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~ Dr. Arthur L. Craigmill ~

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Adult Blood Lead Epidemiology and Surveillance - United States, 2005-2007

Overexposure to inorganic lead continues to be an important health problem worldwide. Furthermore, recent research has caused increased concerns about the toxicity of lead at low doses. Lead can cause acute and chronic adverse effects in multiple organ systems, ranging from subclinical changes in function to symptomatic, life-threatening intoxication. Since 1992, CDC's state-based Adult Blood Lead Epidemiology and Surveillance (ABLES) program has tracked laboratory-reported elevated blood lead levels (BLLs) in U.S. adults. **The vast majority (95%) of reported elevated BLLs have been work related.** Industry subsectors with the highest numbers of lead-exposed workers were manufacturing of storage batteries, mining of lead and zinc ores, and painting and paper hanging. **The most common nonoccupational exposures were shooting firearms; remodeling, renovating, or painting; retained bullets (gunshot wounds); and eating food containing lead**. These findings indicate a need for increased preventive interventions to promote healthier workplaces and help move toward the *Healthy People 2010* objective.

For this report, adults were considered to be all persons aged ≥ 16 years. For adults with more than one BLL result in a given year, only the highest BLL was included in this report. Elevated BLLs were defined as blood lead concentrations ≥ 25 μg/dL.

Editorial Note: ABLES surveillance results indicate **an overall decreasing trend in the national**

prevalence rate of elevated BLLs in adults since 1994, with a slight increase in the 2006 and 2007 rates. Part of the overall decrease might be the result of a decline in the number of manufacturing jobs with potential for lead exposure over time, in addition to prevention measures that have been enacted since the early 1990s, including 1) improved interventions by ABLES states, worker-affiliated organizations, and federal programs and 2) measures implemented by industry (e.g., engineering controls, work practices, and respiratory protection). However, these rates might also reflect low employer compliance with testing and reporting requirements. A 2008 report using ABLES data found that only 29% of adults with BLLs requiring medical removal from work involving lead exposure received appropriate follow-up blood lead tests and met the eligibility criteria to return to their work.

ABLES data also indicate that **excessive exposure to lead remains primarily an occupational health problem in the United States;** 95% of adults with an identified exposure source were exposed at work. As in the past, during 2005-2007, these exposures occurred mainly in battery manufacturing, lead and zinc ores mining, and painting and paper hanging industry subsectors. The consistently higher proportions of adults with BLLs ≥40 μg/dL among those with BLLs ≥25 μg/dL observed in the painting and paper hanging, special trade contractors, and nonferrous foundries industries from 2005 through 2007 likely reflect higher lead exposures in these industries.

OSHA lead standards require removing a worker from lead exposure when the whole-blood lead concentrations ≥50 μg/dL for construction workers or ≥60 μg/dL for general industry workers, and permit return to work when their BLLs is ≤40 μg/dL. The current CDC/NIOSH surveillance case definition for elevated BLLs in adults is BLL ≥25 μg/dL. Recent research has consistently demonstrated the toxicity of lead from chronic dose exposures <30 μg/dL. Low-dose lead exposure can result in adverse effects in multiple organ systems, including effects in neurologic, cardiovascular, reproductive, and renal function.

For the entire report link to: MMWR Weekly

REF: MMWR Weekly, April 17, 2009, 58(14)365-369.

Childhood Lead Poisoning Associated with Lead Dust Contamination of Family Vehicles and Child Safety Seats - Maine, 2008

Persons employed in high-risk lead-related occupations can transport lead dust home from a worksite through clothing, shoes, tools, or vehicles. During 2008, the Maine Childhood Lead Poisoning Prevention Program (MCLPPP) identified 55 new cases of elevated (≥15 μg/dL) venous blood lead levels (BLLs) among children aged <6 years through mandated routine screening. Although 90% of childhood lead poisoning cases in Maine during 2003-2007 had been linked to lead hazards in the child's home, no lead-based paint or dust or water with elevated lead levels were found inside the homes associated with six

of the 2008 cases (i.e., five families, including one family with two affected siblings). **An expanded environmental investigation determined that these six children were exposed to lead dust in the family vehicles and in child safety seats. The sources of the lead dust were likely household contacts who worked in high-risk lead exposure occupations.** Current recommendations for identifying and reducing risk from take-home lead poisoning include 1) ensuring that children with elevated BLLs are identified through targeted blood lead testing, 2) directing prevention activities to at-risk workers and employers, and 3) improving employer safety protocols. State and federal prevention programs also should consider, when appropriate, expanded environmental lead dust testing to include vehicles and child safety seats.

Editorial Note: **These are the first reported cases of lead poisoning caused by elevated lead dust associated with child safety seats**. These reports highlight the need to consider expanding lead dust testing to include vehicles and child safety seats *when occupational exposure is suspected*, and to reinforce lead safety work practices. During 2003-2004, 95% of reported elevated BLLs in adults were related to occupational exposures, particularly in the industry subsector of painting, which had the highest numbers of lead-exposed workers. Persons exposed to lead at work can transport lead dust home, inadvertently posing an exposure risk to household contacts, especially children who are most susceptible to poisoning.

Take-home lead exposures are known to present health risks to children and previous studies have made recommendations to monitor lead levels among children exposed to take-home lead and to prevent contamination of the vehicle and home. However, scientific data are lacking regarding lead dust contamination of vehicles and child safety seats, and no standards exist for acceptable levels of lead contamination in personal vehicles. Surface swabs and wipes are available for use as screening tools to detect the presence of lead contamination on surfaces and verify the effectiveness of cleaning and other preventive measures, although, their use on soft surfaces (i.e., child safety seats) has not been evaluated. **Take-home lead exposures from the workplace can be reduced by implementing lead safety measures, including provisions for use of personal protective equipment (respirators, clothing, shoes, and gloves), correct hygiene (taking showers, washing hair, and changing clothes and shoes before going home), lead-safe work practices, and medical surveillance.**

For the entire report link to: MMWR Weekly.

REF: MMWR Weekly, 58(32), August 21, 2009.

Outbreak of Cryptosporidiosis Associated with a Splash Park - Idaho, 2007

On August 6, 2007, Idaho's Central District Health Department (CDHD) received a complaint of several ill persons with watery diarrhea consistent with cryptosporidiosis after attendance at a municipal splash

park on July 26. *Cryptosporidium* spp. is a protozoan that causes diarrheal illness and has been implicated previously in recreational water illness outbreaks at splash parks. CDHD and the Idaho Department of Health and Welfare (IDHW) initiated an investigation of illness among municipal park visitors who attended reservation-only gatherings at an onsite pavilion July 23-August 10. The investigation revealed five immunofluorescence assay (IFA)-confirmed and 45 clinically compatible cases of cryptosporidiosis among 154 persons interviewed (32% attack rate). Patients were more likely than non-ill park visitors to have been exposed to water from a splash feature (relative risk [RR] = 6.1). Water samples collected from splash features and an adjacent drinking fountain tested positive for *Cryptosporidium hominis*. This report summarizes the investigation of the outbreak and highlights the importance of splash park design, operation, access to hygiene facilities, and public education in prevention of waterborne cryptosporidiosis and other infectious agents. Educational efforts and enactment of regulations requiring enhanced disinfection technology, exclusion of persons with diarrhea, adequate hygiene facilities, and preconstruction consultation with health departments might decrease the risk for recreational water illness at splash parks.

