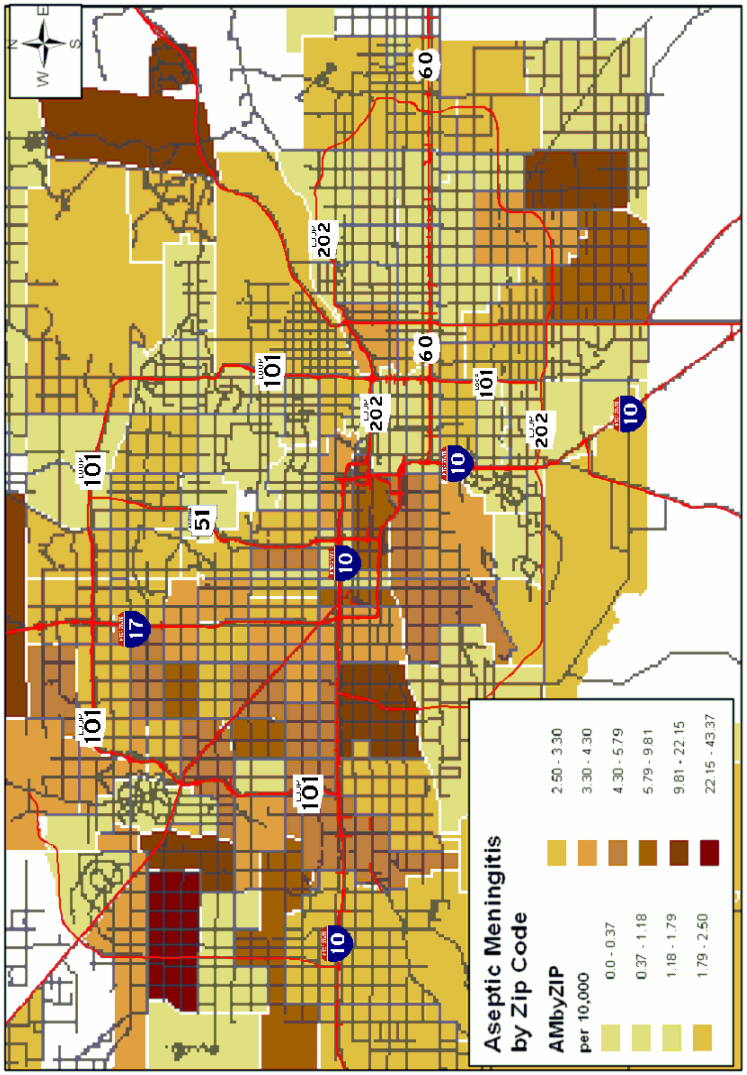
HIV/AIDS Epidemiological Profile (cont.)

From 1990-2001, the mortality rate for blacks was the highest among all race/ethnicity groups. In 1996 with the introduction of HAART (Highly Active Antiretroviral Therapy), AIDS-related morality declined for all race/ethnicity groups. The decline in the death rate has leveled off in recent years which may reflect limited access to health services or the limitations of current therapies among persons in care. See table below. ☯



GIS and Epidemiology(cont.)

Map of Aseptic Meningitis cases for Maricopa County in 2003.



(continued on page 8)

GIS and Epidemiology(cont.)

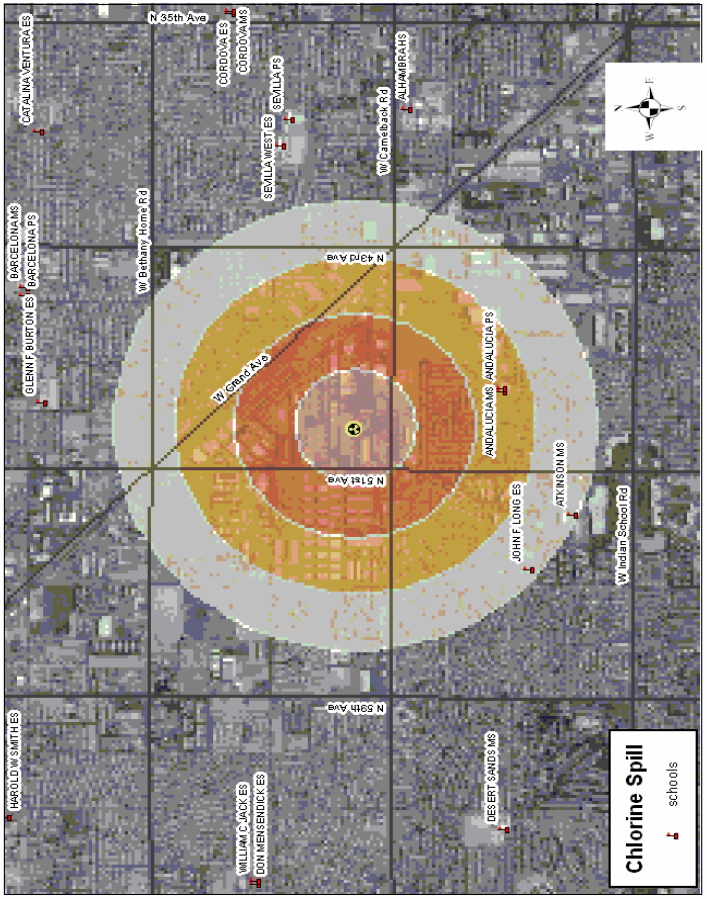
How can Epidemiologists use GIS Software? *continued*

Another example of how GIS was applied by epidemiologists at the MCDPH involved a chemical spill. In November 2003, a local area business that recycles chemicals spilled a large amount of liquid chlorine from a 1 ton holding tank. This caused concern for residents in the vicinity of the spill as liquid chlorine volatilizes to its natural state, chlorine gas, which is hazardous to human health if inhaled. As a result, local emergency evacuation and school lock-down procedures were instituted for safety and health concerns.

The location of the spill was identified along with current wind conditions at the time of the spill and cleanup. The address of the business was mapped including a one mile buffer in ¼ mile increments. All public schools in the valley were then placed on the map to illustrate if any schools fell in the buffer zone. This map not only provided a detailed description of the spill location, but also identified areas that would be exposed to the fumes based on the wind conditions. Aerial photos were used for background. The map on page 9 shows the chlorine spill and buffer zone along with the public schools in the vicinity. As these two examples demonstrate, GIS is a useful tool in helping epidemiologists with their investigations.

**Geocoding is defined as the process of creating geometric representations for locations (such as point features) from descriptions of locations (such as addresses).*

Contributed by M. Coria ☯

GIS and Epidemiology(cont.)

Map of chlorine spill and buffer zone.