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YEAR IN REVIEW: COMMUNICABLE DISEASE SURVEILLANCE, 2002

In this issue, we review the trends in reports of notifiable diseases among NSW residents received by the NSW public health units for 2002. Readers interested in the details of notifications for specific diseases are referred to Tables 1–5 where diseases are reported by: year of onset; month of onset; rate per 100,000 population and number of cases by area health service; and age group and sex. Table 6 shows the number of people with notifiable conditions who were reported to have died by the time of follow-up by their local public health unit.

TRENDS

Among the 35,142 NSW residents with medical conditions notified by doctors, hospital staff, and laboratories for 2002:

Conditions most frequently reported

- hepatitis C (6705 cases [101.9/100,000 population], with the highest crude rates in Central Sydney, South Western Sydney, and Northern Rivers Area Health Services);
- chlamydia (5649 [85.9/100,000], with the highest crude rates in Central Sydney, South Eastern Sydney, and Far West Area Health Services);
- gastroenteritis in institutions (4057 [61.7/100,000], with the highest crude rates in Central Sydney, Southern and Far West Area Health Services);*
- hepatitis B (3550 cases [53.9/100,000], with the highest crude rates in Central Sydney, South Western Sydney, and Western Sydney Area Health Services);
- salmonella infections (2102 cases [32.0/100,000], with the highest crude rates in the Northern Rivers, Greater Murray, and New England Area Health Services);
- pertussis (2009 cases [30.5/100,000], with the highest crude rates in the Macquarie, Hunter, and Mid North Coast Area Health Services).

* Note: Surveillance recording practices for 'gastroenteritis in an institution' changed in 2002, leading to the significant rise in numbers of cases from 2001.

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Conditions with meaningful declines over previous years

- hepatitis C (6705 cases in total, down from 8692 in 2001);
- pertussis (2009 cases, indicating the easing of the statewide outbreak in 2000–01);
- measles (eight cases, down from 31 in 2001, and a record low).

Conditions with meaningful increases over previous years

- chlamydia infections (5649 cases, up from 4494 in 2001);
- institutional gastroenteritis (4057 cases, up from 775 in 2001, largely reflecting the changes in foodborne illness surveillance implemented during 2002);
- salmonellosis (2102 cases, up from 1643 in 2001. The most commonly reported serovars in 2002 were *S.typhimurium* subtypes 9 and 135);
- new HIV diagnoses (389 cases, up from 341 in 2001, the first annual increase in case reports in recent years);
- Q fever (305 cases, up from 142 in 2001, perhaps in part due to increased screening related to the Q Fever vaccination program);
- cryptosporidiosis (305 cases, up from 195 in 2001);
- adverse events after immunisation (174 cases, up from 111 in 2001, perhaps reflecting the broader surveillance definition adopted in recent years and improved reporting of adverse events after immunisation).

Conditions least frequently reported

In 2002, there were no reported cases of botulism, chancroid, diphtheria, leprosy, lymphogranuloma venereum (LGV), donovanosis, plague, polio, rabies, congenital rubella, tetanus, typhus, viral haemorrhagic fevers, or yellow fever.

Conditions associated with the largest numbers of reported deaths

Deaths for notifiable conditions reported via the surveillance mechanisms may not include all deaths associated with these conditions. Public health units routinely investigate all cases of some notifiable conditions (for example: tuberculosis, measles, and meningoccocal disease) in order to put control measures in place. However, there are other notifiable conditions (for example: chlamydia and gonorrhoea) where no routine investigation takes place but information is collected for surveillance purposes. Where death occurs either after the investigation of a case, or where there has been no routine investigation, these deaths may not be recorded in the surveillance systems. Deaths were most frequently reported for the following notifiable diseases:

- invasive pneumococcal disease (99);
- tuberculosis (37);
- AIDS (25);
- meningococcal disease (19);
- gastroenteritis in an institution (15);
- hepatitis C (10).

Outbreaks and threats

In 2002, several notable disease outbreaks and threats were reported in NSW. These include:

- a large outbreak of psittacosis, linked to wild birds in the Blue Mountains in Autumn;
- the re-emergence of syphilis in inner Sydney, especially among men who have sex with men;
- an outbreak of Barmah Forest virus infection on the northern coast of NSW, which saw it replace Ross River Virus infection as the dominant mosquito-borne disease in autumn;
- an outbreak of *Salmonella Typhimurium* phage type 9 infections, some cases being linked to fried ice-cream contaminated with raw-chicken juice in February;
- an outbreak of five measles cases, linked to cases acquired overseas or interstate, between March and August;
- increasing reports of community-acquired Methicillin Resistant Staphylococcus Aureus (MRSA), notably in the Greater Murray and the Far West Area Health Services;
- a cluster of two passengers on a cruise ship who were diagnosed with meningococcal disease in January;
- general public concern about meningococcal disease.

TRAINING AND INFORMATION

In 2002, the NSW Department of Health facilitated training for public health professionals in communicable disease control and developed new information resources, including:

- monthly Bug Breakfast seminars, journal clubs, and epidemiological grand rounds seminars;
- a two-day workshop on communicable disease surveillance;
- supervision of an officer on the NSW Public Health Officer Training Program;
- teaching students of public health and medicine at the Universities of Sydney and New South Wales;
- a variety of new fact sheets, available online at www.health.nsw.gov.au/pubs/index.html.