The exposures occurred at a recently constructed splash park located within a municipal park in a suburban community in Idaho with a surrounding population of 550,000. Splash parks are increasingly popular venues associated with recreational water illness and are often easily accessible, unmonitored, and charge no admission. Splash parks have multiple, interactive water features that spray, splash, or pour water on visitors, without pools or standing water. Typically, a municipal system supplies the water, which flows from the features onto impermeable surfaces (e.g., concrete), through drains, and recirculates through high-flow sand filters back to the water features. In Idaho, splash park design, construction, and operation are not regulated by the Idaho pool code.

Editorial Note: ***Cryptosporidium*, a chlorine-resistant parasite, can cause illness after ingestion of as few as 10 oocysts, and can remain infectious for up to 6 months in moist environments.** In this outbreak investigation, detection of identical subtypes of *C. hominis*, a species primarily restricted to humans, in the stool specimens of patients and in water samples from the sand filters and drinking fountain implicated ingestion of fecally contaminated splash-feature and drinking fountain water as the cause of the illnesses. Because reported exposures occurred during July 23-August 10 and splash park water collected on August 20 tested positive for *Cryptosporidium*, initial contamination of splash park water by an ill visitor likely caused persistent contamination of the splash park system and resulted in ongoing transmission. Similar outbreaks have occurred at other splash parks that lacked ultraviolet or ozone treatment systems that can inactivate *Cryptosporidium*. Splash park operators cannot rely solely upon high-flow sand filtration and chlorine disinfection to protect patrons from *Cryptosporidium*.

The outbreak described in this report involved a recently constructed, unregulated splash park, with contributing factors related to design and operation that prior consultation with health department staff might have identified and corrected. State and local governments should consider including splash parks in the pool code and requiring preconstruction health department consultation, supplemental disinfection technology (e.g., ultraviolet light), appropriate hygiene facilities, and education of splash park operators and the public. Furthermore, research on splash park design and operation is needed to develop engineering and operational guidelines specific to these facilities.

Regulation without education is unlikely to reduce substantially the risk for recreational water illness outbreaks. Splash parks are relatively new, and operator knowledge of appropriate disinfection and

maintenance requirements might be inadequate; public health officials and industry associations should make regular efforts to educate operators. Additionally, splash park operators and public health officials should work jointly to educate visitors about prevention of recreational water illness. Persons using splash park and other water park facilities are the primary source of contamination, and even water in well-maintained and treated recreational water venues can transmit *Cryptosporidium*. Posted signs should guide patrons to wash young children's bottoms with soap in the shower before splash park entry, refrain from drinking the splash-feature water, discourage children from sitting on top of splash features, and change diapers only in designated areas. Persons with diarrhea should be prohibited from entering recreational water venues. Behavioral restrictions, however, might not be enforceable at splash parks that have unrestricted and unmonitored public access.

For the entire report link to: MMWR Weekly.

REF: MMWR Weekly, 58(22), June 12, 2009.

Pesticide Data Program-Progress Report 2007

The Pesticide Data Program (PDP) was initiated in 1991 as part of a USDAwide food safety initiative. Since that time, PDP has tested a wide range of commodities in the U.S. food supply, and Congress "… recognizes the importance of the Pesticide Data Program (PDP) to collect reliable, scientific-based pesticide residue data that benefits consumers, food processors, crop protection, pesticide producers, and farmers." Using the most current laboratory methods, PDP has tested both fresh and processed fruit and vegetables, grains and grain products, milk and dairy products, beef, pork, poultry, corn syrup products, honey, pear juice concentrate, almonds, barley, oats, rice, peanut butter, bottled water, potable groundwater, and treated and ambient drinking water for pesticide residues.

Of the 11,683 samples of fresh and processed commodities (excludes potable groundwater and drinking water) analyzed, the overall percentage of total residue detections was 1.9 percent. The percent of total residue detections is obtained by comparing the total number of residues detected and the total number of analyses performed for each commodity. The percentage of total residue detections for fresh fruit and vegetables ranged from 0.8 to 3.8 percent, with a mean of 2.2 percent. The percentage of total residue detections for processed fruit and vegetables ranged from 0.6 to 2.2 percent, with a mean of 1.3 percent. The percentage of total residue detections for almonds was 2.0 percent, for honey was 0.4 percent, for heavy cream was 1.1 percent, and for corn grain was 0.8 percent.

In addition, excluding potable groundwater and treated and ambient drinking water, **23 percent of all samples tested contained no detectable pesticides [parent compound and metabolite(s) combined], 30 percent contained 1 pesticide, and 47 percent contained more than 1 pesticide. Low levels of environmental contaminants were detected in broccoli, carrots, celery, green beans, collard and kale**

greens, summer squash, and heavy cream at concentrations well below levels that trigger regulatory actions.

Excluding samples for which no tolerances are set (potable groundwater and treated/ambient drinking water), **residues exceeding the tolerance were detected in 0.4 percent of the 11,683 samples tested in 2007 - 45 samples with 1 residue exceeding, 3 with 2 residues exceeding, and 1 with 4 residues exceeding**. A tolerance is the maximum amount of a pesticide residue allowable on a raw agricultural commodity. Established tolerances are listed in the Code of Federal Regulations, Title 40, Part 180. Residues with no established tolerance were found in 3.3 percent of the samples. In most cases, these residues were detected at very low levels and some residues may have resulted from spray drift or crop rotations. PDP communicates these findings to FDA when they are reported by testing laboratories.

For potable groundwater, 50 percent of the 74 collection sites contained low levels of detectable residues, measured in parts per trillion. Twenty-seven different pesticide residues (including metabolites) were detected in potable groundwater.

In treated drinking water, PDP detected low levels (measured in parts per trillion) of some pesticides, primarily widely used herbicides and their metabolites.

Forty-six different residues were detected in the treated drinking water and 52 residues were detected in the ambient intake water. The majority of pesticides, metabolites, and isomers included in the PDP testing profiles were not detected. None of the detections in the treated water samples exceeded established EPA Maximum Contaminant Level (MCLs) or Health Advisory (HA) levels or established Freshwater Aquatic Organism criteria.

REF: USDA-Agricultural Marketing Service, Pesticide Data Monitoring website.

