Prevention bulletin
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Syndromic Disease Surveillance in the Wake of Anthrax Threats and High Profile Public Events

By Victorio Vaz, D.V.M., Ph.D.

In the past, most planning for emergency response to terrorism has been concerned with overt attacks (e.g., bombings). However, recent terrorist incidents in the United States have demonstrated the need for preparedness to detect and respond to bioterrorism threats. Weaponized biological agents utilized in covert attacks have no immediate impact because of the delay between exposure and onset of illness. Consequently, the first casualties of a covert attack are likely to be seen by physicians or other primary health-care providers.

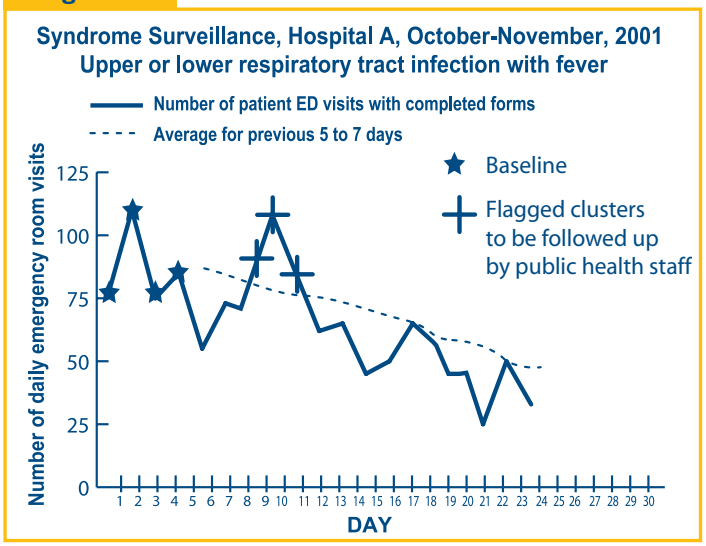
Ability to detect and respond to these threats hinges on the relationship between private medical providers and public health officials and on building new partnerships with emergency management and law enforcement agencies. Of concern, is the short window of opportunity between the time the first cases are identified and the time a second wave of the population becomes ill. During that brief period, public health officials and health care providers will need to determine that an attack has occurred, identify the organism, and prevent more casualties through prevention strategies (e.g., mass vaccination, prophylactic treatment).

The intentional anthrax exposures elsewhere, and the World Series and NASCAR events in Phoenix, prompted state and county public health officials to consider real-time syndromic disease surveillance at selected sites during these high profile events. The Centers for Disease Control and Prevention (CDC) were contacted for assistance in implementing an enhanced surveillance project similar to those used at the World Trade Organization Ministerial in Seattle, the Republican and Democratic National Conventions held in Philadelphia and Los Angeles, respectively, and the Super Bowl in Tampa.

Upon discussions with the hospitals and the Arizona Hospital & Healthcare Association, a decision was made by state and county public health officials to use the aberration detection model developed by CDC to identify deviations in emergency department (ED) visit data. A surveillance form for use at the emergency departments was developed. Information to be captured included the gender and age of the patient, time and date of visit, attendance to the World Series games or NASCAR, and selected applicable syndromes (i.e., upper or lower respiratory infection with fever, diarrhea/gastroenteritis, rash with fever, sepsis or non-traumatic shock; meningitis/encephalitis/unexplained acute encephalopathy/delirium; botulism-like syndrome; unexplained death with fever, lymphadenitis with fever; localized cutaneous lesion with pruritic maculopapular rash, acute ulcer, or eschar; and myalgia with fever/rigors/malaise).

Representative hospitals were recruited based on their location and the populations they serve. Visit data generated in the first few days were used to establish a baseline. Subsequent data were analyzed for relative increases in selected and rare syndromes. All of the forms were entered via a secure website into a

Figure 1



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Arizona Department of Health Services

