Prevention bulletin
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Community-acquired Pneumonia

Peter C. Kelly, M.D., F.A.C.P.

Respiratory tract infections are a common cause of illness. Most of these infections are mild, self-limited and do not require professional medical care. Some individuals will have signs and symptoms of a lower respiratory tract infection (also known as acute bronchitis) such as cough, sputum production, and fever. A smaller group of people will have symptoms of a lower respiratory tract infection accompanied by rales on auscultation of the chest and /or an infiltrate on chest radiograph. This later group has an infection of the lung parenchyma known as pneumonia. Pneumonia has many different causes most of which are microorganisms. In fact the microorganisms causing pneumonia are very diverse ranging from viruses to bacteria and fungi. The diversity of causes challenges physicians to make an accurate diagnosis so that appropriate treatment can be given.

A practical approach to managing pneumonia is to classify cases according to the circumstances of the patient at the time the disease was acquired. Some of the categories include pneumonia acquired in the community by overtly normal people, pneumonia acquired in the hospital or nursing home setting, and pneumonia among immunocompromised hosts. This article will focus on community-acquired pneumonia in normal hosts.

Community-acquired Pneumonia, the Big Picture

The estimated annual case load of community-acquired pneumonia in the United States is 4 million. These cases result in 600,000 hospitalizations at a cost of $23 billion.[1] Mortality rates vary widely from a low of 5.1% for hospitalized and ambulatory patients to a high of 36.5% for patients requiring intensive care.[2] Community-acquired pneumonia occurs in patients of all ages but is frequent in people from their mid-fifties to late sixties.[3]

Microorganisms Causing Community-acquired Pneumonia

Many different microorganisms cause community-acquired pneumonia. Among patients requiring hospitalization *Streptococcus pneumoniae* is the most frequently identified pathogen but accounts for only ~ 20% of cases. Other bacteria recognized as causative agents are *Haemophilus influenzae, Staphylococcus aureus, Mycoplasma pneumoniae*, and several different enteric gram negative rods. In addition there are organisms that occur infrequently when nation wide data are surveyed but can be frequent causes in specific locations. Examples include *Legionella* species, *Coxiella burnetii*, and *Chlamydia psittaci*. One of the most common findings in many studies is that no pathogen is identified.

Parameters that Define Severe Pneumonia[3,5]

Any single parameter defines severe pneumonia.

1. Greater than 30 breaths per minute on admission
2. A ratio of arterial oxygen tension to fractional inspired oxygen of less than 250
3. The need for mechanical ventilation
4. Bilateral or multilobar involvement on chest radiograph
5. An increase in the size of the pulmonary infiltrate of up to 50% in the first 48 hours.
6. Systolic blood pressure <90 mmHg
7. Diastolic blood pressure < 60 mmHg
8. The need for vasopressors for more than four hours
9. A urine output of < 20mL/hour or a total output of < 80mL over 4 hours
10. Acute renal failure

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Arizona Department of Health Services

Visit the ADHS Web site at www.azdhs.gov

Community-acquired Pneumonia

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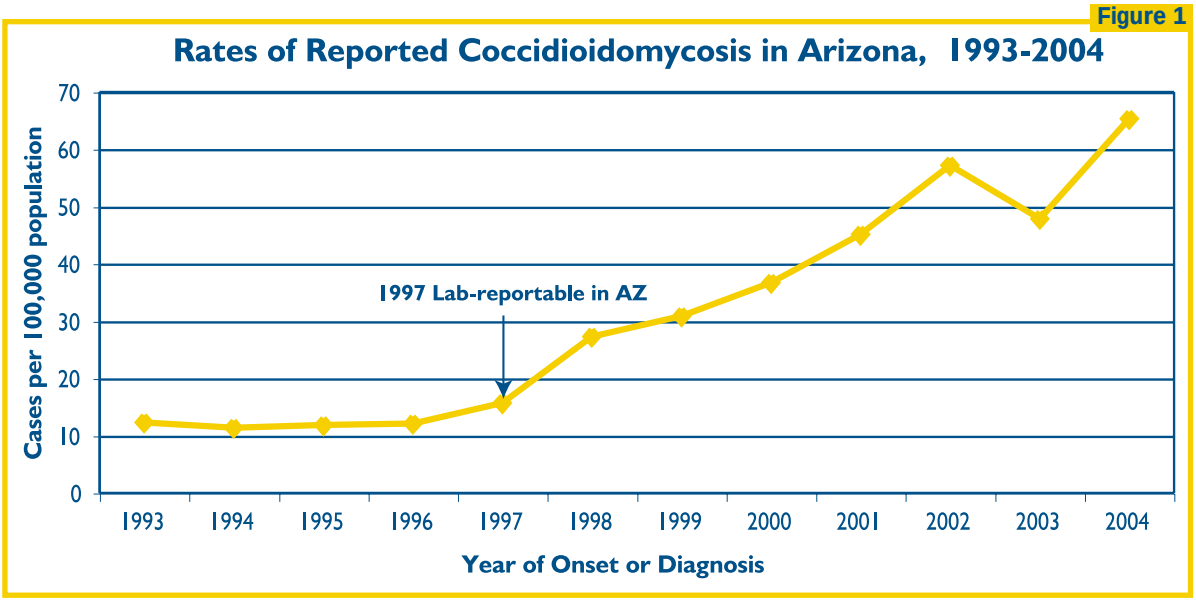
Figure 1