~~ TOXICOLOGY TIDBITS ~~

Inadvertent Ingestion of Marijuana - Los Angeles, California, 2009

On April 8, 2009, the Los Angeles Police Department (LAPD) notified officials from the Los Angeles County Department of Public Health (DPH) in California about a group of preschool teachers with nausea, dizziness, headache, and numbness and tingling of fingertips after consumption of brownies purchased 3 days before from a sidewalk vendor. To characterize the neurologic symptoms and determine whether these symptoms were associated with ingestion of the brownies, the police and health departments launched a collaborative investigation. This report summarizes the results of that investigation, which

detected cannabinoids in a recovered sample of the brownies. Two patients sought medical attention, and one patient's urine and serum tested positive for 11-nor-9-carboxy-delta 9-tetrahydrocannabinol (THC-COOH), a marijuana metabolite. The findings in this report demonstrate the utility of a collaborative investigation by public health and law enforcement.The findings also underscore the need to consider marijuana as a potential contaminant during foodborne illness investigations and the importance of identifying drug metabolites by testing of clinical specimens soon after symptom onset.

On the morning of April 7, 2009, a preschool teacher put brownies, which she had purchased on April 5, on a table in a break room to share with staff. The day before, she also had given two brownies to her adult son at home. Five preschool teachers (not including the teacher who had purchased the brownies) and the teacher's adult son were the only persons who ate the brownies. Each person ate only one brownie. At approximately 1:30 p.m., the preschool director and the administrator noticed that one of the teachers suddenly looked drowsy and was complaining of drowsiness, ataxia, dizziness, shortness of breath, and numbness and tingling of the face, forehead, arms, and hands. When the director and administrator learned that the teacher who had shared the brownies had purchased them from a sidewalk vendor for a church fundraiser, they suspected the affected teacher's drowsiness was associated with her ingestion of the brownie 30 minutes before onset of symptoms. The teacher did not seek medical care.

The brownies were sold as single, unlabeled units, individually wrapped in plastic wrap, costing $1.50 each. The preschool director contacted the head pastor of the church, who reported that the church had not held a fundraiser, and the pastor subsequently notified LAPD to investigate. After interviewing persons at the church and the preschool, LAPD suspected foodborne illness and contacted DPH on April 8.

Public health officials conducted a site visit at the preschool on April 9 and used a standard questionnaire to interview the affected persons about food history, medical history (including any drugs, herbal supplements, or medications taken), symptoms experienced, and time to onset. No one reported taking any medications or herbal supplements. DPH and LAPD later discovered that the son of the teacher who had purchased the brownies also was possibly exposed, and DPH interviewed him using the same questionnaire on April 21. All six affected persons reported never having used marijuana or any other illicit drugs. The brownies were the only common food item reported among the affected persons. All six affected persons reported at least nine symptoms, and all had drowsiness, fatigue, and ataxia. All the affected preschool teachers were able to continue conducting classes that day. The time to onset of symptoms after ingesting the brownie ranged from 30 minutes to 3 hours, with a mean of 93 minutes.

Two of the teachers sought medical attention at urgent-care facilities on the day of exposure: one was a breastfeeding mother, and the other had the most profound illness compared with the rest of the affected persons (illness that included cardiopulmonary symptoms). The latter was diagnosed with foodborne illness and was prescribed antibiotics. The breastfeeding mother nursed her infant at 9:00 a.m., approximately 90 minutes after eating the first half of her brownie. The infant did not show any signs of illness. The mother ate the second half of her brownie at 1:00 p.m. As part of the medical evaluation, she underwent serum and urine toxicology screening at approximately 7:00 p.m. that evening. The blood and urine samples were screened at a clinical laboratory. Serum parent-compound 9-delta-tetrahydrocannabinol (THC) level was <1 ng/mL, and THC-COOH was 27 ng/mL. Urine THC-COOH level was 66 ng/mL. Subsequent urine drug screenings of all six of the exposed persons (collected >8 days postexposure) were negative for cannabinoids and all the other drugs screened in the panel described. On May 20, a recovered sample of brownies was tested at the LAPD Scientific Investigation Division

Laboratory for these same substances and additional substances (e.g., anabolic steroids) by GC/MS and was found to be positive for cannabinoids.

Editorial Note: Marijuana is the most commonly used illicit drug in the United States. Among persons aged ≥12 years, an estimated 5.8% had used the drug during the preceding month, according to the 2007 National Survey of Drug Use and Health. Inadvertent marijuana ingestion has been reported previously. Similar episodes of inadvertent ingestion of marijuana occurred in Colorado in 1978 and in California in 1981, where persons unknowingly ingested marijuana in baked goods. The constellation of symptoms described in this report is similar to other instances in which persons reported drowsiness, fatigue, ataxia, and dizziness. Accidental marijuana ingestion has led to coma in children. Therefore, pediatricians should be alert for signs of accidental ingestion.

THC is the major psychoactive ingredient of marijuana and is lipophilic. After exposure, THC is rapidly incorporated and distributes to the adipose tissue, liver, lungs, and spleen. It is then released back into the blood slowly and eventually is metabolized and changed into THC-COOH, which is excreted in the urine. THC-COOH is the most important compound for clinical testing purposes, and GC/MS procedures are considered the gold standard for testing.

The collaborative investigation was notable for the coordination between public health officials and law enforcement during the outbreak. The benefits of law enforcement involvement included early notification of the event to public health officials, collaborative interviews of the brownie purchaser, and assistance in testing urine specimens and the brownie sample at the LAPD laboratory. The demonstrated cooperative investigation and response capabilities included collection of clinical specimens in the context of foodborne illness with suspected chemical contamination, maintenance of chain-of-custody of laboratory specimens, maintenance of confidentiality of health information, and exclusion of psychogenic illness in the presence of unusual neurologic symptoms.

For the entire report link to: MMWR Weekly

REF: MMWR Weekly, 58(34), September 4, 2009.

Cigarette Smoking Among Adults and Trends in Smoking Cessation - United States, 2008

Cigarette smoking continues to be the leading cause of preventable morbidity and mortality in the United States. Full implementation of population-based strategies and clinical interventions can educate adult smokers about the dangers of tobacco use and assist them in quitting. To assess progress toward the Healthy People 2010 objective of reducing the prevalence of cigarette smoking among adults to <12%, CDC analyzed data from the 2008 National Health Interview Survey (NHIS). This report summarizes the results of that analysis, which indicated that **during 1998-2008, the proportion of U.S. adults who were**

current cigarette smokers declined 3.5% (from 24.1% to 20.6%). However, the proportion did not change significantly from 2007 (19.8%) to 2008 (20.6%). In 2008, adults aged ≥25 years with low educational attainment had the highest prevalence of smoking (41.3% among persons with a General Educational Development certificate [GED] and 27.5% among persons with less than a high school diploma, compared with 5.7% among those with a graduate degree). Adults with education levels at or below the equivalent of a high school diploma, who comprise approximately half of current smokers, had the lowest quit ratios (2008 range: 39.9% to 48.8%). Evidence-based programs known to be effective at reducing smoking should be intensified among groups with lower education, and health-care providers should take education level into account when communicating about smoking hazards and cessation to these patients.