Visit the ADHS Web site at www.hs.state.az.us

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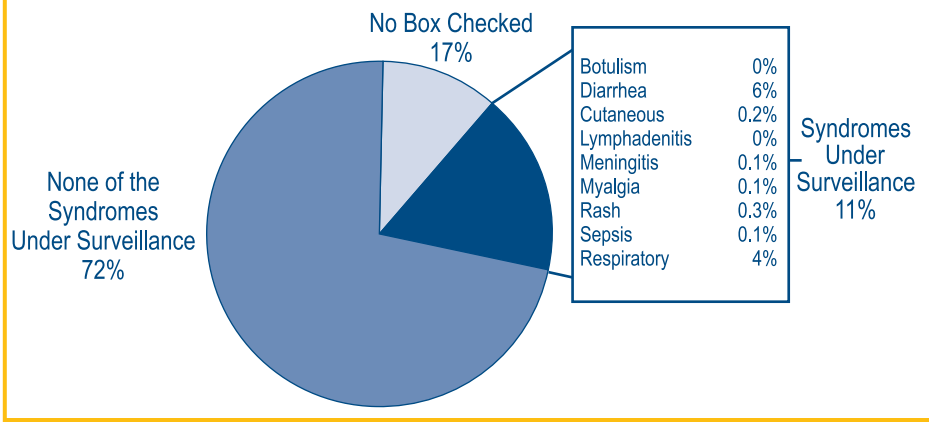
Figure 2

Breakdown of Patient Visits by Selected Syndromes, Arizona, October-November, 2001



database. Statistical reports were generated daily with flagged clusters of syndromes and/or selected presentations for follow-up by public health staff. Public health staff followed-up on flagged visit data to rule out a common or a suspect exposure (Figure 1). Fifteen EDs (11 in Maricopa County, two in Pima, and one each in Coconino and Yavapai Counties) participated in the enhanced surveillance project for the period October 27- November 18, 2001.

Preliminary data analysis indicate that approximately 38,000 forms were entered into the database during the 23 day enhanced surveillance period, reflecting 77% of all ED visits during the period. As expected, the majority (72%) of the patient visits in the selected hospitals for which forms were available was not associated with the syndromes under surveillance. Additionally, 17% lacked the appropriate information (Figure 2). Of the remaining forms, "Diarrhea/gastroenteritis" and "Upper or lower respiratory tract infection with fever" accounted for 6% and 4%, respectively, with the other syndromes combined reflecting less than 1% (Figure 2). The follow-up of flagged clusters such as those identified in Hospital A (Figure 1) did not reveal any unusual events potentially associated with bioterrorism or naturally occurring disease outbreaks. However, had they occurred, providers and public health staff would have been able to identify them in as close to real-time as possible, and respond promptly justifying the resource-intensive effort. To all those emergency department and hospital providers, staff and administrators who devoted time and effort towards this important endeavor – Thank you!

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Web-Based Resources on Bioterrorism for Healthcare Providers

1. Arizona Department of Health Services, Epidemic Detection & Response Program **www.hs.state.az.us** Click on "Anthrax Information for Health Providers"
   Includes links to:
   - Journal of the American Medical Association
   - New England Journal of Medicine
   - CDC - Emerging Infectious Diseases Journal: Bioterrorism-Related Inhalation Anthrax: The First 10 Cases Reported in the United States
   - CDC MMWR Article - Notice to Readers: Considerations for Distinguishing Influenza-Like Illness from Inhalational Anthrax - November 9, 2001
2. CDC Bioterrorism Preparedness and Response Program **www.bt.cdc.gov**
3. US Army Medical Research Institute of Infectious Diseases (USAMRIID) **www.usamriid.army.mil/education/bluebook.html**
4. U.S. Army Medical Research Institute for Chemical Defense (USAMRICD) **http://chemdef.apgea.army.mil**
5. American Medical Association **www.jama.ama-assn.org**

New guidelines for HIV counseling and screening

On November 9, 2001, the Centers for Disease Control and Prevention (CDC) released the revised guidelines for HIV counseling and the revised recommendations for HIV screening of pregnant women. Both of these documents can be found at www.cdc.gov/hiv/ctr.

Guidelines for pregnant women replace the 1995 U.S. Public Health Services' Recommendations for Human Immunodeficiency Virus Counseling and Voluntary Testing for Pregnant Women. The new guidelines were prompted by scientific and programmatic advances in the prevention of perinatally acquired HIV and care of HIV-infected women. Major revisions from the 1995 guidelines include:

- ✔ emphasize HIV testing as a routine part of prenatal care and strengthen the recommendation that all pregnant women be tested for HIV,
- ✔ recommend simplifying the testing process so that pretest counseling is not a barrier to testing,
- ✔ recommend that providers explore and address reasons for refusal of testing, and
- ✔ emphasize HIV testing and treatment at the time of labor and delivery for women who have not received prenatal testing and chemoprophylaxis.

The HIV Counseling, Testing and Referral (CTR) standards replace the 1994 guidelines and provides recommendations for public- and private-sector policy makers and service providers. To develop these guidelines, the CDC used an evidence-based approach advocated by the U.S. Preventive Services Task Force and public health practice guidelines.

