

Pneumonia

Only a few specific pneumonias are reportable such as Legionnaire's disease.

Pneumonia is a disease that results from a wide number of infections - viral, bacterial and fungal.

Viral agents that commonly cause pneumonia include adenoviruses, respiratory syncytial virus, parainfluenza viruses and of course, influenza viruses.

Bacteria that cause pneumonia include *Streptococcus pneumoniae*, *Haemophilus influenzae* type B (Hib), *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Streptococcus pyogenes*, *Neisseria meningitidis* and other organisms that are less commonly considered as causes of pneumonia such as *Escherichia coli*.

Additionally, individuals with immune systems impaired by immunosuppressants or diseases of the immune system are at high risk of Pneumocystis pneumonia, caused by a fungus (*Pneumocystis carinii* or PCP).

Broadly, many of the microbial agents that cause upper respiratory tract infections can lead to the development of pneumonia. The number of pneumonia cases can be extrapolated from national estimates adjusted for Louisiana. (Table 1)

Table 1: Estimation of Pneumonia cases - Louisiana, 2004

	Louisiana	USA
Pneumonia cases	50,000	2-3 million
Physicians' visits	166,000	10 million

To monitor pneumonia and influenza mortality, all of the death certificates issued in Louisiana are reviewed. Causes of death are coded according to the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10). Specifically ICD-10 provides coding for pneumonias that present in a clinically distinct way such as bronchopneumonia, pneumonias caused by specific bacteria or viruses (for example *Haemophilus influenzae* and Varicella) as well as pneumonias that are caused by an unspecified agent. The crude numbers of mortality resulting from these causes of death are presented in Table 2. A classification of influenza with pneumonia is included in pneumonia related deaths.

Table 2. Number of deaths caused by Pneumonia - Louisiana, 1999–2004

	99	00	01	02	03	04
Bacterial pneumonia, unspecified	9	9	9	16	10	0
Bronchopneumonia, unspecified	34	34	27	24	13	32
Hypostatic pneumonia, unspecified	2	2	1	3	3	0
Influenza with pneumonia influenza virus identified	0	0	0	0	4	0
Influenza with pneumonia virus not identified	7	12	0	2	8	3
Lobar pneumonia, unspecified	17	11	7	3	13	13
Other bacterial pneumonia	2	0	1	1	0	0
Pneumonia, organism unspecified	2	1	1	0	2	0
Pneumonia due to						
Pneumocystis carinii	4	2	2	3	3	0
Escherichia coli	2	0	0	0	0	0
Haemophilus influenza	0	0	1	0	0	0
Klebsiella pneumoniae	2	2	1	1	3	4
Mycoplasma pneumoniae	0	2	4	0	0	0
Other specified infectious org	1	0	0	0	0	0
other streptococci	4	3	5	1	4	0
Pseudomonas	2	4	1	5	3	4
Staphylococcus	21	18	12	8	13	10
Streptococcus group B	0	0	1	0	0	0
Unspecified	890	876	893	897	839	821
RSV	0	0	0	1	1	0
Strep pneumoniae	5	5	6	3	2	8
Varicella	0	0	1	1	0	0
Viral	4	8	2	2	1	5

To monitor pneumonia and influenza morbidity, all hospital discharge records in Louisiana were reviewed. Hospital discharge includes patients' main diagnoses and up to eight additional diagnoses, coded according to the International Statistical Classification of Diseases and Related Health Problems, 9th revision (ICD-9). ICD-9 is an earlier version of the ICD-10 used in mortality surveillance and provides much of the same coding for specific pneumonias. The crude numbers of pneumonia main diagnoses are presented in Table 3 and the crude numbers of all persons admitted to the hospital who develop pneumonia (diagnoses 1 through 8) are shown in Table 4.

Table 3: Number of main diagnoses of hospital admissions coded as Pneumonia
Louisiana, 1999-2003

	99	00	01	02	03
Bacterial pneumonia, unspecified	246	181	160	120	134
Bronchopneumonia, unspecified	1291	1112	1040	1297	1265
Hypostatis pneumonia, unspecified	121	121	160	170	156
Influenza with pneumonia	217	159	86	176	321
Lobar pneumonia, unspecified	0	0	0	0	0
Pneumonia, organism unspecified	15458	13679	16490	18339	16887
Pneumonia due to <i>Pneumocystis carinii</i>	63	25	27	22	23
Pneumonia due to <i>E. coli</i>	97	58	65	58	44
Klebsiella pneumonia	343	246	191	234	209
Mycoplasma pneumonia	113	52	71	148	89
Pneumonia due to other streptococci	0	0	0	0	0
Pneumonia due to Streptococcus group B	647	575	516	509	540
Pneumonia due to RSV	405	256	406	363	209
Pneumonia due to Varicella	9	18	12	10	2
Viral pneumonia	16	11	7	15	1

Table 4: Number of hospital admissions with a secondary diagnosis of Pneumonia
Louisiana, 1999-2003

	99	00	01	02	03
Bacterial pneumonia, unspecified	61	90	69	51	62
Bronchopneumonia, unspecified	331	349	362	402	332
Hypostatis pneumonia, unspecified	564	594	691	756	603
Influenza with pneumonia	52	47	20	37	51
Lobar pneumonia, unspecified	336	266	315	319	283
Klebsiella pneumonia	249	227	195	197	210
Pneumonia, organism unspecified	8818	9048	11023	11982	11922
Pneumonia due to <i>Pneumocystis carinii</i>	293	364	313	261	306
Pneumonia due to <i>E. coli</i>	61	57	56	72	62
Mycoplasma pneumonia	35	19	28	56	41
Pneumonia due to other streptococci	0	0	0	0	0
Pneumonia due to Streptococcus group B	336	266	315	319	283
Pneumonia due to RSV	58	63	71	51	71
Pneumonia due to Varicella	5	5	2	1	1
Viral pneumonia	3	3	2	2	1