Editorial Note: The prevalence of current cigarette smoking among adults has declined (from 24.1% in 1998 to 20.6% in 2008) since the 1998 Master Settlement Agreement (MSA), which stipulated that seven tobacco companies would change their marketing of tobacco products and pay an estimated $206 billion to states as compensation for tobacco-related health-care costs. Significant year-to-year decreases in smoking prevalence have been observed only sporadically. For example, a decrease occurred from 2006 to 2007 but not from 2007 to 2008; during the past 5 years, rates have shown virtually no change. Some population subgroups (e.g., Hispanic and Asian women, persons with higher levels of education, and older adults) continue to meet the *Healthy People 2010* target of <12% prevalence of smoking.

For the entire report link to: MMWR Weekly

REF: MMWR Weekly, 58(44), November 13, 2009.

State-Specific Secondhand Smoke Exposure and Current Cigarette Smoking Among Adults - United States, 2008

Secondhand smoke (SHS) causes immediate and long-term adverse health effects in nonsmoking adults and children, including heart disease and lung cancer, and SHS exposure occurs primarily in homes and workplaces. Smoke-free policies, including not allowing smoking anywhere inside the home (i.e., having a smoke-free home rule), are the best way to provide protection from exposure to SHS. To assess SHS exposure in homes and indoor workplaces and the prevalence of smoke-free home rules, CDC analyzed 2008 Behavioral Risk Factor Surveillance System (BRFSS) data from 11 states and the U.S. Virgin Islands. This report summarizes the results, which showed wide variation among states in exposure to SHS in homes (from 3.2% [Arizona] to 10.6% [West Virginia]) and indoor workplaces (from 6.0% [Tennessee] to 17.3% [USVI]). The majority of persons surveyed in the 11 states and USVI reported having smoke-free home rules (from 68.8% [West Virginia] to 85.7% [USVI]). This report also provides the 2008 results for CDC's annual BRFSS-based state-specific estimates of current smoking in 50 states, the District of Columbia (DC), and three territories (Guam, Puerto Rico, and USVI). As in previous years,

the results showed substantial variation in self-reported cigarette smoking prevalence (range: 6.5%-27.4%; median for 50 states and DC = 18.4%). Additional legislation is needed to increase the number of smoke-free workplaces and other public places. Health-care providers should continue to encourage persons to make their homes completely smoke-free.

Editorial Note:v The results of this analysis indicate that, in 2008, across the 11 states and USVI, prevalence of exposure to SHS varied by more than threefold at home, and more than twofold at work. These variations in SHS exposures are related to differences in state smoking prevalence; state smoking restrictions for private-sector worksites, restaurants, and bars; the prevalence of smoke-free home rules; and the level of enforcement of these restrictions and home rules. The prevalence of smoke-free households and the number and restrictiveness of state laws regulating smoking in private-sector worksites, restaurants, and bars has increased substantially over time. For example, during December 31, 2004-December 31, 2007, the level of smoking restrictions became more protective for private-sector worksites in 18 states, for restaurants in 18 states, and for bars in 12 states. Nevertheless, state tobacco control programs need to continue to encourage the public to make their homes smoke-free and more states need to enact legislation that eliminates smoking in private-sector worksites, restaurants, and bars.

For the entire report link to: MMWR Weekly.

REF: MMWR Weekly, 58(44), November 13, 2009.

CDPH Warns Consumer not to Eat Santa Cruz County Sport-Harvested Shellfish, November 16, 2009

The California Department of Public Health (CDPH) warned consumers not to eat Santa Cruz County sport-harvested shellfish because the clams, mussels, scallops or oysters may be contaminated with domoic acid, a dangerous toxin that is harmful to people.

This warning does not apply to commercially sold clams, mussels, scallops or oysters. State law prohibits the sale or offering to sell for human consumption these types of shellfish except by a state-certified commercial shellfish harvester or dealer. Shellfish sold by certified harvesters and dealers are subject to frequent mandatory testing.

This warning is in addition to CDPH's October 28, 2009 announcement, which lifted the statewide annual quarantine on sports-harvested mussels for all coastal counties except Del Norte, Humboldt and San Luis Obispo. This means sports-harvested shellfish from four California counties – Del Norte, Humboldt, San Luis Obispo and Santa Cruz – should not be eaten.

No cases of human poisoning from domoic acid are known to have occurred in California.

Symptoms of domoic acid poisoning can occur within 30 minutes to 24 hours after eating toxic seafood. In mild cases, symptoms may include vomiting, diarrhea, abdominal cramps, headache and dizziness. These symptoms disappear completely within several days. In severe cases, the victim may experience excessive bronchial secretions, difficulty breathing, confusion, disorientation, cardiovascular instability, seizures, permanent loss of short term memory, coma and death.

To receive updated information about shellfish poisoning and quarantines, call CDPH toll-free “Shellfish Information Line” at (800) 553-4133.

REF: California Department of Public Health, November 16, 2009.

Alcohol Use Among Pregnant and Nonpregnant Women of Childbearing Age - United States, 1991-2005

Alcohol consumption during pregnancy is a risk factor for poor birth outcomes, including fetal alcohol syndrome, birth defects, and low birth weight. In the United States, the prevalence of fetal alcohol syndrome is estimated at 0.5-2.0 cases per 1,000 births, but other fetal alcohol spectrum disorders (FASDs) are believed to occur approximately three times as often as fetal alcohol syndrome. **The 2005 U. S. Surgeon General's advisory on alcohol use in pregnancy, advises women who are pregnant or considering becoming pregnant to abstain from using alcohol. Binge drinking is particularly harmful to fetal brain development.** *Healthy People 2010* objectives include increasing the percentage of pregnant women who report abstinence from alcohol use to 95% and increasing the percentage who report abstinence from binge drinking to 100%. To examine the prevalence of any alcohol use and binge drinking among pregnant women and nonpregnant women of childbearing age in the United States and to characterize the women with these alcohol use behaviors, CDC analyzed 1991-2005 data from Behavioral Risk Factor Surveillance System (BRFSS) surveys. The findings indicated that the prevalence of any alcohol use and binge drinking among pregnant and nonpregnant women of childbearing age did not change substantially from 1991 to 2005. During 2001-2005, the highest percentages of pregnant women reporting any alcohol use were aged 35-44 years (17.7%), college graduates (14.4%), employed (13.7%), and unmarried (13.4%). Health-care providers should ask women of childbearing age about alcohol use routinely, inform them of the risks from drinking alcohol while pregnant, and advise them not to drink alcohol while pregnant or if they might become pregnant.