PROGRESS ON PRIORITY AREAS

In 2000, communicable diseases priority areas were identified for development in NSW.[1] Here we report on progress on the priority areas for the State:

Eliminate the transmission of measles
Eight measles cases were reported among NSW residents in 2002. Of these six were confirmed by laboratory testing.

Eliminate congenital rubella
There were no cases in 2002.

Eliminate congenital syphilis
There was one case in 2002.

Monitor risk factors for new hepatitis C infections
An evaluation of enhanced Hepatitis C (HCV) surveillance (involving follow up of all cases reported by pathology laboratories as having markers of HCV infection) in 2002 found that enhanced surveillance provided little new useful epidemiological information about cases. Consequently, enhanced statewide surveillance ceased in late 2002.

Better understand risk factors for invasive pneumococcal disease
Enhanced surveillance for invasive pneumococcal disease (IPD) was undertaken for children aged less than five years and adults aged 50 years and over. Vaccination is recommended for children with certain underlying illnesses, and all adults aged 65 years and over. Underlying illness was present in 14 per cent of children and 64 per cent of adults aged 50 years and older diagnosed with IPD. Vaccination may have prevented up to 85 per cent of cases of disease.

Minimise the incidence and management of multi-drug resistant tuberculosis
Four cases of multi-drug resistant tuberculosis (MDR-TB) were identified in 2002; all were most likely acquired overseas. An expert panel reviewed the management of each case.

INITIATIVES FOR 2003

To strengthen communicable disease control activities in 2003, the following initiatives were planned:

- a review of priorities for the control of communicable diseases;
- a review of systems and processes for statewide surveillance;
- strengthening surveillance for meningococcal disease and tuberculosis;
- convening a training workshop for disease control for public health professionals.

SO WHAT DOES IT ALL MEAN?

In 2002, bloodborne viruses (notably hepatitis C, hepatitis B, and HIV), sexually transmissible infections (notably chlamydia and gonorrhoea), and enteric diseases (notably norovirus and salmonella), were the most commonly notified diseases in NSW. Prevention of these diseases must therefore remain a priority.

The record low levels of measles is a testament to the current high rates of immunisation among children. However, because pertussis vaccine is less effective in providing long term immunity than the measles vaccine, it may be that the relatively low levels of pertussis represents an inter-epidemic lull and a rise can be anticipated in 2003–04.

Although the number of cases of meningococcal disease was no higher than in the previous year, in 2002 there was an increase in deaths from meningococcal disease (to 19, up from seven in 2001) and a substantial increase in public concern and media coverage about the disease. Subsequently, the Commonwealth Department of Health and Ageing funded, and NSW Health is implementing, a meningococcal C vaccine program for pre-school and school children.

The more commonly reported cause of death resulting from a notifiable disease, however, was from pneumococcal disease, and more complete vaccination coverage in young children and older adults should lead to a reduction in the number of both cases and deaths.

The outbreak of psittacosis in the Blue Mountains highlights the need to remain vigilant for—and maintain public health capacity to investigate and control—outbreaks of novel or previously unknown diseases, especially in light of the subsequent global outbreak of severe acute respiratory syndrome in 2003, and concerns about the potential for bioterrorism.

THANK YOU

It is important to recognise that disease control and prevention depends on effective surveillance of communicable diseases in the community. NSW Health would like to thank all those general and specialist medical practices, laboratories, hospitals, schools, childcare centres, and others, who have notified diseases of public health significance to their local public health units for investigation and control. We also recognise the cooperation that the patients with these diseases, and their families and contacts, have demonstrated in helping reduce the transmission of these infections.