For more information on the guidelines, contact the Arizona Department of Health Services Office of HIV/AIDS at 602.230.5822.

Child Drowning Deaths Nearly Double in 2000

By Robert Schackner

The number of childhood deaths due to drowning in Arizona nearly doubled in 2000, with nearly 86 percent of them determined to be preventable, according to a report released by the Arizona Child Fatality Review Team.

The study, published by the Arizona Department of Health Services, revealed that 42 children died from drowning in 2000 compared to 22 in the previous year. The Arizona Child Fatality Review Team determined that 36 of these 42 deaths were preventable. Over half of these deaths (22) occurred in backyard pools. Lack of supervision played a role in all 22 of these children's deaths. In 13 cases there was either no pool fencing or inadequate pool fencing. Five children had gained access to the pool from either a sliding glass door or a "pet door" that led directly to the pool.

Overall, the report concluded the deaths of 247 Arizona children, or 27.7 percent of all child deaths, could have been prevented last year through the use of secure pool fences, locked storage of guns, safety belts, and other preventive practices.

"The good news is that mortality rates are down from 1995 to 2000 in some of the leading categories of preventable deaths including violence and SIDS risk factors," said Mary Rimsza, M.D., chair of the Arizona Child Fatality Review Team, which includes state and local medical, law enforcement and child-care experts. "Nevertheless, preventability of many child fatalities remains high."

The State Team is especially concerned about the number of preventable deaths among teens age 15-17. In 2000, 63.6 percent of the 110 deaths of those in that age group were determined to be preventable. That is, 70 youths might still be alive today, if circumstances had been different. Most of those who died (47) were involved in motor vehicle crashes; 45 of these were determined to be preventable.

The largest number of the preventable violence-related deaths were suicides (51.6 percent, 16 deaths), followed by homicides (25.8 percent, 8 deaths), and child abuse deaths (22.6 percent, 7 deaths).

Primary Category of Death for Preventable Deaths in 2000 for Children Whose Deaths Were Reviewed *(N=247)*

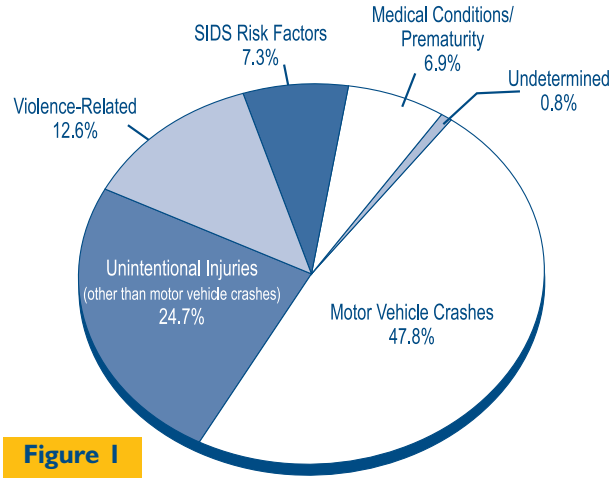


Figure 1

Because of the State Team's concerns about the increased numbers of death from violence, the highlighted recommendations include: enacting laws requiring all guns sold in Arizona to have a locking device and enforcing the existing state law prohibiting persons under age 18 from possessing a firearm; ensuring funding for adequate behavioral health services; and supporting gang prevention initiatives and conflict resolution training for youth.

The report is based on extensive reviews of 893 deaths of children under age 18 in 2000 by Arizona's child fatality review teams. Here's a closer look at the leading categories of preventable deaths:

Motor Vehicle Crashes. This remained the leading cause of preventable deaths of children in 2000.

Of the 126 motor vehicle deaths, 118 were judged preventable (94%). (See Figure 1)

Other Unintentional Injuries. The second leading category with 81 deaths. Of these, 61 were judged preventable (or 75.3%). (See Figure 2)