In Arizona we have two organisms that deserve consideration. In the desert counties (Maricopa, Pima, and Pinal) *Coccidiodes immitis,* a fungal organism found in the soil and aerosolized by wind or by working in the soil, can cause community-acquired pneumonia. In recent years the number of cases of coccidioidomycosis has steadily increased (See Figure 1) due in part to increased population but also due in part to other unidentified factors. In view of the increasing cases physicians should strongly consider ordering a coccidioidal serology and fungal sputum culture on cases of community-acquired pneumonia, especially if symptoms persist for two weeks or longer. In the northeastern part of the state the Sin Nombre Virus can cause a severe pulmonary illness (Hantavirus Pulmonary Syndrome) preceded by abdominal pain. The virus is shed in the urine of deer mice and humans acquire infection via aerosols.

Viral pathogens can cause community-acquired pneumonia and are frequent in mild cases not requiring hospitalization. The principal causes are Influenza A and B, Respiratory syncytial virus (RSV), Parainfluenza virus and Adenovirus. Influenza and RSV are seasonal pathogens with clustering in the fall and winter months. *Mycoplasma pneumoniae* is the most frequently established diagnosis in out-patient pneumonias, and accounts for ~20% of cases.

Given the diversity of causes of community-acquired pneumonia it is not necessary or desirable to order diagnostic tests for each possible microorganism. Testing can be tailored to the circumstances of the case. For patients admitted to the hospital, two pretreatment blood cultures, an expectorated deep-cough sputum for Gram stain and culture and a coccidiodal serology is sufficient. Mild cases not requiring hospitalization can be evaluated for *Mycoplasma pneumoniae*, and seasonal viruses such as Influenza and RSV. If a specific organism is suspected on clinical grounds, then tests for that agent can be ordered.

Severe Community-acquired Pneumonia[3]

Ten percent of community-acquired pneumonia cases can be severely ill and benefit from intensive care. Criteria for identifying these patients are listed in the box on page 1. *S. pneumoniae* and *L. pneumophilia* are the organisms most commonly found in severe cases. Mortality rates for severe pneumonia range from 20 to 53%. Clinical factors independently associated with death are tachypnea (>30 breaths/minute), diastolic blood pressure < 60 mmHg and blood urea nitrogen > 7mmol/liter.

Treatment of Community-acquired Pneumonia

In clinical practice, treatment decisions are frequently made before the results of diagnostic tests are available. A detailed discussion of empiric antibiotic selection is beyond the scope of this article and can be found in the published guidelines of the Infectious Diseases Society of America[4] or the American Thoracic Society[5]. The initially prescribed antibiotics can be modified when a specific cause is identified. In patients that do not respond to empiric therapy additional diagnostic testing based clinical findings should be undertaken prior to broadening the antibiotic regimen. In our state, the frequency of coccidioidomycosis should prompt physicians to order coccidioidal serology early in the course of community-acquired pneumonia.

References:

(1) Bartlett JG, Mundy LM. Community-acquired pneumonia. N Engl J Med 1995; 333:1618-1624.

(2) Fine MJ, Smith MA, Carson CA, et al. Prognosis and outcomes of patients with community-acquired pneumonia: A meta-analysis. JAMA 1996; 275: 134-141.