REFERENCE

1. Public Health Division. Infectious Disease, NSW: May 2000. *N S W Public Health Bull* 2000; 11(5): 84–86.

TABLE 1

DISEASE NOTIFICATIONS BY YEAR OF ONSET OF ILLNESS, NSW, 1991 TO 2002

Conditions	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
AIDS	443	432	480	552	472	368	201	173	112	122	77	73
Adverse event after immunisation	9	31	23	40	28	56	70	94	13	42	111	174
Total Arboviral infection*	409	341	656	381	534	1225	1803	780	1218	975	1184	657
Arboviral: Barmah Forest virus infections*	6	6	25	39	271	172	185	134	249	195	399	393
Arboviral: Ross River virus infections*	297	324	599	332	236	1031	1597	583	953	749	716	182
Arboviral: other*	106	11	32	10	27	22	21	63	16	31	69	82
Blood lead level ≥ 15µg/dl*	not notifiable until December 1996						710	874	691	990	515	524
Botulism	0	0	0	0	0	0	0	0	1	0	0	0
Brucellosis*	2	2	4	4	2	1	3	3	2	1	1	2
Chancroid	not notifiable until December 1998								1	0	0	0
Chlamydia trachomatis infections*	not notifiable until August 1998								2467	3496	4494	5649
Cholera*	1	0	1	0	1	3	1	1	2	0	1	1
Cryptosporidiosis*	not notifiable until December 1996						157	1130	121	133	195	305
Food-borne illness (NOS)	2765	253	106	213	270	211	255	201	151	147	56	751
Gastroenteritis (institutional)*	158	406	443	296	1359	554	939	738	673	697	775	4057
Giardiasis*	not notifiable until August 1998								1091	978	967	862
Gonorrhoea*	392	491	382	357	428	522	636	1054	1291	1059	1357	1470
Total *H.influenzae type b* infection*	212	217	124	61	29	13	17	11	13	8	7	10
H.influenzae type b epiglottitis*	15	57	32	21	6	2	5	1	2	2	1	1
H.influenzae type b meningitis*	48	103	53	17	11	4	3	3	3	1	1	1
H.influenzae type b septicaemia*	11	26	24	12	8	3	1	4	6	4	2	3
H.influenzae type b infection (NOS)*	138	31	15	11	4	4	8	3	2	1	3	5
HIV infection*	824	700	593	501	540	453	425	407	378	357	341	389
Haemolytic uraemic syndrome	not notifiable until December 1996						3	6	11	9	2	7
Hepatitis A*	1119	903	579	586	614	958	1426	927	421	201	197	149
Hepatitis B: acute viral*	408	113	95	74	61	43	53	58	77	99	94	87
Hepatitis B: other*	1095	3059	3507	3910	3946	3469	3118	2895	3450	3900	4503	3463
Hepatitis C: acute viral*	22	26	22	16	32	18	19	111	113	224	298	152
Hepatitis C: other*	834	3869	5879	7809	6860	6986	6908	7109	8508	8079	8394	6553
Hepatitis D*	0	8	12	19	19	9	11	3	14	11	11	10
Hepatitis E*	0	0	1	2	0	3	6	4	7	9	6	6
Influenza*	not notifiable until December 2000										243	1011
Total Legionnaires' disease	37	104	66	60	75	74	33	46	41	41	68	45
Legionnaires' disease: *L. longbeachae**	0	14	13	8	16	30	9	19	12	12	29	22
Legionnaires' disease: *L. pneumophila**	16	80	34	30	35	34	18	22	22	26	38	22
Legionnaires' disease: other	21	10	19	22	24	10	6	5	7	3	1	1
Leprosy	1	7	5	3	3	2	0	0	1	2	3	0
Leptospirosis*	28	21	16	14	6	33	33	50	56	54	66	39
Listeriosis*	11	13	12	10	14	22	23	28	22	18	12	11
Malaria*	171	110	174	184	96	203	173	157	173	228	153	130
Total Measles	496	805	2348	1484	596	191	273	119	32	36	31	8
Measles: laboratory confirmed cases*	20	76	460	302	138	35	98	19	13	22	18	6
Measles: other	476	729	1888	1182	458	156	175	100	19	14	13	2
Total Meningococcal disease	128	122	153	142	113	161	219	184	218	249	233	214
Meningococcal disease: type B*	0	3	7	7	23	36	54	55	95	93	92	104
Meningococcal disease: type C*	0	4	6	9	8	35	55	55	60	64	38	53
Meningococcal disease: type W135*	0	0	0	0	1	0	2	4	4	4	2	1
Meningococcal disease: type Y*	0	0	1	1	0	1	0	7	1	7	2	2
Meningococcal disease: other	128	115	139	125	81	89	108	63	58	81	99	54
Mumps*	8	23	13	11	14	27	29	39	33	92	28	29
Paratyphoid*	20	8	9	11	12	15	5	9	5	14	11	13
Pertussis	49	217	1533	1405	1369	1156	4249	2309	1414	3683	4436	2009
Pneumococcal disease (invasive)*	not notifiable until December 2000										739	870
Psittacosis*	not notifiable until December 2000										38	144
Q Fever*	167	213	404	267	201	287	258	236	164	130	142	305
Total Rubella*	60	324	1186	233	2376	636	153	78	46	191	58	35
Rubella*	59	324	1184	229	2375	631	153	78	45	191	58	35
Rubella (Congenital)*	1	0	2	4	1	5	0	0	1	0	0	0
Salmonella infections*	1171	802	980	1101	1365	1224	1698	1813	1438	1395	1643	2102
Shigellosis*	not notifiable until December 2000										134	85
Total Syphilis	582	875	733	968	834	663	512	612	585	581	544	649
Syphilis: <1 year duration*	1	3	6	29	133	72	57	45	89	81	66	127
Syphilis: congenital	1	1	0	2	6	3	3	0	3	2	1	1
Syphilis: other*	580	871	727	937	695	588	452	567	493	498	477	521
Tetanus	5	2	5	4	0	1	3	3	1	2	0	0
Tuberculosis*	430	394	389	393	443	410	422	382	484	447	415	446
Typhoid*	38	20	28	25	27	30	28	18	32	26	33	23
Verotoxin-producing *Escherichia coli* infections*	not notifiable until December 1996						0	2	0	1	1	5

No cases of the following diseases have been notified since 1991:
diphtheria*, *Granuloma inguinale**, *Lymphogranuloma venereum**, plague*, poliomyelitis*, rabies, typhus*, viral haemorrhagic fever, yellow fever.