Editorial Note: A 2002 report using 1991-1999 BRFSS data determined that, from 1995 to 1999, the percentage of pregnant women reporting any alcohol use decreased, whereas the prevalence of binge drinking during pregnancy and the prevalence of both drinking behaviors among nonpregnant women did not change. This report expands on the 2002 report, examining data collected during 1991-2005; this broader perspective indicates that alcohol use and binge drinking among pregnant women and

nonpregnant women of childbearing age did not change substantially over time. The prevalence of both types of drinking behavior among pregnant women remain greater than the *Healthy People 2010* targets, and greater progress will be needed to reach them.

Alcohol use levels before pregnancy are a strong predictor of alcohol use during pregnancy. A proportion of women who use alcohol continue that use during the early weeks of gestation because they do not realize they are pregnant. Approximately 40% of women realize they are pregnant at 4 weeks of gestation, a critical period for fetal organ development (e.g., central nervous system, heart, and eyes). Because approximately half of all births are unplanned, clinicians should screen and advise women of childbearing age of the potential consequences of using alcohol during pregnancy.

The findings that, among pregnant women, those who were older, more educated, employed, and unmarried were more likely to use alcohol, support results from previous studies, but the reasons for these patterns are not well understood. Further research is needed; however, some possible reasons include that 1) older women might be more likely to be alcohol dependent and have more difficulty abstaining from alcohol while pregnant, 2) more educated women and employed women might have more discretionary money for the purchase of alcohol, and 3) unmarried women might attend more social occasions where alcohol is served.

For the entire report link to: MMWR Weekly

REF: MMWR Weekly, 58(19), May 22, 2009.

Human Exposures to a Rabid Bat - Montana, 2008

On September 29, 2008, the Ravalli County Public Health Department (RCPHD) notified the Montana Department of Public Health and Human Services (MDPHHS) of a large-scale human exposure to a dead bat at an elementary school. On October 1, the bat was confirmed to be rabid, and on October 4, MDPHHS requested assistance from CDC in evaluating persons for rabies exposure. Of 107 persons assessed, only one person (1%) was recommended for rabies postexposure prophylaxis (PEP) in accordance with guidance from the Advisory Committee on Immunization Practices (ACIP); however, 74 persons (68%) ultimately pursued rabies PEP. This report describes the incident and public health response, and highlights the importance of unified risk communication. After a potential large-scale exposure to rabies virus, guidance from clinicians should be consistent with ACIP recommendations to ensure appropriate use of rabies PEP.

Incident Description: On September 28, a parent of two students at a Ravalli County elementary school found a dead bat carried into the house by the family cat. The bat carcass was placed in a jar and stored overnight. On September 29, one parent accompanied the children to school with the bat, and before leaving school premises, removed the carcass from the jar and presented it to eight different classrooms

(one kindergarten, four 5th-grade, and three 4th-grade classrooms). Students and teachers in at least five classrooms touched the bat, along with a few other staff members of the school.

Editorial Note: The rarity of human rabies in the United States is attributed to effective animal control and canine vaccination programs, in addition to widely accessible biologics used for rabies PEP in humans. However, the persistence of disease in wildlife reflects its public health relevance. During 2003-2007, an average of 6,927 animal cases were identified annually in the United States and Puerto Rico, with wildlife bearing approximately 90% of the disease burden (*2-6*). Although rabid bats constitute less than 25% of these cases, **nearly all indigenous human rabies cases reported in the United States have been linked to bats in recent decades. Prevention of human rabies in the United States largely hinges on an educated public and professional sector that is aware of bat-associated rabies risks.**

Approximately one third of rabies large-scale exposures occur in school settings, which also are ideal sites for educational outreach to promote safe animal practices. Such outreach should include messages that warn against contact with wildlife (both dead and alive) and instructions on what to do if an animal is found on school or home premises. School policies that prohibit bats and other common rabies reservoirs in classrooms are recommended to lessen exposure risks. All animals suspected of being infected with the rabies virus should be handled carefully and brought promptly to public health officials for testing.

For the entire report link to: MMWR Weekly

REF: MMWR Weekly, 58(20), May 29, 2009.

Imported Human Rabies - California, 2008

Compared with rabies in developing countries, human rabies is rare in the United States, but animal rabies is common. In the United States, most human rabies cases are associated with rabid bats, whereas in developing countries, dogs are the most common reservoir and vector species. In March 2008, a case of imported human rabies in a recently arrived, undocumented Mexican immigrant was laboratory confirmed by public health officials in California. The rabies virus isolated from the patient was a previously uncharacterized variant most closely related to viruses found in Mexican free-tailed bats (*Tadarida brasiliensis*). The molecular and phylogenetic characterizations of this rabies virus variant have been described previously. This report summarizes the epidemiologic investigation and the ensuing public health response. A total of 20 persons, mostly household contacts, received postexposure prophylaxis (PEP) because of potential exposure to rabies virus from the patient. The findings underscore the difficulties encountered in the diagnosis and epidemiologic investigations of imported human rabies cases and the importance of a coordinated public health response across multiple international jurisdictions.

Editorial Note: **The case described in this report is the first case of human rabies imported into the United States that has not been associated with a canine rabies virus variant.** The patient described in

this report was infected with a variant most closely related to rabies viruses found in Mexican free-tailed bats. During 2000-2008, a total of 27 cases of human rabies were reported in the United States. Of these, six were imported cases, including the case described in this report. With the exception of the case described in this report, all were associated with either 1) a history of dog exposure in a canine rabies enzootic country, or 2) a canine rabies virus variant that was enzootic in the patient's country of origin. How the patient described in this report was infected with rabies virus remains unclear. Transmission might have occurred either through a bat bite directly or by secondary infection through the bite of a rabid carnivore infected with a bat rabies virus variant (i.e., the dog or fox bites identified in the investigation). Travelers should be aware of the local status and epidemiology of rabies at their destination and how to prevent exposures by avoiding stray animals and wildlife. Patients who have potential exposures to rabies virus should seek medical evaluation immediately.

The patient's mode of travel to the United States likely hindered more immediate prevention efforts by local health officials in his home jurisdiction. The undocumented status of the patient might have led to the patient and his family not readily disclosing complete information to health-care providers or officials, thereby delaying consideration of a rabies diagnosis. Nevertheless, **a disoriented, salivating, and dehydrated patient who avoids water should prompt a consideration of rabies in the differential diagnosis, irrespective of a documented history of animal exposure. Health-care providers should consider rabies in patients with acute progressive encephalitis. In particular, rabies should be included in the differential diagnosis where a travel history or immigration status has indicated time spent in a canine rabies endemic country.**

For the entire report link to: MMWR Weekly.