(3) Donowitz, GR, Mandell GL. Acute Pneumonia. In Mandell GL, Bennett JE, Dolin R,eds Principles and Practice Infectious Diseases, 6th ed.Philadelphia: Elsevier; 2005: 819-845.

(4) Mandell LA, Bartlett JG, Dowell SF, et al. Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults. Clin Infect Dis. 2003; 37: 1405-1433.

(5) Niederman MS, Mandell LA, Anzueto A, et al. Guidelines for the management of adults with community-acquired pneumonia: Diagnosis, assessment of severity, and antimicrobial therapy and prevention. Am J Resp Crit Care Med. 2001; 163: 1730-1754.

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Flu Vaccine Risk Groups & Your Practice

by Will Humble

The United States has had either shortages or delays of inactivated influenza vaccine during three of the last five influenza seasons. Delays in delivery of influenza vaccine or vaccine shortages are likely in future years as well because of inherent time constraints in manufacturing the vaccine and uncertainties regarding vaccine supply.

Vaccination will continue to be prioritized on the basis of risk for serious influenza-associated complications during periods of inactivated influenza vaccine shortfall. In years when there is an adequate supply, nationwide media campaigns will use the tiered groupings to encourage people to get their flu shots. The CDC published an article in their August 5, 2005 Morbidity and Mortality Weekly Reports that identifies the vaccination priority groups *http://www.cdc.gov/mmwr/.*

Table 1

	Priority Group	Estimated AZ Pop.	Estimated US Pop.
1. A	Persons > 65 w/co-morbidity	364,000	18,200,000
	Residents of Long Term Care Facilities	34,000	1,700,000
	Sub-total	**398,000**	**19,900,000**
1. B	Persons 2-64 w/co-morbidity	848,000	42,400,000
	Persons > 65	354,000	17,700,000
	Children 6-23 mos.	120,000	6,000,000
	Pregnant women	80,000	4,000,000
	Sub-total	**1,402,000**	**70,100,000**
1. C	Health care personnel	140,000	7,000,000
	Close contacts of children < 6 mos.	100,000	5,000,000
	Sub-total	**240,000**	**12,000,000**
2	Household contacts of high risk persons	1,406,000	70,300,000
	Healthy persons 50 - 64	354,000	17,700,000
	Sub-total	**1,760,000**	**88,000,000**
3	**Healthy Persons 2-49**	**2,110,000**	**105,500,000**
	Total	**5,900,000**	**295,000,000**

The CDC determined the priority groups, ranked in three tiers, on the basis of influenza-associated mortality and hospitalization rates. In years when there is an influenza vaccine shortfall, persons in Tier 1 should be vaccinated preferentially, followed by persons in Tier 2, then persons in Tier 3. Table 1 displays a description of the tiered groups and an estimate of the number of people in each category in Arizona.

The CDC will be using the new tiered risk grouping in their nationwide media campaign this year to increase the public's awareness of this year's immunization recommendations. The media plan will include radio and TV public service announcements, video news releases, radio tours, teleconferences, print media outreach, clinician education, and web based advertising.

The media outreach plan will have three phases that will encourage different risk groups to get their influenza vaccine at different times. Phase I will be in October and will encourage persons in Tier 1 (highest risk) to seek a flu shot. Phase II will encourage persons in Tier 2 (medium risk) to get their shot. The final Phase will be implemented if there are adequate supplies and will encourage lower risk persons aged 2 to 49 years without medical problems to get their shot.

The CDC website continues to post regular updates and downloadable influenza prevention materials for healthcare providers at *http://www.cdc.gov/flu/.*

Will Humble is Deputy Assistant Director of Public Health Preparedness, and can be reached at 602.364.3855 or humblew@azdhs.gov.

Arizona's "Evergreen" Pandemic Flu Plan

A pandemic influenza is inevitable. The ADHS has created this Pandemic Influenza Response Plan to promote an effective and coordinated response throughout the pandemic in order to lessen the impact of the influenza pandemic. Healthcare providers will be important partners with the Federal State and Local government when the next influenza pandemic arrives.

The Arizona plan is on the ADHS website at: www.azdhs.gov. This is an "evergreen" document that is updated as suggestions and recommendations are made. You can provide recommendations to improve the plan by e-mailing Will Humble at humblew@azdhs.gov.