* lab-confirmed cases only NOS = Not Otherwise Specified

TABLE 2

DISEASE NOTIFICATIONS BY MONTH OF ONSET OF ILLNESS, NSW, 2002

Conditions	Month of Onset JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
AIDS	3	8	8	7	4	7	6	8	4	5	6	7
Adverse event after immunisation	7	16	17	18	20	14	13	14	13	26	13	3
Total Arboviral infection*	49	49	75	151	111	64	29	24	26	21	30	28
Arboviral: Barmah Forest virus infections*	21	21	54	98	69	37	18	16	15	12	19	13
Arboviral: Ross River virus infections*	20	20	12	42	36	18	6	3	6	6	4	9
Arboviral: other*	8	8	9	11	6	9	5	5	5	3	7	6
Blood lead level ≥ 15µg/dl*	29	26	34	25	52	41	46	65	25	42	40	99
Chlamydia trachomatis infections*	427	437	445	445	506	439	486	510	497	479	532	446
Cholera*	0	0	0	0	0	0	0	1	0	0	0	0
Cryptosporidiosis*	41	53	57	44	27	15	7	8	7	9	13	24
Food-borne illness(NOS)	28	320	11	125	2	11	34	2	7	37	79	95
Gastroenteritis (institutional)	55	210	58	26	164	375	945	1459	291	203	114	157
Giardiasis*	78	83	99	91	86	66	62	47	70	55	62	63
Gonorrhoea*	140	125	110	128	136	127	117	108	116	109	143	111
Total H.influenzae type b infection*	1	2	1	0	2	3	0	0	0	1	0	0
H.influenzae type b epiglottitis*	1	0	0	0	0	0	0	0	0	0	0	0
H.influenzae type b meningitis*	0	1	0	0	0	0	0	0	0	0	0	0
H.influenzae type b septicaemia*	0	0	1	0	1	0	0	0	0	1	0	0
H.influenzae type b infection (NOS)*	0	1	0	0	1	3	0	0	0	0	0	0
HIV infection*	36	30	39	33	27	23	34	30	32	37	42	26
Haemolytic uraemic syndrome	2	0	0	1	1	1	0	1	0	0	1	0
Hepatitis A*	18	19	15	12	20	5	6	13	6	18	8	9
Hepatitis B: acute viral*	8	7	8	5	8	8	10	11	8	3	6	5
Hepatitis B: other*	349	250	311	280	352	256	271	314	257	302	276	245
Hepatitis C: acute viral*	19	20	15	6	14	19	8	13	12	9	12	5
Hepatitis C: other*	691	593	558	540	636	457	527	530	521	535	528	437
Hepatitis D*	1	1	3	1	1	1	0	1	1	0	0	0
Hepatitis E*	0	0	0	1	1	1	1	2	0	0	0	0
Influenza*	5	11	7	16	39	156	271	319	110	45	14	18
Total Legionnaires' disease	6	5	6	5	6	3	6	1	0	4	2	1
Legionnaires' disease: *L. longbeachae**	2	2	1	2	5	2	4	1	0	1	2	0
Legionnaires' disease: *L. pneumophila**	4	3	5	3	1	1	2	0	0	2	0	1
Legionnaires' disease: other	0	0	0	0	0	0	0	0	0	1	0	0
Leprosy	0	0	0	0	0	0	0	0	0	0	0	0
Leptospirosis*	8	0	4	5	4	0	2	3	0	5	5	3
Listeriosis*	2	0	0	1	1	0	1	0	1	1	2	2
Malaria*	20	22	19	7	6	13	7	7	9	8	5	7
Total Measles	0	0	1	1	1	0	2	3	0	0	0	0
Measles: laboratory confirmed cases*	0	0	1	1	0	0	1	3	0	0	0	0
Measles: other	0	0	0	0	1	0	1	0	0	0	0	0
Total Meningococcal disease	10	10	10	12	24	25	25	28	24	16	15	15
Meningococcal disease: type B*	5	4	3	8	13	10	10	17	9	12	6	7
Meningococcal disease: type C*	2	2	2	2	8	7	5	5	8	3	4	5
Meningococcal disease: type W135*	0	0	0	0	0	0	0	0	0	0	1	0
Meningococcal disease: type Y*	0	0	0	0	0	0	1	0	1	0	0	0
Meningococcal disease: other	3	4	5	2	3	8	9	6	6	1	4	3
Mumps*	3	1	1	2	4	3	1	3	4	2	3	2
Paratyphoid*	2	1	2	0	0	0	2	0	1	3	1	1
Pertussis	261	189	170	143	184	122	130	126	151	175	186	172
Pneumococcal disease (invasive)*	37	33	45	42	68	117	112	102	108	83	62	61
Psittacosis*	0	1	4	2	6	47	27	31	17	3	3	3
Q Fever*	18	21	15	23	18	22	30	26	27	46	30	29
Rubella*	5	0	2	2	1	1	6	3	3	7	3	2
Salmonella infections*	227	271	239	271	155	83	85	108	80	181	186	216
Shigellosis*	5	9	8	6	6	6	12	10	3	6	11	3
Total Syphilis	46	48	42	52	61	49	60	51	56	52	73	59
Syphilis: <1 year duration*	6	7	8	7	7	7	10	8	13	19	17	18
Syphilis: congenital	0	0	0	0	0	0	0	0	0	0	1	0
Syphilis: other*	40	41	34	45	54	42	50	43	43	33	55	41
Tuberculosis*	52	40	38	42	36	37	37	30	35	36	38	25
Typhoid*	5	5	1	0	2	0	2	0	1	3	3	1
Verotoxin-producing *Escherichia coli* infections*	0	1	1	0	1	0	0	0	0	2	0	0