REF: MMWR Weekly, 58(26), July 10, 2009

Brucella suis Infection Associated with Feral Swine Hunting - Three States, 2007-2008

Historically, brucellosis from *Brucella suis* infection occurred among workers in swine slaughterhouses. In 1972, the U.S. Department of Agriculture National Brucellosis Eradication Program was expanded to cover swine herds. Subsequent elimination of brucellosis in commercial swine resulted in a decrease in *B. suis*-associated illness in humans. **Currently, swine-associated brucellosis in humans in the United States is predominantly associated with exposure to infected feral swine (i.e., wild boar or wild hogs)**. In May and July 2008, CDC was contacted by the state health departments in South Carolina and Pennsylvania regarding two cases of brucellosis possibly linked to feral swine hunts. Both state health departments contacted the state health department in Florida, where the hunts took place. The subsequent investigation, conducted jointly by the three state health departments and CDC, determined that the two patients had confirmed brucellosis from *B. suis* infection and the brother of one patient had probable brucellosis. All three exposures were associated with feral swine hunting, and at least two patients did not

have symptoms until 4-6 months after exposure.

Editorial Note: Brucellosis is a bacterial zoonotic infection usually caused by *Brucella abortus*, *B. melitensis*, *B. suis*, or rarely *B. canis*. Humans are infected through occupational or recreational exposure to infected animals, inhalation of infectious aerosols, laboratory exposure, consumption of contaminated unpasteurized dairy products, or consumption of inadequately cooked contaminated meat. The average incubation period for brucellosis is 2-10 weeks but, as seen in this report, can range to 6 months. Symptoms can be nonspecific and influenza-like: intermittent fever, chills, malaise, diaphoresis, arthralgia, myalgia, headache, anorexia, and fatigue. Because of its nonspecific clinical syndrome, *B. suis* infection likely is underreported. Clinicians should inquire about travel, food consumption, occupation, and recreational activities (including feral swine hunting) of patients with nonspecific influenza-like symptoms with intermittent fever.

Patient A likely was infected through the hand wound he acquired while field dressing feral swine. The investigations suggest that patient B and patient C also were infected during the field dressing or butchering process because family members consumed the meat and were not affected clinically. Clinicians should order brucellosis testing for persons who are symptomatic and have a history of feral swine hunting. Duration and type of therapy is dependent upon multiple factors such as health status or age of patient and the manifestation of disease. **Untreated brucellosis can last from several weeks to several years.** Chronic untreated brucellosis can lead to abscesses in the liver, spleen, heart valves, brain, or bone; osteoarticular complications; and, in rare cases, death.

Efforts to prevent *B. suis* infection should focus on **education of hunters** and partnerships between state and local public health, wildlife, and agricultural agencies, and sportsmen's associations. Educational materials for feral swine hunters should include recommendations for safe field dressing, butchering, and cooking. All human brucellosis cases should be investigated jointly by state health departments and agriculture agencies to determine the sources of infection and prevent further illness in humans.

For the entire report link to: MMWR Weekly.

REF: MMWR Weekly, 58(22), June 12, 2009.

Increase in Coccidioidomycosis - California, 2000-2007

Coccidioidomycosis is an infection resulting from inhalation of airborne spores of *Coccidioides immitis* or *Coccidioides posadasii*, soil-dwelling fungi endemic to California's San Joaquin Valley; southern regions of Arizona, Utah, Nevada, and New Mexico; western Texas; and regions of Mexico and Central and South America. Of an estimated 150,000 new infections annually in the United States, **approximately 60% are asymptomatic. Patients with symptoms usually**

experience a self-limited influenza-like illness (ILI), although some develop severe pneumonia. Fewer than 1% of patients develop disseminated disease. Infection usually produces immunity to reinfection. During 1995-2000, the number of reported coccidioidomycosis cases in California averaged 2.5 per 100,000 population annually. However, from 2000 to 2006, the incidence rate more than tripled, increasing from 2.4 to 8.0 per 100,000 population. To characterize this increase, the California Department of Public Health (CDPH) analyzed case and hospitalization data for the period 2000-2007 and preliminary case report data for 2008. The results indicated that, during 2000-2006, the number of reported cases and hospitalizations for coccidioidomycosis in California increased each year, before decreasing in 2007. Annual incidence during 2000-2007 was highest in Kern County (150.0 cases per 100,000 population), and the hospitalization rate was highest among non-Hispanic blacks, increasing from 3.0 to 7.5 per 100,000 population. Health-care providers should maintain heightened suspicion for coccidioidomycosis in patients who live or have traveled in areas where the disease is endemic and who have signs of ILI, pneumonia, or disseminated infection.

Coccidioidomycosis is a reportable disease in California, although laboratories are not required to report. During 1991-1995, California experienced a large epidemic of coccidioidomycosis in the San Joaquin Valley; since 1995, cases of coccidioidomycosis have been reported consistently to local health departments in California using Confidential Morbidity Reports (CMRs).

Editorial Note: This report describes increases in reported coccidioidomycosis cases and hospitalizations during 2000-2007 and the highest incidence rate in California since 1995, the first year that CMR data were available consistently. The number of reported cases and hospitalizations decreased in 2007, and preliminary data indicate those decreases might have continued in 2008. However, rates of coccidioidomycosis in California remain substantially higher than during 1995-2000. These increased rates likely are real, rather than surveillance artifact, because no major changes in diagnosis or reporting of coccidioidomycosis in California occurred before or during the period studied.

Because intensive dust exposure appears to increase the risk for infection, CDC recommends that **persons living or traveling in regions where coccidioidomycosis is endemic who are at risk for severe or disseminated disease (e.g., older persons, pregnant women, immunocompromised persons, and persons of black race or Filipino ancestry) should avoid exposure to outdoor dust as much as possible**. When such exposure is unavoidable, measures to reduce inhalation of outdoor dust, such as wetting soil and using respiratory protection when engaging in soil-disturbing activities, might be effective. However, options for environmental control of coccidioidomycosis are limited, and no safe, effective vaccine for the disease exists currently. Developing such a vaccine appears to be the best option for preventing disease in those persons at risk for coccidioidomycosis.

REF: MMWR Weekly, February 13, 2009

QuickStats: Age-Adjusted Death Rates Per 100,000 Population for the Three Leading Causes of Injury Death - United States, 1979-2006

Motor-vehicle traffic, poisoning, and firearms were the three leading causes of injury deaths in the United States in 2006. Age-adjusted death rates for motor-vehicle traffic-related deaths and deaths from firearms decreased from 1979 to 2006, whereas the rate for poisoning more than doubled during the same period. From 2005 to 2006, the age-adjusted poisoning death rate increased 13%, whereas motor-vehicle traffic and firearm death rates remained unchanged.

For the entire report link to: MMWR Weekly.

REF: MMWR Weekly, 58(24), June 26, 2009.

Avoid Wild Mushrooms

The California Department of Public Health (CDPH), reminds Californians that collecting and eating wild mushrooms can cause serious illness and even death.

