

# Utah Health Status Update:

## Pneumonia

November 2007

Utah Department of Health

Pneumonia is an infection of the lungs; its symptoms are usually shortness of breath, pain upon breathing, coughing, and fever. It can be caused by viruses, bacteria, fungi, as well as by chemical irritants. Pneumonia is usually classified as either community-acquired or hospital-acquired; the latter referring to pneumonia acquired during a hospital stay, after 48 hours of hospital admission.

Pneumonia (combined with influenza) is a leading infectious cause of hospitalization and death in Utah, as it is in the U.S. and the world.<sup>1</sup> Pneumonia accounted for 332 Utah deaths in 2006. Utah hospitals saw over 6,000 inpatient hospital visits, with charges ranging from \$3,907 to \$14,695 in 2005.<sup>2</sup> For patients with pneumonia as well as other comorbid conditions, the charges ranged from \$2,814 to \$38,314.

While many different viruses (especially seasonal influenza) can cause pneumonia, typically hospitalization and death are caused when a bacteria “superinfects” already weakened lungs. These superinfections are usually caused by bacterial species such as *Streptococcus*, *Staphylococcus*, *Haemophilis*, and *Moraxella*.

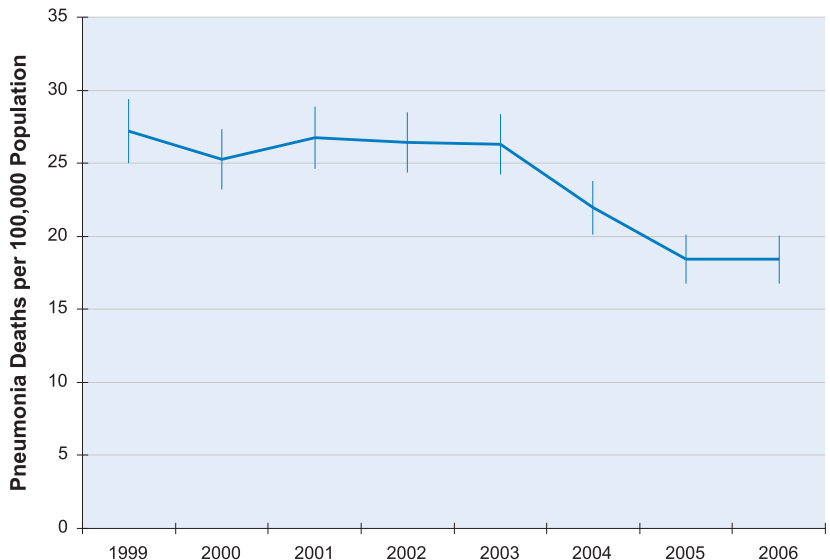
The association of pneumonia with influenza can be seen in Figure 1. There was a decrease in deaths due to pneumonia starting in 2004 and continuing through 2006. This corresponds to the past three influenza seasons, which have ranged from mild to moderate when judged by the number of hospitalizations and deaths.

Severe pneumonia usually occurs in the very young and the very old (Figure 2). The link between pneumonia deaths and the elderly was noticed in the 19th century, when pneumonia was called “captain of the men of death.”<sup>3</sup>

There is a marked seasonality to the incidence of pneumonia. Pneumonia due to hantavirus occurs in the spring and summer, legionella and mycoplasma occur in the summer and fall, and influenza and respiratory syncytial virus (RSV)—along with major bacterial pathogens,

### Pneumonia Deaths

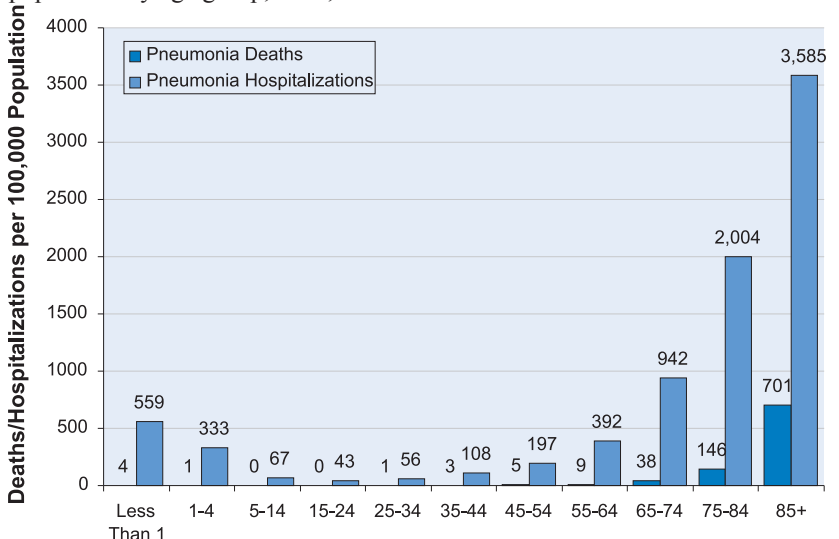
Figure 1. Pneumonia deaths per 100,000 population, Utah, 1999–2006



Source: Utah Department of Health, Office of Vital Records and Statistics (OVRs), Death Certificate Data  
Note: Data have been age-adjusted to U.S. 2000 standard population.