Unsafe Behaviors and STDs Predict HIV Increase

by Melanie Taylor, M.D., M.P.H., and S. Robert Bailey, M.S.

An analysis of sexually transmitted disease (STD), Hepatitis C (HepC), and HIV/AIDS surveillance reports made to the Arizona Department of Health Services from 1998-2003 reveal prevailing patterns of co-morbidity in Arizona. Because common modes of transmission exist between these diseases co-morbidity analyses can support and direct recommendations for testing. Using disease reports, epidemiologists constructed a lifetime diagnosis history of STDs , HepC, and HIV for persons reported with one of these diseases during 1998-2003. Significant morbidity overlaps among the disease groups was observed.

The reported co-morbidity reflects the number of persons in each disease group also having any lifetime reported diagnosis within any of the other disease groups. Most noteworthy is the fact that nearly 15% of those reported with HIV/AIDS have also been reported with an STD or HepC. Compared with prevalent disease rates in the Arizona population, persons reported with Hep C are nearly 12 times more likely to have been diagnosed with HIV; persons reported with Gonorrhea are more than 9 times as likely to have been diagnosed with HIV; persons reported with Syphilis are nearly 13 times more likely to have been diagnosed with HIV infection.

It has long been understood that the presence of an STD facilitates the transmission of HIV, and that STDs themselves are an indicator of unsafe sexual practices conducive to HIV infection. Current Centers for Disease Control and Prevention (CDC) recommendations include HIV testing for all persons who seek testing or treatment for STDs. The U.S. Preventative Services Task Force has recently released updated recommendations for HIV testing among other risk groups.

Among HIV-infected persons STD testing (syphilis, gonorrhea, chlamydia) is recommended yearly and every 3-6-months for persons engaging in unsafe sexual activities such as having sex with anonymous partners, drug use (methamphetamine, Viagra, ecstasy, cocaine), prostitution, and meeting partners at commercial sex venues such as bathhouses, sex clubs and adult bookstores. Hep C testing is recommended for all persons at the initial visit for HIV primary care. For HIV-infected persons reporting ongoing injection drug use, ADHS recommends ongoing annual Hep C testing.

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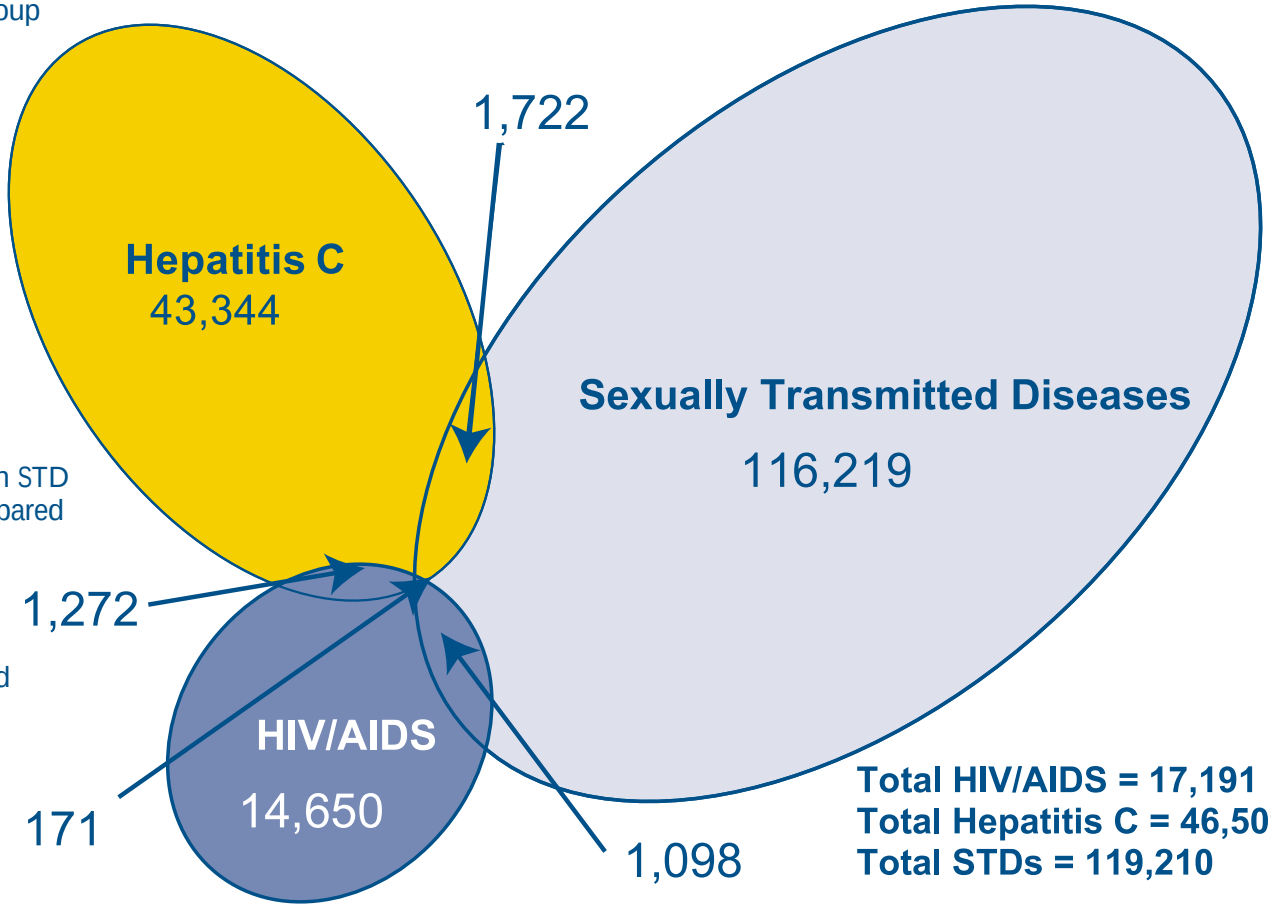