* Laboratory-confirmed cases only NOS = Not Otherwise Specified

TABLE 3

DISEASE NOTIFICATIONS BY AREA HEALTH SERVICE OF RESIDENCE, CRUDE RATES PER 100,000 OF POPULATION, NSW, 2002

Conditions	CCA	CSA	FWA	GMA	HUN	ILL	MAC	MNC	MWA
AIDS	0.7	3.4	0.0	0.0	0.4	0.0	0.0	1.5	0.6
Adverse event after immunisation	4.9	2.6	8.3	3.1	4.6	1.7	0.0	1.1	6.5
Total Arboviral infection*	10.2	0.8	35.5	6.6	22.0	6.5	22.2	83.4	1.8
Arboviral: Barmah Forest virus infections*	6.9	0.2	10.4	1.2	18.5	2.3	1.9	67.7	0.0
Arboviral: Ross River virus infections*	2.6	0.0	20.9	5.4	2.4	3.4	20.2	15.7	1.8
Arboviral: other*	0.7	0.6	4.2	0.0	1.1	0.8	0.0	0.0	0.0
Blood lead level ≥ 15μg/dl*	2.3	5.4	210.6	1.9	27.5	11.6	14.4	3.7	1.8
Chlamydia trachomatis infections*	56.0	137.7	194.0	70.7	84.3	58.1	64.5	62.8	92.8
Cholera*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cryptosporidiosis*	1.0	3.4	2.1	5.8	1.3	6.2	5.8	8.2	0.0
Food-borne illness(NOS)	4.9	6.4	0.0	11.2	16.9	5.9	3.9	0.0	8.9
Gastroenteritis (institutional)	0.0	235.8	143.9	1.9	115.1	31.4	21.2	0.0	11.3
Giardiasis*	8.6	10.8	16.7	15.5	14.9	13.6	31.8	5.6	5.4
Gonorrhoea*	5.9	63.1	16.7	2.3	3.1	7.6	10.6	4.1	6.5
Total *H.influenzae type b* infection*	0.0	0.2	2.1	0.0	0.2	0.6	1.0	0.0	0.0
H.influenzae type b epiglottitis*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H.influenzae type b meningitis*	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
H.influenzae type b septicaemia*	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0
H.influenzae type b infection (NOS)*	0.0	0.0	0.0	0.0	0.2	0.3	1.0	0.0	0.0
HIV infection*	2.3	17.8	0.0	1.2	1.1	0.8	0.0	2.2	1.8
Haemolytic uraemic syndrome	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0
Hepatitis A*	1.6	6.8	2.1	0.0	0.9	0.8	1.0	2.6	1.2
Hepatitis B: acute viral*	0.3	1.6	0.0	1.2	2.6	2.5	2.9	2.2	1.2
Hepatitis B: other*	15.1	131.3	45.9	9.3	11.2	10.2	20.2	8.6	10.7
Hepatitis C: acute viral*	1.3	2.2	0.0	1.9	2.9	1.7	5.8	6.4	4.8
Hepatitis C: other*	87.6	136.5	56.3	47.5	68.9	71.4	77.1	108.0	82.1
Hepatitis D*	0.3	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Hepatitis E*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Influenza*	3.6	16.0	0.0	4.6	6.2	17.6	5.8	9.0	6.5
Total Legionnaires' disease	1.3	1.0	2.1	0.0	0.0	0.3	0.0	0.4	0.6
Legionnaires' disease: *L. longbeachae**	1.3	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.6
Legionnaires' disease: *L. pneumophila**	0.0	0.8	0.0	0.0	0.0	0.0	0.0	0.4	0.0
Legionnaires' disease: other	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Leprosy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leptospirosis*	0.3	0.2	0.0	0.8	1.3	0.3	1.9	4.5	0.0
Listeriosis*	0.3	0.4	0.0	0.4	0.0	0.3	0.0	0.0	0.0
Malaria*	2.3	2.4	0.0	0.4	3.1	1.1	1.9	0.4	0.6
Total Measles	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Measles: laboratory confirmed cases*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Measles: other	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Total Meningococcal	2.0	1.6	0.0	1.9	4.8	4.8	3.9	1.9	2.4
Meningococcal disease: type B*	2.0	0.4	0.0	0.8	1.7	2.0	2.9	1.5	1.8
Meningococcal disease: type C*	0.0	0.0	0.0	1.2	2.2	1.7	0.0	0.4	0.0
Meningococcal disease: type W135*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Meningococcal disease: type Y*	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Meningococcal disease: other	0.0	1.2	0.0	0.0	0.7	1.1	1.0	0.0	0.6
Mumps*	0.3	0.2	0.0	0.0	0.2	0.0	1.9	0.0	0.0
Paratyphoid*	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
Pertussis	21.1	30.0	22.9	18.9	52.0	18.4	53.0	46.4	26.8
Pneumococcal disease (invasive)*	16.8	14.8	18.8	10.0	19.3	15.0	12.5	5.2	13.7
Psittacosis*	0.3	0.2	0.0	2.3	4.8	0.6	1.9	3.0	1.2
Q Fever*	0.7	0.0	43.8	2.3	2.6	1.4	80.0	12.3	19.6
Rubella*	0.0	0.2	0.0	0.0	0.0	0.3	3.9	1.5	0.0
Salmonella infections*	18.4	33.6	29.2	41.0	30.7	15.3	26.0	29.2	31.5
Shigellosis*	0.7	2.8	0.0	0.0	0.2	0.0	0.0	1.1	1.2
Total Syphilis	4.9	19.8	33.4	1.5	1.8	2.3	8.7	4.5	1.2
Syphilis: <1 year duration*	0.0	5.8	2.1	0.4	0.2	0.0	1.9	1.9	0.0
Syphilis: congenital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Syphilis: other*	4.9	14.0	31.3	1.2	1.7	2.3	6.7	2.6	1.2
Tuberculosis*	1.3	13.8	0.0	0.4	2.6	4.2	1.9	2.2	1.2
Typhoid*	0.0	1.6	0.0	0.0	0.0	0.6	0.0	0.0	0.0
Verotoxin-producing *Escherichia coli* infections*	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0