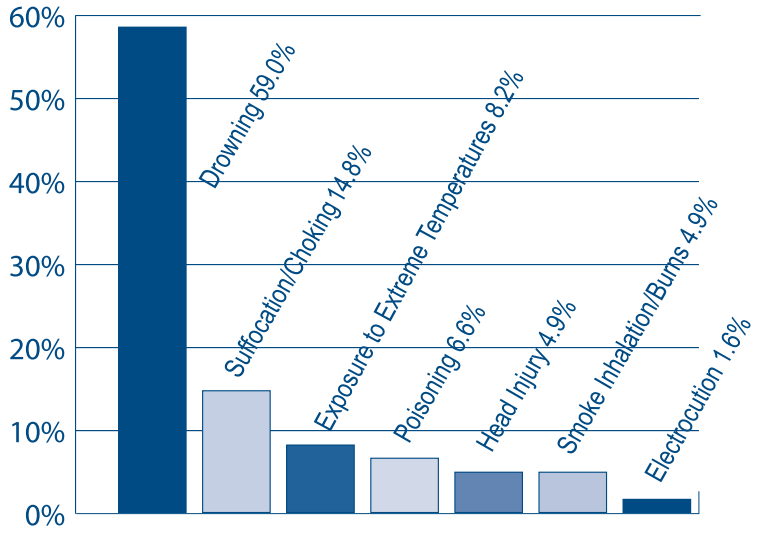
Violence-Related Deaths. The third leading category was violence related deaths. Of the 48 violence related deaths reviewed, 20 deaths were suicide, 17 were homicide and 11 were child abuse. (Of the 48 deaths, 31 were considered preventable (64.6%).

SIDS. Claimed the lives of 39 infants. Of the deaths, 18 involved preventable risk factors (37.1%).

Robert Schackner is the Child Fatality Review Program Director in the Bureau of Community and Family Health Services. He can be reached at 602.542.1875 or rschack@hs.state.az.us.

Figure 2

Preventable Death Among Children due to Unintentional Injuries other than Motor Vehicle Crashes in 2000 (N=61)



Editor's Note: *In the last issue of Prevention Bulletin, Tim Flood, M.D., presented a perspective of the major causes of death of Arizonans. As a follow-up, Prevention Bulletin will present a series of articles this year examining the status of various behavioral risk factors and how these factors may affect the rates of chronic diseases in Arizona.*

Progress In Controlling Chronic Disease Risk Factors: Tobacco Use

By Tim Flood, M.D.

The first risk factor we consider in this series has been labeled the "chief, single avoidable cause of death in our society."[1] It is now well documented that smoking causes chronic lung disease, coronary heart disease, stroke, and cancers of the lung, larynx, esophagus, mouth, and bladder. It contributes to cancer of the cervix, pancreas, and kidneys. Smoking increases the risk for low birth weight, infant death, and a variety of infant diseases. It exacerbates the vascular complications of diabetes. In addition, cigarettes, matches, and lighters cause house fires, which often lead to injury or death.

The public health burden of smoking is well documented through use of software that generates *Smoking Attributable Morbidity, Mortality, and Economic Costs*.[2] The Arizona Department of Health Services calculated that in 1998 there were 6,638 smoking-attributable deaths in Arizona (17% of all deaths that year). Of these deaths, 2,345 were from cancer, 2,260 from cardiovascular disease, and 1,978 from respiratory disease. In addition, 17 infants were estimated to have died of diseases that occur at higher rates among children of parents who smoke. The direct health care charges for smoking-attributable diseases in 1998 was estimated at $344 million for Arizona alone.

To track progress in controlling tobacco, we measure the proportion of adults who currently smoke cigarettes. Data for the United States is available since 1955[3]. The Behavioral Risk Factor Survey (BRFS)[4] has monitored this factor in Arizona since 1986. *The Healthy People, 2000* objective for the United States and for Arizona was to lower the smoking rate to "no more than 15% of the adult population who were smokers." By the year 2000 this goal was not achieved in the U.S., where early 2000 data shows 23.5% of adults smoke. In Arizona the data for 2000 revealed that 18.5% of Arizona's adults (males and females combined) were current smokers. Adult smoking rates in the U.S. are declining (Figure 1). This also is generally true for Arizona males and females (Figure 2).