REPORTED CO-MORBIDITY PROPORTIONS:

Hepatitis C: (3,165/46,509)=6.8%
Sexually Transmitted Diseases: (2,991/119,210)=2.5%
HIV/AIDS: (2,541/17,191)=14.8%

Unsafe Behaviors cont. from pg. 4

In addition to these co-morbidity data, other data, such as methamphetamine positivity rates among arrestees, reported patterns of drug use among persons with HIV, and patterns of risk behavior reported among men who have sex with men support a general picture of resurgent risk taking behaviors. Together these data suggest that a significant proportion of HIV infected persons are continuing to engage in behaviors that promote HIV, and STD transmission.

For this reason, providers should collect comprehensive sexual and drug-use histories from their patients and use this information to guide HIV and STD testing. Collection of comprehensive sexual histories should be ongoing with patients reporting current high-risk behaviors. Providers should encourage and support practices (such as condom use) that can significantly reduce the risk of acquisition or transmission of disease.

References:

1. Sexually Transmitted Diseases included in this analysis were Chlamydia, Gonorrhea, Herpes, and Syphilis.
2. Hepatitis C reports included acute and chronic infections, but more than 99% of reports were chronic infections.
3. Fleming DT, Wasserheit JN. From epidemiological synergy to public health policy and practice: the contribution of other sexually transmitted diseases to sexual transmission of HIV infection. Sex Transm Inf. 1999;75:3-17.
4. Centers for Disease Control and Prevention. Sexually Transmitted Disease Treatment Guidelines 2002. MMWR. 2002;51:1-78.
5. U.S. Preventative Serives Task Force. Screening for HIV: Recommendations Statement. Annals of Internal Medicine. 2005;143;32-37.
6. Centers for Disease Control and Prevention. Incorporating HIV Prevention into the medical care of persons living with HIV: recommendations of CDC, the Health Resources and Services Administration, the National Institutes of Health, and the HIV Medicine Association of the Infectious Disease Society of America. MMWR. 2003;52:1-32. *http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5212a1.htm*.
7. Centers for Disease Control and Prevention. Guidelines for preventing opportunistic infections among HIV infected persons. MMWR 2002;51:1-46. *www.cdc.gov/mmwr/preview/mmwrhtml/rr5108a1.htm*
8. 2003 Tucson Rapid Assessment Response and Evaluation (RARE) Project on high-risk behaviors of MSM; 2005 Community Needs Assessment for Ryan White Title I as reported in Arizona Republic, ('Drug use 'Huge' with HIV Victims, 8/13/2005, Cohen, Mitchell); 2003 Arrestee Drug Abuse Monitoring for Methamphetamine in Phoenix available at *(http://www.ojp.usdoj.gov/nij/adam/ADAM2003.pdf*) shows an increase in Methamphetamine positive testing among male arrestees from 17% to 38% between 2000 and 2003.