In California, eating wild mushrooms has caused multiple illnesses, hospitalizations and deaths. According to the California Poison Control System (CPCS), 894 cases of mushroom ingestion were reported statewide in 2008. Among those cases:

• 499 were children under six years of age and usually involved eating a small amount of a mushroom the child found growing in a backyard;
• 358 individuals were treated at a health care facility;
• 72 had a moderate health effect, such as diarrhea severe enough to require intravenous fluids;
• 17 were admitted to the intensive care unit;
• Five had a major health outcome, such as liver failure leading to coma, liver transplant or renal failure requiring dialysis;
• One died.

The deaths have been linked to the varieties *Amanita ocreata*, or “destroying angel,” and *Amanita phalloides*, or “death cap.” These mushrooms grow in some parts of California year-round, but are most

commonly found during fall, late winter or spring.

Eating poisonous mushrooms can cause abdominal pain, cramping, vomiting, diarrhea, liver damage and death. Individuals who develop any of these symptoms after eating wild mushrooms should seek medical attention. Individuals with symptoms, or their treating health care providers, should immediately contact CPCS at 1-800-222-1222.

EDITORIAL NOTE: The most deadly mushrooms mentioned above typically do not cause nausea and vomiting immediately after ingestion, the onset of poisoning is delayed and therefore when signs do appear, it is too late to remove the offending mushrooms from the gut. For all collectors, beginners and the most experienced the rule is simple; when in doubt, do not eat them.

REF: California Department of Public Health, October 30, 2009.

Consumers Warned Not to Eat Jigong Chayote Candy

Dr. Mark Horton, director of the California Department of Public Health (CDPH), warned consumers not to eat Jigong Chayote Candy imported from China after tests found unacceptable levels of lead.

Recent analysis of this candy by CDPH determined that Jigong Chayote Candy contained as much as 0.68 parts per million (ppm) of lead. Candies with lead levels in excess of 0.10 ppm are considered contaminated.

The Jigong Chayote Candy container has a copper/gold colored lid, with a picture of a warrior, Chinese symbols, and orange fruit. The word Jigong is printed in green on a black background. Jigong Chayote Candy is imported and distributed by King Wai Trading Company, based in Union City, in the Bay Area. King Wai Trading has voluntarily recalled the candy.

Pregnant women and children who may have consumed this candy should consult a physician or health care provider to determine if medical testing is needed.

Consumers who find Jigong Chayote Candy for sale are encouraged to call the CDPH Complaint Hotline at (800) 495-3232.

REF: California Department of Public Health, October 23, 2009.

Toxicologist Survey Reveals Additional Insights

Toxicologists generally take a more measured view, as the survey administered on behalf of the Society of Toxicology shows. For example, on a scale of one to seven—with seven being the most toxic—respondents rated Chlorpyrifos, Atrazine and DDT in the "moderate" risk range. Survey participants overwhelmingly agreed that exposure to the smallest traces of these chemicals found on foods is in no way dangerous. Those weighing in at the highest end of the scale included smoking tobacco, chewing tobacco and second-hand smoke.

When rating media sources, only 15 percent of toxicologist respondents considered the New York Times, Washington Post and Wall Street Journal to be accurate in their reports of chemical risk studies. A majority of surveyed toxicologists (56 percent) considered WebMD to be the most reliable source of chemical information.

Approximately 32 percent of the Society of Toxicology's 3,600 members participated in the survey. The toxicologists come from a variety of backgrounds in academics, industry, government and environmental groups.

REF: National Agricultural Aviation Association, September/October 2009

Tea Industry and Endosulfan

The tea industry will suffer a major setback following a global ban on endosulfan, a pesticide that is widely used in growing the crop. Endosulfan is set to be banned worldwide after the signing of the Stockholm Convention on Persistent Organic Pollutants, or the POPs, treaty in Geneva in mid-October. The ban on endosulfan may lead to a fall in exports to some European countries, which now accept tea containing the pesticide within a maximum residue limit (tolerance). India exported 203 million kg of tea of which almost 30 million kg were shipped to European countries. Endosulfan is still widely used in many countries to grow crops such as cotton, soybean, coffee, tea and vegetables. It is banned in 62 countries, including the European Union. (*Telegraph*, 9/27/09).

REF: Chemically Speaking, October 2009

Do You Hate Gnats?

Jacumba, a high-desert community about 70 miles east of San Diego, hates gnats. Despite efforts to reduce the number of annoying bugs, residents of the community of about 550 people say they have been worse than ever this summer. "This is a plague upon the town," said Cheryl Furr, a real estate agent who said potential buyers have fled once they have experienced the gnats flying into their eyes and ears. A report by the University of California Extension in January determined what residents had known for years: the gnats were coming from a 400-acre organic farm that has been operating at the edge of town since 1999. The tiny gnats, little bigger than a pinhead, develop in moist soil used for agriculture and are attracted to human and animal eyes because females use the protein from mucus for producing eggs. Since the report was issued, Alan Bornt, who runs Bornt & Sons Farm, has put up 1,000 traps, installed a 4-foot barrier to try to stop the low-flying gnats and tilled deeper in the soil to try to prevent gnat larvae from forming, said James Bethke, a farm adviser who's conducting the Jacumba gnat study. Because Bornt can't use chemical pesticides on his organic spinach and lettuce farm, he's trying a pesticide made of rosemary oil to see if it can control the gnats. Although Bethke said his study shows that fewer gnats are being caught in traps, residents say they haven't felt any relief. (*San Diego Union-Tribune*, 9/6/09).

REF: Chemically Speaking, October 2009.

Veterinary Notes

FDA Announces the Approval of a New Product for the Management of Reproduction in Sheep

The Food and Drug Administration (FDA) announced the approval of EAZI-Breed CIDR Sheep Insert (progesterone solid matrix) for induction of estrus in ewes (sheep) during seasonal anestrus. This progesterone Controlled Intravaginal Drug Release (CIDR) is a steroid hormone that allows out-of-season breeding in sheep.

The data to support this approval were gathered in collaboration with the National Research Support Project-7 (NRSP-7), a USDA program intended to support the approval of new animal drugs for minor species of agricultural importance.

"Members of the U.S. sheep industry have long cited this type of product as their top priority need," said, Dr. Meg Oeller, Director, Center for Veterinary Medicine, Office of Minor Use and Minor Species Animal Drug Development. "And through efforts with our partners at NRSP-7 and the pharmaceutical firm, the FDA can now point to an approved drug product that is fulfilling a real need in the sheep

industry. It represents the true spirit of the MUMS Act."

Clinical researchers funded by NRSP-7 grants conducted the studies to support the effectiveness, target animal safety, human food safety, and environmental safety of the progesterone CIDR. These data were made available in a Public Master File in March of 2009. The pharmaceutical company was able to use these data in conjunction with its own manufacturing, labeling, and other information to complete the new animal drug application.