### Deaths and Hospitalizations by Age Group

Figure 2. Pneumonia deaths and inpatient hospitalizations per 100,000 population by age group, Utah, 2002–2006



Source: Utah Department of Health, Office of Vital Records and Statistics (OVRs), Death Certificate Data and Office of Health Care Statistics (OHCS) Inpatient Hospital Discharge Data. Deaths, ICD-10 J12-J18; Hospitalizations, ICD-9 480-486.

occur primarily in winter and spring. The majority of hospitalizations and deaths occur in winter and spring (Figure 3).

*Streptococcus pneumoniae* (also known as pneumococcus) is the most common cause of serious bacterial infections in the U.S.<sup>4,5</sup> Pneumococ-

cus kills more Americans than any other type of bacteria or any other vaccine-preventable disease. As its name implies, pneumococcus can cause pneumonia and is the leading cause of pneumonia deaths. Pneumococci are spread from person to person by coughing, sneezing, and close contact.

One important way of protecting yourself from pneumonia is to make sure that you receive yearly influenza vaccines. Influenza requires annual vaccination because there are many strains that differ from year to year.

In addition, there are two types of pneumococcal vaccines available to help reduce hospitalizations and death due to these bacteria. A heptavalent conjugated pneumococcal vaccine, Prevnar, is available for children aged 2 months to 5 years. This vaccine is extremely effective in preventing disease due to many (but not all) types of pneumococci in children. Interestingly, recent data show that vaccinating children with Prevnar also helps reduce disease in the elderly, thus demonstrating the role of children in the spread of disease to the elderly.<sup>6</sup> The second vaccine, Pneumovax, is available for adults over the age of 65 (or those between 2 and 65 with chronic lung disease or other medical indication).

There is a general misconception that the pneumococcal vaccine is effective against all kinds of pneumonia. There are many viruses and bacteria other than pneumococcus that can cause pneumonia, and the vaccine is not effective against any other type of bacteria or virus.

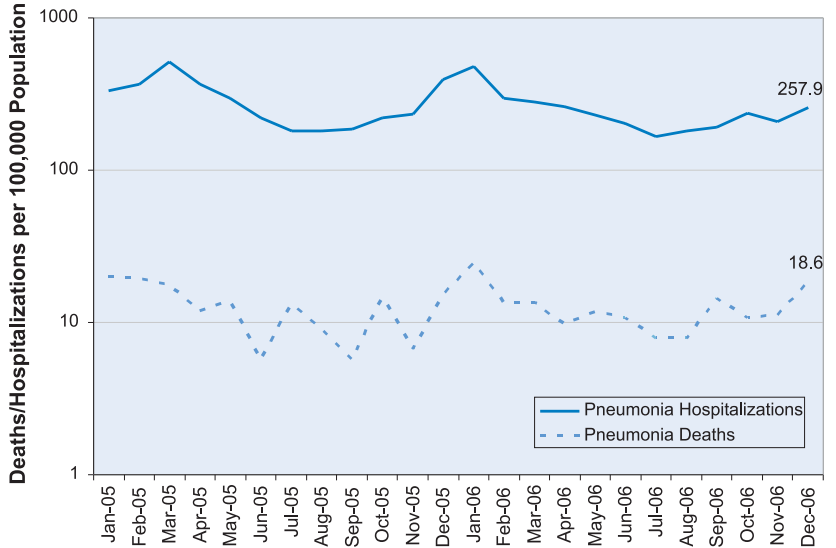
From 2002 to 2006, 73% of Utahns aged 65 and older had been immunized against influenza in the previous 12 months, and 66% had ever received a pneumococcal immunization. Immunization rates for both diseases have remained fairly steady in Utah over the past five years. There were higher rates of pneumococcal and influenza immunization among persons age 65+ in Weber-Morgan and Utah County health districts (Figure 4). The lowest pneumonia death rates among persons aged 65+ were found in Summit County health district.