* lab-confirmed cases only NOS = Not Otherwise Specified

Area health service population estimates 2002 and total population for NSW:
CCA = Central Coast Area (303 798); CSA = Central Sydney Area (499 592); FWA = Far West Area (47 949);
GMA = Greater Murray Area (258 731); HUN = Hunter Area (544 623); ILL = Illawarra Area (352 950);
MAC = Macquarie Area (103 807); MNC = Mid North Coast Area (267 493); MWA = Mid Western Area (168 030)

TABLE 3 *continued*

DISEASE NOTIFICATIONS BY AREA HEALTH SERVICE OF RESIDENCE, CRUDE RATES PER 100,000 OF POPULATION, NSW, 2002

Conditions	NEA	NRA	NSA	SA	SES	SWS	WEN	WSA	Total#
AIDS	1.7	1.9	0.5	0.0	3.1	0.4	0.3	0.7	1.1
Adverse event after immunisation	0.6	0.4	3.1	5.9	4.4	0.2	1.5	1.1	2.6
Total Arboviral infection*	16.2	25.5	2.7	15.0	2.7	0.6	0.9	1.3	10.0
Arboviral: Barmah Forest virus infections*	4.0	16.7	0.3	4.8	0.0	0.2	0.6	0.3	6.0
Arboviral: Ross River virus infections*	11.0	8.1	0.0	8.0	0.3	0.1	0.0	0.0	2.8
Arboviral: other*	1.2	0.7	2.4	2.1	2.4	0.2	0.3	1.0	1.2
Blood lead level ≥ 15µg/dl*	1.2	3.0	2.2	1.1	3.1	4.7	5.9	7.3	8.0
Chlamydia trachomatis infections*	93.5	93.3	78.8	62.5	155.5	39.2	66.8	65.0	85.9
Cholera*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Cryptosporidiosis*	21.9	20.7	2.0	3.7	5.8	1.4	1.9	4.6	4.6
Food-borne illness(NOS)	0.0	12.2	21.7	6.4	0.0	0.5	21.6	0.0	11.4
Gastroenteritis (institutional)	0.0	0.0	73.1	173.1	78.3	0.0	49.8	47.4	61.7
Giardiasis*	21.9	7.0	18.1	4.3	18.5	6.7	11.1	14.7	13.1
Gonorrhoea*	12.7	11.1	11.9	1.6	82.9	10.9	7.7	14.8	22.3
Total *H.influenzae type b* infection*	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.3	0.2
H.influenzae type b epiglottitis*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
H.influenzae type b meningitis*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
H.influenzae type b septicaemia*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
H.influenzae type b infection (NOS)*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1
HIV infection*	1.2	3.3	3.3	0.0	20.5	2.8	1.2	4.0	5.9
Haemolytic uraemic syndrome	0.6	0.0	0.0	0.0	0.1	0.1	0.3	0.0	0.1
Hepatitis A*	1.2	1.1	2.0	1.1	3.8	0.7	1.9	3.0	2.3
Hepatitis B: acute viral*	0.0	2.6	0.6	0.0	2.6	0.9	0.0	0.1	1.3
Hepatitis B: other*	14.4	9.3	49.6	10.7	56.3	110.4	17.9	90.1	52.6
Hepatitis C: acute viral*	2.3	0.7	1.7	1.6	5.5	1.0	1.2	0.0	2.3
Hepatitis C: other*	64.0	123.3	44.5	69.4	93.2	117.0	75.1	102.0	99.6
Hepatitis D*	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.2
Hepatitis E*	0.0	0.0	0.0	0.0	0.4	0.1	0.0	0.3	0.1
Influenza*	8.1	10.4	15.4	11.2	41.9	6.8	17.0	20.2	15.4
Total Legionnaires' disease	0.0	0.4	1.1	0.0	0.6	0.4	0.6	1.7	0.7
Legionnaires' disease: *L. longbeachae**	0.0	0.0	0.6	0.0	0.3	0.2	0.3	0.7	0.3
Legionnaires' disease: *L. pneumophila**	0.0	0.4	0.5	0.0	0.4	0.1	0.3	1.0	0.3
Legionnaires' disease: other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leprosy	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leptospirosis*	4.0	1.1	0.0	1.1	0.0	0.1	0.0	0.0	0.6
Listeriosis*	0.0	0.0	0.1	0.0	0.5	0.1	0.0	0.0	0.2
Malaria*	2.9	2.2	3.3	3.2	2.2	1.2	0.9	1.7	2.0
Total Measles	0.0	1.1	0.0	0.0	0.0	0.1	0.3	0.1	0.1
Measles: laboratory confirmed cases*	0.0	1.1	0.0	0.0	0.0	0.1	0.3	0.0	0.1
Measles: other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Meningococcal	5.2	2.2	2.0	2.1	4.9	2.0	4.0	5.0	3.3
Meningococcal disease: type B*	3.5	1.1	0.6	0.5	1.7	1.1	3.1	2.8	1.6
Meningococcal disease: type C*	0.0	0.7	0.4	0.0	1.8	0.5	0.0	1.0	0.8
Meningococcal disease: type W135*	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Meningococcal disease: type Y*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Meningococcal disease: other	1.7	0.4	0.9	1.6	1.4	0.2	0.9	1.1	0.8
Mumps*	0.6	0.7	0.5	0.5	0.6	0.9	0.3	0.4	0.4
Paratyphoid*	0.0	0.0	0.0	0.0	0.9	0.1	0.0	0.4	0.2
Pertussis	44.4	33.7	39.2	32.0	32.7	16.8	12.7	27.8	30.5
Pneumococcal disease (invasive)*	1.7	2.2	12.9	9.1	14.9	11.5	15.5	15.9	13.2
Psittacosis*	1.2	1.5	0.0	2.1	0.4	0.5	24.1	0.1	2.2
Q Fever*	17.3	17.8	0.4	11.2	0.1	0.2	0.3	0.3	4.6
Rubella*	0.6	3.0	0.1	1.1	0.8	0.2	0.6	0.4	0.5
Salmonella infections*	35.2	86.6	29.1	25.1	31.8	30.3	33.4	28.0	32.0
Shigellosis*	0.6	0.4	1.7	0.5	2.2	1.5	1.2	1.6	1.3
Total Syphilis	8.7	3.3	6.2	4.8	17.4	20.7	2.5	9.0	9.9
Syphilis: <1 year duration*	5.2	1.1	1.7	0.5	7.2	0.0	0.0	0.7	1.9
Syphilis: congenital	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Syphilis: other*	3.5	2.2	4.6	4.3	10.3	20.7	2.5	8.1	7.9
Tuberculosis*	0.6	2.2	6.5	1.1	9.5	11.1	2.8	14.1	6.8
Typhoid*	0.0	0.0	0.4	0.0	0.4	0.1	0.0	0.6	0.3
Verotoxin-producing *Escherichia coli* infections*	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.1