EAZI-Breed CIDR Sheep Insert is manufactured by Pharmacia and Upjohn, a division of Pfizer, Inc., New York, NY.

REF: FDA website, November 16, 2009

EDITORIAL NOTE: Readers may be interested to know that a considerable amount of the research done to support this project was done by the NRSP-7 team at UC Davis (including Newsletter co-editor Sandy Ogletree, and UCD NRSP-7 Lab Director Scott Wetzlich) in collaboration with Dr. Joan D. Rowe of the UCD School of Veterinary Medicine.

Lilies Deadly to Cats, Veterinarians Warn

Lilies, a floral reminder that winter has passed, frequently appear in homes during spring holidays as potted plants or cut flowers. But for cats, many lilies can be as lethal as they are lovely.

Members of the plant genus Lilium produce a chemical, present throughout the plant, that can cause a cat to suffer fatal kidney failure. It can be deadly for a cat to simply bite into a lily leaf or petal, lick lily pollen from its paws, or drink water from a vase containing cut lilies. Easter lilies, stargazer lilies, and Asiatic lilies seem to be the most hazardous of this group of plants.

"Some cats appear to be more susceptible than others to lily toxicity, and the severity of the resulting kidney failure also varies from cat to cat," said veterinarian Julie Fischer of the UC Veterinary Medical Center-San Diego. "Some poisoned cats recover with minimal therapy, while others require weeks of dialysis to live long enough for the kidneys to repair themselves."

She noted that many cats never recover kidney function following lily toxicity and die, or are euthanized, within just a few days of becoming ill.

"Symptoms of lily poisoning include vomiting, lethargy or loss of appetite," said UC Davis veterinary professor Larry Cowgill,co-director of the UC Veterinary Medical Center-San Diego. "If cat owners suspect lily poisoning, they should contact their veterinarian immediately because a cat that has consumed the lily toxin very likely will experience kidney failure within 36 to 72 hours unless it receives appropriate treatment."

The veterinarians note that while all plants of the Liliumili genus should be considered extremely hazardous to cats, calla lilies and peace lilies, which don't belong to the Lilium genus, are harmless to cats.

REF: News Service at UC Davis. April 3, 2009

Fatalities Caused by Cattle - Four States, 2003-2008

During 2003-2007, deaths occurring in the production of crops and animals in the United States totaled 2,334; of these, 108 involved cattle as either the primary or secondary cause. During the same period, Iowa, Kansas, Missouri, and Nebraska accounted for 16% of the nation's approximately 985,000 cattle operations and 21% of the nation's cattle and calf herd. To better characterize cattle-caused deaths in these four states, investigators reviewed all such deaths occurring during the period 2003-2008 that were detected by two surveillance programs, the Iowa Fatality Assessment and Control Evaluation (IA FACE) and the Great Plains Center for Agricultural Health (GPCAH). This report summarizes that investigation, which identified 21 cattle-related deaths. These deaths occurred throughout the year, and decedents tended to be older (aged ≥60 years) (67%) and male (95%). **Except in one case, the cause of death was blunt force trauma to the head or chest. Circumstances associated with these deaths included working with cattle in enclosed areas (33%), moving or herding cattle (24%), loading (14%), and feeding (14%). One third of the deaths were caused by animals that had previously exhibited aggressive behavior.** To reduce the risk for death from cattle-caused injuries, farmers and ranchers should be aware of and follow recommended practices for safe livestock-handling facilities and proper precautions for working with cattle, especially cattle that have exhibited aggressiveness.

In this analysis, cases were defined as occupational fatalities caused by cattle that occurred in Iowa, Kansas, Missouri, or Nebraska during 2003-2008. Fatalities that occurred when motor vehicles crashed into cattle on roadways (such as while cattle were being herded with an all-terrain vehicle or pickup truck in a pasture) were excluded.

Surveillance Results

The victims' most common activities at the time of death were working with and treating cattle in enclosed spaces such as pens and chutes and moving or sorting cattle toward pens, barns, or pastures. Incidents also occurred while loading cattle into trucks or trailers, feeding, or working in an open pasture.

Ten of the 21 fatalities involved attacks by individual bulls, six involved attacks by individual cows, and five involved multiple cattle. In seven attacks (whether witnessed or not), the bull or cow was known to have exhibited aggressive behavior in the past. **All but one death resulted from blunt force trauma to the chest and/or head; one resulted from inadvertent injection of the antibiotic Micotil 300 (tilmicosin phosphate)** from a syringe in the victim's pocket when he was knocked down by a cow.

Illustrative Case Reports

The following case summaries illustrate the most common circumstances of the cases identified for this report.

Case 1. In August 2005, a woman in Missouri aged 65 years was removing a dead, newborn calf from a pasture when a cow knocked her down, stomped her, and butted her while she was lying on the ground. The coroner reportedly stated that death resulted from blunt force trauma to the woman's head and chest. No autopsy was performed.

Case 2. In November 2005, a man in Iowa aged 65 years was helping his son sort beef cattle for loading onto a truck. He was attempting to guide one of the animals toward the truck when it turned into him, crushing him against the barn door. According to witnesses, he stopped breathing immediately. The medical examiner's report stated that death was caused by blunt force trauma to the man's chest.

Case 3. In April 2006, a man in Iowa aged 63 years was herding cattle into his dairy barn for milking when a bull came into the barn and repeatedly butted him, pinned him against a fence, and stomped him. According to the attending physician's death record, the man sustained multiple rib fractures, lacerated pulmonary arteries, and head injuries. The man's family said that the bull was known to be dangerous and had been threatening in the past.

Case 4. In August 2007, a man in Iowa aged 45 years who was working alone in a pasture was attacked by a bull that had been bottle-fed and raised by the family but, according to family members, had become more aggressive recently. The attack was not witnessed, but the man was able to call his wife for assistance on his cell phone before he died and told her he had been attacked. According to the state medical examiner's autopsy report, he died of blunt force injuries to the chest.

Editorial Note: Large livestock are powerful, quick, protective of their territory and offspring, and especially unpredictable during breeding and birthing periods. Mothering livestock often protect their young aggressively. Dairy bulls, which have more frequent contact with humans than do beef cattle, are known to be especially possessive of their herd and occasionally disrupt daily feeding, cleaning, and milking routines. The findings in this report confirm earlier research substantiating the risk for death to farmers and ranchers from contact with cattle. Previously published reports have described the nature and frequency of cattle-related deaths and injuries. Among 739 patients admitted to a referral trauma center in Wisconsin during a 12-year period because of injuries incurred while farming, 30% involved injuries from farm animals. Working with bulls involves higher risk for injury. In a study of farm worker injuries based on surveillance data from New York, bulls were found to account for 25% of animal-related injuries. Among the deaths described in this report, four (19%) were caused by dairy bulls during feeding or milking operations.

For the entire report link to: MMWR Weekly.

REF: MMWR Weekly, 58(29), July 31, 2009.

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