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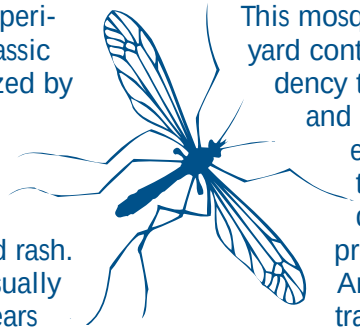
Dengue Fever

by Craig Levy

Dengue is an arboviral disease caused by a flavivirus for which there are four serotypes 1, 2, 3, and 4. Dengue is endemic to most tropical and subtropical regions of the world, and an estimated 50-100 million infections occur annually. Dengue is transmitted by mosquito bites, and is not transmitted person-to-person. Incubation period is 3-14 days. Classic dengue is characterized by sudden onset, high fever, severe frontal headache, backache, myalgia, arthralgia, nausea, vomiting and rash. The rash, which is usually maculopapular, appears 3-4 days after onset of fever. The acute phase may last up to a week, with a prolonged convalescence characterized by weakness, malaise, and anorexia. Classic dengue can be treated with bed rest, fluids, and antipyretics; however, aspirin is contraindicated.



Dengue hemorrhagic fever (DHF) and dengue shock syndrome (DSS) are more severe forms of this disease. DHF is characterized by fever, thrombocytopenia, hemorrhage, and capillary leak syndrome (manifested as hemoconcentration, hypoalbuminemia, or pleural effusion). Skin manifestations can occur such as petechiae, purpura, or ecchymoses. Other hemorrhagic symptoms may include epistaxis, bleeding gums, hematemesis, and melena. DSS may include the above in addition to hypotension and shock.

The primary mosquito vectors are *Aedes aegypti* ("yellow fever mosquito") and *Aedes albopictus* ("Asian tiger mosquito"). *Aedes aegypti* mosquitoes are prevalent in many southern and central Arizona communities. *Aedes aegypti* mosquitoes have also been reported as far north as the Verde Valley area of Yavapai County. This mosquito breeds in back yard containers and has a tendency to bite around the feet and ankles. The potential exists for autocthonous transmission of dengue due to the widespread presence of vectors in Arizona, and with people traveling from endemic areas. Infected travelers can serve as reservoirs for local transmission.

Dengue is a reportable disease in Arizona. Health care workers should consider dengue in the differential diagnosis of patients with compatible symptoms, especially if there is recent travel to tropical countries. Suspected cases should be reported to your local health department, or ADHS at the number listed below. Serologic testing is available through ADHS State Health Laboratory. Paired sera can be submitted to:

Arizona State Health Laboratory
Attn: Serology
250 North 17th Avenue
Phoenix, Arizona 85007.

For more information, contact the ADHS-VBZD staff at 602.364.4562.

Craig Levy is the ADHS Vector-Borne Disease Program Manager and can be reached at levyce@azdhs.gov.

Save the Date – November 17 - 18

The 12th Annual Immunization Conference will be held November 17 and 18 at the Mesa Convention Center. Keynote speakers include two medical epidemiologists from the National Immunization Program at the Centers for Disease Control and Prevention (CDC). Attendees can earn 8.75 hours of Category 1 CMEs through Phoenix Children's Hospital. The registration form is available at www.azdhs.gov/phs/immun/conf.htm or call Michelle Gonazales at 602.364.3635.

Noteworthy

Increase in Reported Cases of Enterohemorrhagic *Escherichia coli*

The Arizona Department of Health Services (ADHS) has noted an increase in reported cases of Enterohemorrhagic *Escherichia coli* (EHEC) in 2005. As of August 16, 2005, 26 cases of EHEC have been reported in Arizona compared to 12 cases reported for the same period in 2004.

EHEC is the primary cause of hemolytic uremic syndrome (HUS) and occurs more frequently in young children and the elderly. Risk of progression to HUS varies by serotype, but approximately 8% of *E. coli* O157:H7 cases develop this syndrome. It is important to note that severe abdominal cramping and bloody diarrhea is only accompanied by fever in less than one third of cases. County and the state health departments have not received any reports of HUS in 2005.