= includes cases with unknown PHU area

NEA = New England Area (173 313); NRA = Northern Rivers Area (270 162); NSA = North Sydney Area (784 131) ;
SA = Southern Area (187 226); SES= South Eastern Sydney (780 190); SWS = South Western Sydney (810 789);
WEN = Wentworth Area (323 477); WSA = Western Sydney Area (702 680); TOTAL = Total population in NSW (6 578 941)

TABLE 4

NUMBER OF DISEASE NOTIFICATIONS BY AREA HEALTH SERVICE OF RESIDENCE, NSW, 2002

Conditions	CCA	CSA	FWA	GMA	HUN	ILL	MAC	MNC	MWA
AIDS	2	17	0	0	2	0	0	4	1
Adverse event after immunisation	15	13	4	8	25	6	0	3	11
Total Arboviral infection*	31	4	17	17	120	23	23	223	3
Arboviral: Barmah Forest virus infections*	21	1	5	3	101	8	2	181	0
Arboviral: Ross River virus infections*	8	0	10	14	13	12	21	42	3
Arboviral: other*	2	3	2	0	6	3	0	0	0
Blood lead level ≥ 15µg/dl*	7	27	101	5	150	41	15	10	3
Chlamydia trachomatis infections*	170	688	93	183	459	205	67	168	156
Cholera*	0	0	0	0	0	0	0	0	0
Cryptosporidiosis*	3	17	1	15	7	22	6	22	0
Food-borne illness(NOS)	15	32	0	29	92	21	4	0	15
Gastroenteritis (institutional)	0	1178	69	5	627	111	22	0	19
Giardiasis*	26	54	8	40	81	48	33	15	9
Gonorrhoea*	18	315	8	6	17	27	11	11	11
Total *H.influenzae type b* infection*	0	1	1	0	1	2	1	0	0
H.influenzae type b epiglottitis*	0	0	0	0	0	0	0	0	0
H.influenzae type b meningitis*	0	0	1	0	0	0	0	0	0
H.influenzae type b septicaemia*	0	1	0	0	0	1	0	0	0
H.influenzae type b infection (NOS)*	0	0	0	0	1	1	1	0	0
HIV infection*	7	89	0	3	6	3	0	6	3
Haemolytic uraemic syndrome	0	0	0	0	3	0	0	0	0
Hepatitis A*	5	34	1	0	5	3	1	7	2
Hepatitis B: acute viral*	1	8	0	3	14	9	3	6	2
Hepatitis B: other*	46	656	22	24	61	36	21	23	18
Hepatitis C: acute viral*	4	11	0	5	16	6	6	17	8
Hepatitis C: other*	266	682	27	123	375	252	80	289	138
Hepatitis D*	1	0	0	0	2	0	0	0	0
Hepatitis E*	0	0	0	0	0	0	0	0	0
Influenza*	11	80	0	12	34	62	6	24	11
Total Legionnaires' disease	4	5	1	0	0	1	0	1	1
Legionnaires' disease: *L. longbeachae**	4	1	0	0	0	1	0	0	1
Legionnaires' disease: *L. pneumophila**	0	4	0	0	0	0	0	1	0
Legionnaires' disease: other	0	0	1	0	0	0	0	0	0
Leprosy	0	0	0	0	0	0	0	0	0
Leptospirosis*	1	1	0	2	7	1	2	12	0
Listeriosis*	1	2	0	1	0	1	0	0	0
Malaria*	7	12	0	1	17	4	2	1	1
Total Measles	0	0	0	0	0	1	0	0	0
Measles: laboratory confirmed cases*	0	0	0	0	0	0	0	0	0
Measles: other	0	0	0	0	0	1	0	0	0
Total Meningococcal disease	6	8	0	5	26	17	4	5	4
Meningococcal disease: type B*	6	2	0	2	9	7	3	4	3
Meningococcal disease: type C*	0	0	0	3	12	6	0	1	0
Meningococcal disease: type W135*	0	0	0	0	0	0	0	0	0
Meningococcal disease: type Y*	0	0	0	0	1	0	0	0	0
Meningococcal disease: other	0	6	0	0	4	4	1	0	1
Mumps*	1	1	0	0	1	0	2	0	0
Paratyphoid*	0	0	0	0	0	1	0	0	0
Pertussis	64	150	11	49	283	65	55	124	45
Pneumococcal disease (invasive)*	51	74	9	26	105	53	13	14	23
Psittacosis*	1	1	0	6	26	2	2	8	2
Q Fever*	2	0	21	6	14	5	83	33	33
Rubella*	0	1	0	0	0	1	4	4	0
Salmonella infections*	56	168	14	106	167	54	27	78	53
Shigellosis*	2	14	0	0	1	0	0	3	2
Total Syphilis	15	99	16	4	10	8	9	12	2
Syphilis: <1 year duration*	0	29	1	1	1	0	2	5	0
Syphilis: congenital	0	0	0	0	0	0	0	0	0
Syphilis: other*	15	70	15	3	9	8	7	7	2
Tuberculosis*	4	69	0	1	14	15	2	6	2
Typhoid*	0	8	0	0	0	2	0	0	0
Verotoxin-producing *Escherichia coli* infections*	0	0	0	0	1	0	0	0	0