**References:**

1. National Center for Health Statistics
2. Utah Department of Health, Center for Health Data, Office of Vital Records and Statistics and Health Care Statistics
3. New England Journal of Medicine. 1998; 339:1336-1337

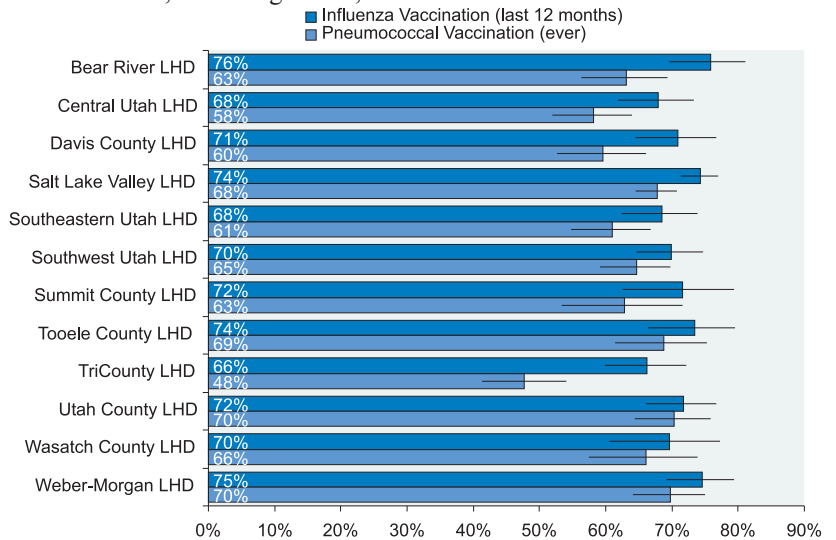
**Deaths and Hospitalizations by Month**

Figure 3. Pneumonia deaths and hospitalizations per 100,000 population by month, Utah, 2005–2006



**Immunizations by Local Health District**

Figure 4. Percentage of persons with influenza and pneumonia immunizations, Utahns aged 65+, 2002–2006



Source: Utah Department of Health, Office of Public Health Assessment, Behavioral Risk Factor Surveillance System (BRFSS)

**November 2007**

**Utah Health Status Update**

For additional information about this topic, contact **Suan Mottice, Office of Epidemiology, (801) 538-6172, [smottice@utah.gov](mailto:smottice@utah.gov); or the Office of Public Health Assessment, Utah Department of Health, Box 142101, Salt Lake City, UT 84114-2101, (801) 538-9462, FAX (801) 538-9346, email: [phdata@utah.gov](mailto:phdata@utah.gov)**

4. Centers for Disease Control and Prevention
5. Semin Respir Crit Care Med. 2005; 26(6):563-574
6. New England Journal of Medicine. 2006; 354:1455-1463

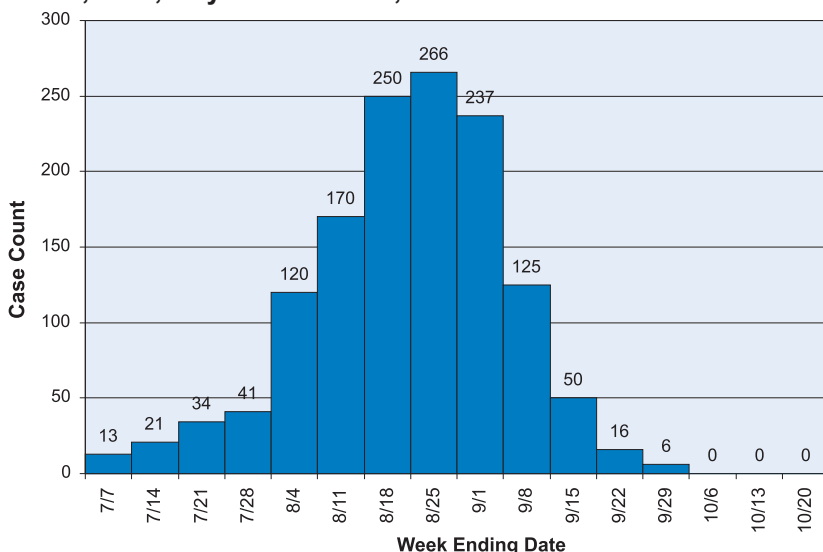
## Breaking News, October 2007

### Cryptosporidiosis Outbreak, Summer 2007

Cryptosporidiosis, a gastrointestinal illness, is caused by the parasite *Cryptosporidium*. In healthy persons, clinical illness is characterized by watery diarrhea, which can be accompanied by abdominal cramps, loss of appetite, and other features frequently associated with gastrointestinal illness. Although cryptosporidiosis cases occur sporadically, outbreaks have been well-documented including recreational water-associated outbreaks.