Figure 1

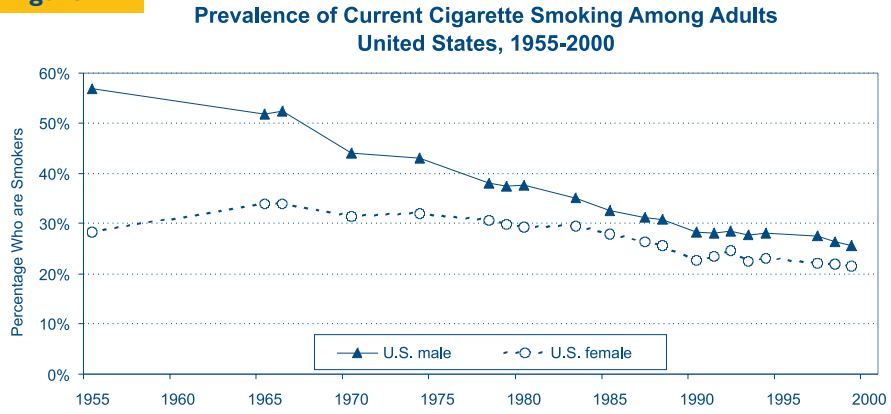
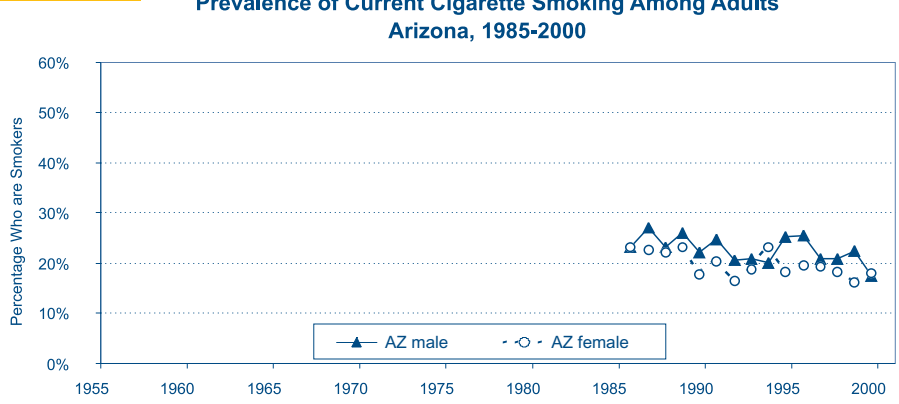


Figure 2



Future reductions in Arizona adult smoking rates can occur based upon several factors: current smokers will quit, die off, or move out-of-state; non-smokers will move into the state; or non-smoking children will become non-smoking adults. Our prevention efforts encourage current smokers to quit, and non-smoking children to become non-smoking adults.

The *Healthy Arizona 2010* goal is to reduce the smoking rate to fewer than 14% of adults who smoke.[5] With Arizona's smoking rate generally lower than the U.S. rates, and the decreasing trend for both males and females, we anticipate that aggressive tobacco control measures will help Arizona reach this goal. The Department's surveillance efforts will emphasize statewide telephone surveys, school surveys, and monitoring by managed health care organizations of their smoking rates.

Tim Flood, M.D., is the medical director for the ADHS Bureau of Public Health Statistics and can be reached at 602.542.7331 or tflood@hs.state.az.us.

1. USDHHS. The Health Consequences of Smoking: Cancer. A Report of the Surgeon General. USGPO. Feb 1982.
2. Flood TJ. SAMMEC in Arizona -- 1998. ADHS. May 2000.
3. CDC. Tobacco Information and Prevention Source (TIPS) website: http://www.cdc.gov/tobacco/sitemap.htm
4. Weyant R. Arizona Behavioral Risk Factor Survey, Annual Report, 2000. ADHS. Nov 2001. Page 22.
5. ADHS. Healthy Arizona, 2010. Tobacco Use Objectives, Targets for 2010. ADHS. Mar 2001. page 64.

SUMMARY OF SELECTED REPORTABLE DISEASES

(January - November, 2001)[1]