E. coli is transmitted primarily through food contaminated with ruminant feces; however, direct transmission from person-to-person does occur in families and other institutions. Outbreaks have been associated with undercooked beef, unpasteurized milk, apple cider, raw vegetables, petting zoos, and recreational water. Contact with ruminants, such as cattle, goats, and sheep, has become an increasingly recognized source of EHEC cases nationally. In 2004, a large outbreak of *E. coli* O157 associated with a petting zoo was reported in North Carolina, with over 100 cases identified. Two of the 26 reported cases of *E. coli* O157 in Arizona in 2005 had a common exposure to animals.

Isolation of *E. coli* from a stool specimen remains the gold standard for diagnosis of EHEC. However, identification of Shiga-toxin using Enzyme Immunoassay (EIA) and PCR is becoming more widely available. Treatment for EHEC is usually entirely supportive. There is still debate as to whether antimicrobial therapy is safe for all cases. Some studies have identified a higher risk of developing HUS if treated with antimicrobials. However, a large scale randomized trial evaluating the risks and benefits of antimicrobial therapy is needed.

E. coli infection should be considered in cases of gastroenteritis accompanied by bloody diarrhea and with a history of animal contact and/or other risk factors. ADHS reminds providers to:

- Report all cases of Enterohemorrhagic *E. coli* and HUS to your local health department within 24 hours of diagnosis (per Arizona Administrative Code R-9-6-202).
- Collect stool cultures on cases of bloody and/or severe diarrhea.
- Avoid the use of antimicrobial therapy in patients with EHEC infection.

Additional information on Enterohemorrhagic *E. coli* and HUS can be found on the CDC website or by calling the Infectious Disease Epidemiology Program at 602.364.3676.

Pertussis Outbreak Update: Back to School May Increase Transmission

Arizona is continuing to see above average rates of pertussis activity, throughout the state. As of the time of this printing, 737 cases have been reported, which represents of 390% above the 5-year median (2000-2004) for this time frame, and includes fourteen of Arizona's fifteen counties. And while the number of new cases reported per week currently appears to be decreasing, school has just started and the case load is expected to increase. Thankfully, we have a few great tools to help lessen the severity of the current outbreak and hopefully help prevent future outbreaks: Tdap booster vaccines for adolescents and adults (Boostrix® for patients 10-18 years of age and Adacel® for patients 11-65 years of age). Please recommend these boosters to your eligible patient population, especially those that have close contacts with infants (adolescent siblings, new mothers, caregivers, etc.). ADHS also continues to recommend the use of the accelerated immunization schedule for infants until 12/31/05. For more information on these recommendations and pertussis in general please visit the ADHS Pertussis Website at *www.azdhs.gov/phs/oids/epi/pertussis.htm.*

Arizona Valley Fever Awareness Week November 14-21, 2005

Current Schedule of Events

For further listings and updates, go to *http://www.vfce.arizona.edu/*

Tuesday 12:00 - 1:00 p.m.

Demo Pappagianis M.D. PhD. *"The historical importance of Valley Fever to the Southwest."* Tenth Annual VFCE Farness Lecture as the University of Arizona College of Public Health Grad Rounds. Arizona Health Sciences Center, Tucson Arizona.

2:00 - 4:30 p.m. state-wide poster session of current research into Valley Fever. University of Arizona Student Union. Jointly sponsored by the VFCE and the Bio5 Institute, University of Arizona, Tucson Arizona.

Friday Noon-1:00 p.m.

Telemedicine Lecture: *"Coccidioidomycosis for Arizona Physicians."*

Prevention Bulletin Going Only Electronic Starting January 2006

This is the second to the last paper issue of the Prevention Bulletin. The January/February issue and beyond will only be available in electronic format. We can send you future issues electronically if you e-mail Wendy Snyder at snyderw@azdhs.gov with your e-mail address. Future issues will also be posted on our website at *www.azdhs.gov.*

SUMMARY OF SELECTED REPORTABLE DISEASES

Year to Date (January - August, 2005)[1, 2]