In a given year, approximately 30 cases of cryptosporidiosis are reported to the Utah Department of Health (UDOH) on average. However, during the summer of 2007, a large outbreak of cryptosporidiosis occurred in Utah. Initial cases were reported to public health in June and confirmed cases rapidly increased during the subsequent weeks. The outbreak peaked during the middle of August, although cases continued to be reported to the UDOH throughout September and October. As of October 19, 2007, 1,853 cases have been reported. It is believed that this outbreak has been associated with recreational, chlorinated water sources throughout the state, primarily involving swimming pools. Pool restrictions were implemented and enhanced treatment guidelines were established. Restrictions are being modified as reported cases decrease substantially.

**Number of Reported Cryptosporidiosis Cases by Week of Disease Onset, Utah, July 1–October 19, 2007**

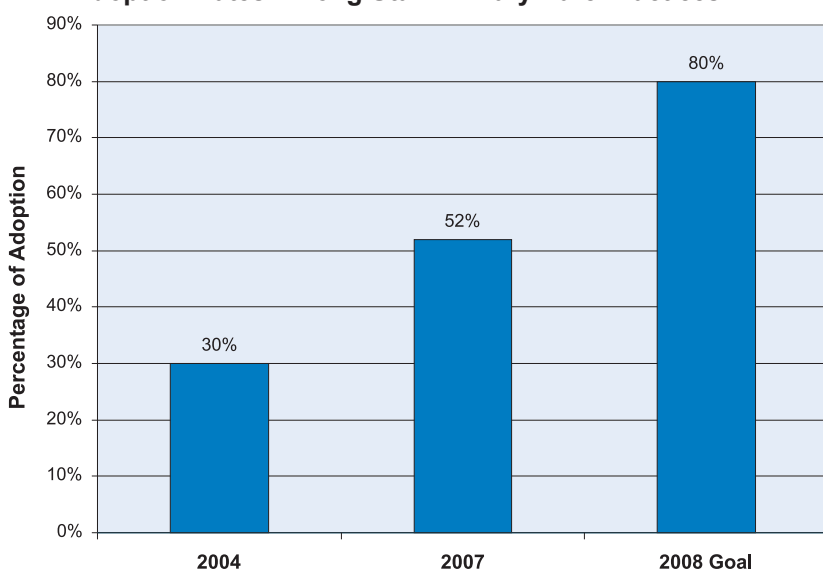


## Community Health Indicators Spotlight, October 2007

### Adoption of Electronic Medical Records (EMR)

A critical success factor for the Utah's e-health initiative is widespread adoption of Electronic Medical Records (EMR) used by physicians and clinics. Funded by the Center for Medicare and Medicaid Services, HealthInsight, a Quality Improvement Organization (QIO) for Utah and Nevada, has been the lead organization to provide technical assistance to primary care physician offices to adopt EMR since 2004. In 2007, approximately 52% of primary care practices in Utah have adopted EMR in their information systems. The State of Utah legislature, Utah Medical Association (UMA) Foundation, the Digital Health Service Commission, and Division of Health Care Finance also support the EMR diffusion through a variety of activities in the community. This partnership aims to increase the EMR adoption rate for primary care practices in 2008 up to 80% and provide technical assistance to additional 35–45 clinics that provide services to Medicaid patients.

**EMR Adoption Rates Among Utah Primary Care Practices**



# Monthly Health Indicators Report

(Data Through September 2007)

<b>Monthly Report of Notifiable Diseases, September 2007</b>	Current Month # Cases	Current Month # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
Campylobacteriosis (Campylobacter)	11	33	249	224	1.1
Enterotoxigenic Escherichia coli (E. coli)	6	20	103	78	1.3
Hepatitis A (infectious hepatitis)	2	4	6	27	0.2
Hepatitis B (serum hepatitis)	1	2	10	30	0.3
Measles (Rubeola, Hard Measles)	0	0	0	0	--
Meningococcal Diseases	2	0	10	5	1.9
Norovirus	0	1*	16	13*	1.3
Pertussis (Whooping Cough)	14	40	287	275	1.0
Salmonellosis (Salmonella)	12	24	211	210	1.0
Shigellosis (Shigella)	4	4	24	36	0.7
Varicella (Chickenpox)	6	25*	585	459*	1.3
Viral Meningitis	17	43	91	123	0.7
West Nile (Human cases/Equine cases)†	43 / 6	34 / 25	56 / 16	53 / 38	1.1 / 0.4
<b>Notifiable Diseases Reported Quarterly, 3rd Qtr 2007</b>	Current Quarter # Cases	Current Quarter # Expected Cases (5-yr average)	# Cases YTD	# Expected YTD (5-yr average)	YTD Standard Morbidity Ratio (obs/exp)
HIV	21	21	65	62	1.0
AIDS	9	14	29	34	0.8
Chlamydia	1,353	1,101	4,030	2,951	1.4
Gonorrhea	187	153	599	414	1.4
Tuberculosis	6	10	28	26	1.1
<b>Program Enrollment for the Month of September 2007</b>	Current Month	Previous Month	% Change <sup>s</sup> From Previous Month	1 Year Ago	% Change <sup>s</sup> From 1 Year Ago
Medicaid	157,481	158,896	-0.9%	168,196	-6.4%
PCN (Primary Care Network)	19,049	18,575	+2.6%	17,093	+11.4%
CHIP (Children's Health Ins. Plan)	28,142	27,191	+3.5%	35,180	-20.0%