	Jan - Nov 2001	Jan - Nov 2000	5 Year Median Jan - Nov
VACCINE PREVENTABLE DISEASES:			
Haemophilus influenzae, serotype b invasive disease (<5 years of age)	10 (4)	4 (3)	4 (3)
Measles	1	0	5
Mumps	1	5	5
Pertussis	298	73	58
Rubella (Congenital Rubella Syndrome)	0 (0)	1 (0)	1 (0)
FOODBORNE DISEASES:			
Campylobacteriosis	583	588	503
E.coli O157:H7	31	52	*
Listeriosis	9	17	15
Salmonellosis	628	725	742
Shigellosis	404	518	591
VIRAL HEPATITIDES:			
Hepatitis A	394	432	1615
Hepatitis B	145	195	187
Hepatitis B (non-acute)[2]	1035	1028	*
Hepatitis C	9	19	24
Hepatitis C (non-acute)[3]	5680	5976	N/A
INVASIVE DISEASES:			
Streptococcus pneumoniae	709	747	*
Streptococcus Group A	151	188	167
Streptococcus Group B in infants <30 days of age	50	38	*
Meningococcal Infection	15	30	41
SEXUALLY TRANSMITTED DISEASES:			
Chlamydia	13407	11651	10484
Gonorrhea	3651	3876	3803
P/S Syphilis (Congenital Syphilis)	158 (30)	183 (26)	175 (17)
DRUG-RESISTANT BACTERIA:			
TB isolates resistant to at least INH (resistant to at least INH & Rifampin)	9 (2)	12 (1)	11 (1)
Vancomycin resistant *Enterococci* isolates	624	934	*
VECTOR-BORNE & ZOONOTIC DISEASES:			
Hantavirus Pulmonary Syndrome	1	4	3
Plague	0	1	1
Animals with Rabies	127	95	49
ALSO OF INTEREST IN ARIZONA:			
Coccidioidomycosis	1968	1794	1184
Tuberculosis	210	193	197
HIV	242	357	316
AIDS	205	322	440
Lead Poisoning (<16 years of age)	187 (161)	259 (200)	389 (269)
Pesticide Poisoning[4]	25	31	31

1 Data are provisional and reflect case reports during this period except HIV, AIDS, and Lead Poisoning which are by date of diagnosis.
2 The non-acute hepatitis B case count includes individuals with a positive HBsAg or HbeAg test alone and may include some acutely infected individuals. These counts reflect the year reported or tested and not the date infected. Case counts are not available before 1997.
3 The non-acute hepatitis C case count includes individuals with a positive screening test alone and may include falsely positive individuals. Known risk factors such as intravenous drug use increases the likelihood of these screening tests to be true positives. These counts reflect the year reported or tested and not the date infected. Case counts are not available before 1997.
4 Not all reports will be confirmed as meeting the case definition for pesticide poisoning upon further investigation.

** Vancomycin Resistant Enterococci, E.coli O157:H7, Streptococcus pneumoniae, and Group B Streptococcal disease not reportable until 4/97.*

Noteworthy. . .

Women's Health Resource Guide

The Governor's Commission on the Health Status of Arizona Women and Families in partnership with the Department of Health Services has issued a women's health resource guide entitled WOMEN, Solutions for Balanced Living. The guides are a handy credit card size that folds out with information intended to help women take charge of their own health and well being. Included are tips for healthy lifestyle choices, a list of routine health exams and screenings, and toll free numbers for a variety of women's health issues. Copies can be obtained from the Governor's Division for Women, 1700 W. Washington, Ste. 101, Phoenix, AZ 85007, 602.542.1755.

Record Animal Rabies

The Arizona State Health Laboratory has confirmed the highest number of rabies cases in animals on record in Arizona in 2001 as of December 18. Of the more than 2500 animals tested, 127 were positive for rabies. These include 60 skunks, 53 bats, 6 foxes, 4 coyotes, 3 bobcats and one badger. Three separate epizootics were documented in 2001: (1) skunks in Flagstaff, (2) skunks in Pima and Santa Cruz counties, and (3) foxes in the Sedona area. Rabies in bats occurs throughout the state. Despite record numbers of rabies cases in animals in the state, no Arizona residents have contracted this fatal viral encephalitis. The last documented human case of rabies in Arizona was in 1981. Animal control measures, pet vaccination rates, animal bite management, risk assessment/animal testing and rabies post exposure prophylactic treatment continue to be effective tools to prevent rabies transmission from animals to humans. For more information contact ADHS at 602.230.5932.

Reporting Pesticide Illnesses

As a reminder to all Arizona health care providers, under the Arizona Revised Statute (A.R.S.) §36-606, pesticide provoked illnesses are reportable. Health care professionals shall file a report of an illness which they reasonably believe, based on professional judgement, to be caused by or related to documented exposure to a pesticide.

Reports of pesticide illness shall include: a patient's name, address; telephone number; date of birth; race or ethnicity; gender; occupation; dates of onset and diagnosis; name of the pesticide(s) if known; name, address and telephone number of the people making the report; the reason for believing the illness is caused by or related to documented exposure to a pesticide; and statement specifying whether the illness is caused by or related to a documented pesticide exposure.

Reports shall be filed with Arizona Department of Health Services, Office of Environmental Health, Pesticide Poisoning Surveillance Program, at 602.230.5865, within Maricopa County and 800.367.6412 toll-free. The reporting form can be downloaded at: www.hs.state.az.us/edc/oeh/pestfrm.htm.

Prevention bulletin

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