	Jan - Aug 2005	Jan - Aug 2004	5 Year Median Jan - Aug
VACCINE PREVENTABLE DISEASES:			
Haemophilus influenzae, serotype b invasive disease (<5 years of age)	1 (0)	0 (0)	4 (3)
Measles	1	0	0
Mumps	0	1	1
Pertussis (confirmed)	737 (358)	151 (96)	151 (93)
Rubella (Congenital Rubella Syndrome)	0 (0)	0 (0)	0 (0)
FOODBORNE DISEASES:			
Campylobacteriosis	646	529	469
E.coli O157:H7	27	15	25
Listeriosis	5	6	7
Salmonellosis	448	455	435
Shigellosis	249	267	277
VIRAL HEPATITIDES:			
Hepatitis A	134	190	223
Hepatitis B: acute	265	155	155
Hepatitis B: non-acute	766	809	775
Hepatitis C: acute	0	1	7
Hepatitis C: non-acute (confirmed to date)	5,239 (2,589)	7,238 (2,529)	5,972 (2,546)
INVASIVE DISEASES:			
Streptococcus pneumoniae	489	473	590
Streptococcus Group A	184	170	169
Streptococcus Group B in infants <90 days of age	37	32	25
Methicillin-resistant *Staphylococcus aureus*[3]	953	N/A	N/A
Meningococcal Infection	33	10	22
SEXUALLY TRANSMITTED DISEASES:			
Chlamydia	12,547	11,103	9,598
Gonorrhea	2,790	2,592	2,592
P/S Syphilis (Congenital Syphilis)	101 (12)	118 (27)	130 (17)
DRUG-RESISTANT BACTERIA:			
TB isolates resistant to at least INH (resistant to at least INH & Rifampin)	11 (0)	15 (2)	6 (0)
Vancomycin resistant *Enterococci* isolates	1,365	881	712
VECTOR-BORNE & ZOONOTIC DISEASES:			
Hantavirus Pulmonary Syndrome	5	1	1
Plague	0	0	0
West Nile virus Infection	29	356	N/A
Animals with Rabies[4]	122	66	66
ALSO OF INTEREST IN ARIZONA:			
Coccidioidomycosis	1,989	2,334	1,634
Tuberculosis	147	137	132
HIV	510	327	309
AIDS	355	327	320

1 Data are provisional and reflect case reports during this period.
2 These counts reflect the year reported or tested and not the date infected.
3 MRSA was not reportable before October 2004.
4 Based on animals submitted for rabies testing.

Data compiled by Offices of Infectious Disease and Office of HIV/AIDS Services

Prevention bulletin

Arizona Department of Health Services

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Hepatitis C: Acute vs. Chronic Infections

For the past five years (2000-2004), there were 17 acute hepatitis C virus (HCV) infections reported in Arizona; yet, 42,780 chronic infections were reported during the same period of time. These data emphasize that despite significant decreases in newly acquired HCV infections, the pool of those previously infected is enormous, approximately 4 million persons in the United States. Due to the long lag of time between infection and chronic disease, the true burden of disease is yet to come. More importantly, many of the HCV-infected persons are unaware of their HCV status and thus, do not take the take the adequate measures to spread the infection to others and at the same time minimize further damage to their liver.

HCV, sexually transmitted diseases (STD) and HIV/AIDS share some common modes of transmission; thus, persons seeking HIV/AIDS/STD treatment are likely to be at risk for HCV too. Thus, offering viral hepatitis services in HIV and STD clinic settings provides a unique opportunity to integrate viral hepatitis services into existing clinics. Furthermore, offering hepatitis A and B immunization and education services to those at risk for hepatitis C can help address the HCV burden of disease.

The Arizona Department of Health Services' (ADHS) Hepatitis C Program can help you with presentations, patient brochures and patient education via phone. You can access more HCV information at *www.cdc.gov* or by contacting the ADHS program at 602.364.3658. **November 2005 is Hepatitis C Awareness Month!** Visit our website at *www.azdhs.gov* for updates to our November Events Calendar.

Hepatitis C Risk Assessment

- Blood transfusion or organ transplant before 1992
- Injected street drugs, vitamins or steroids, even just one time
- Snorted or smoked street drugs, even just one time
- Veteran of the armed forces
- Received medical care outside of the United States
- Had multiple sex partners (> 5 partners in a year, > 10 partners in a lifetime)
- Received hemodialysis
- Tattoos or body piercings from an unsterile environment
- Been in prison
- Current or past unexplained liver disease
- Current or past unexplained abnormal liver function tests