<b>Medicaid Expenditures (in Millions) for the Month of September 2007</b>	Current Month	Expected/Budgeted for Month	Fiscal YTD	Budgeted Fiscal YTD	Variance - over (under) budget
Capitated Mental Health	\$ 15.3	\$ 9.0	\$ 25.1	\$ 18.0	\$ 7.1
Inpatient Hospital	\$ 17.7	\$ 20.4	\$ 41.0	\$ 42.1	(\$ 1.1)
Outpatient Hospital	\$ 7.5	\$ 8.3	\$ 16.4	\$ 17.7	(\$ 1.3)
Long Term Care	\$ 17.9	\$ 16.5	\$ 43.6	\$ 46.6	(\$ 3.0)
Pharmacy	\$ 12.2	\$ 13.1	\$ 30.0	\$ 34.1	(\$ 4.1)
Physician/Osteo Services	\$ 5.8	\$ 6.8	\$ 11.8	\$ 14.1	(\$ 2.3)
<b>TOTAL HCF MEDICAID</b>	<b>\$ 153.9</b>	<b>\$ 151.0</b>	<b>\$ 299.4</b>	<b>\$ 321.7</b>	<b>(\$ 22.3)</b>
<b>Health Care System Measures</b>	Number of Events	Rate per 100 Population	% Change <sup>s</sup> From Previous Year	Total Charges in Millions	% Change <sup>s</sup> From Previous Year
Overall Hospitalizations (2006)	272,404	9.9%	-0.9%	\$ 3,874.8	+10.7%
Non-maternity Hospitalizations (2006)	161,398	5.7%	-2.5%	\$ 3,235.3	+11.0%
Emergency Department Encounters (2005)	664,523	25.0%	+3.5%	\$ 553.2	+21.2%
Outpatient Surgery (2005)	308,300	11.7%	-0.5%	\$ 947.7	+12.1%
<b>Annual Community Health Measures</b>	Current Data Year	Population at Risk	Number Affected	Percent/Rate	% Change <sup>s</sup> From Previous Year
Overweight and Obesity (Adults 18+)	2006	1,777,802	976,000	54.9%	+1.3%
Cigarette Smoking (Adults 18+)	2006	1,777,802	174,200	9.8%	-15.0%
Influenza Immunization (Adults 65+)	2006	217,313	156,700	72.1%	+3.4%
Health Insurance Coverage (Uninsured)	2006	2,582,371	306,500	11.9%	+2.5%
Motor Vehicle Crash Injury Deaths	2006	2,582,371	296	11.5 / 100,000	-0.7%
Suicide Deaths	2006	2,582,371	357	13.8 / 100,000	+1.6%
Diabetes Prevalence	2006	2,582,371	105,600	4.1%	-0.7%
Coronary Heart Disease Deaths	2006	2,582,371	1,563	60.5 / 100,000	-2.3%
All Cancer Deaths	2006	2,582,371	2,600	100.7 / 100,000	+1.4%
Births to Adolescents (Ages 15-17)	2006	58,992	981	16.6 / 1,000	+5.9%
Early Prenatal Care	2006	53,475	42,237	79.0%	+0.3%
Infant Mortality	2006	53,475	269	5.0 / 1,000	+12.2%
Childhood Immunization (4:3:1:3:3)	2006	51,016	41,000	80.4%	+8.5%

\* Due to limited historical data, the average is based upon 3 years of data for norovirus, varicella, and 4 years of data for West Nile virus infections.

† 2007 WNV activity continues to be low compared to the 2006 season.

§ % Change could be due to random variation.

Note: Active surveillance has ended for influenza until the 2007 season.