TABLE 4 *continued*

NUMBER OF DISEASE NOTIFICATIONS BY AREA HEALTH SERVICE OF RESIDENCE, NSW, 2002

Conditions	NEA	NRA	NSA	SA	SES	SWS	WEN	WSA	CHS	Total #
AIDS	3	5	4	0	24	3	1	5	0	73
Adverse event after immunisation	1	1	24	11	34	2	5	8	2	174
Total Arboviral infection*	28	69	21	28	21	5	3	9	0	657
Arboviral: Barmah Forest virus infections*	7	45	2	9	0	2	2	2	0	393
Arboviral: Ross River virus infections*	19	22	0	15	2	1	0	0	0	182
Arboviral: other*	2	2	19	4	19	2	1	7	0	82
Blood lead level ≥ 15µg/dl*	2	8	17	2	24	38	19	51	0	524
Chlamydia trachomatis infections*	162	252	618	117	1213	318	216	457	38	5649
Cholera*	0	0	0	0	0	1	0	0	0	1
Cryptosporidiosis*	38	56	16	7	45	11	6	32	1	305
Food-borne illness(NOS)	0	33	170	12	0	4	70	0	0	751
Gastroenteritis (institutional)	0	0	573	324	611	0	161	333	24	4057
Giardiasis*	38	19	142	8	144	54	36	103	0	862
Gonorrhoea*	22	30	93	3	647	88	25	104	11	1470
Total *H.influenzae type b* infection*	0	0	0	0	2	0	0	2	0	10
H.influenzae type b epiglottitis*	0	0	0	0	1	0	0	0	0	1
H.influenzae type b meningitis*	0	0	0	0	0	0	0	0	0	1
H.influenzae type b septicaemia*	0	0	0	0	0	0	0	1	0	3
H.influenzae type b infection (NOS)*	0	0	0	0	1	0	0	1	0	5
HIV infection*	2	9	26	0	160	23	4	28	0	389
Haemolytic uraemic syndrome	1	0	0	0	1	1	1	0	0	7
Hepatitis A*	2	3	16	2	30	6	6	21	1	149
Hepatitis B: acute viral*	0	7	5	0	20	7	0	1	0	87
Hepatitis B: other*	25	25	389	20	439	895	58	633	57	3463
Hepatitis C: acute viral*	4	2	13	3	43	8	4	0	1	152
Hepatitis C: other*	111	333	349	130	727	949	243	717	701	6553
Hepatitis D*	0	0	0	0	1	0	0	3	3	10
Hepatitis E*	0	0	0	0	3	1	0	2	0	6
Influenza*	14	28	121	21	327	55	55	142	0	1011
Total Legionnaires' disease	0	1	9	0	5	3	2	12	0	45
Legionnaires' disease: *L. longbeachae**	0	0	5	0	2	2	1	5	0	22
Legionnaires' disease: *L. pneumophila**	0	1	4	0	3	1	1	7	0	22
Legionnaires' disease: other	0	0	0	0	0	0	0	0	0	1
Leprosy	0	0	0	0	0	0	0	0	0	0
Leptospirosis*	7	3	0	2	0	1	0	0	0	39
Listeriosis*	0	0	1	0	4	1	0	0	0	11
Malaria*	5	6	26	6	17	10	3	12	0	130
Total Measles	0	3	0	0	0	1	1	1	0	8
Measles: laboratory confirmed cases*	0	3	0	0	0	1	1	0	0	6
Measles: other	0	0	0	0	0	0	0	1	0	2
Total Meningococcal disease	9	6	16	4	38	16	13	35	0	214
Meningococcal disease: type B*	6	3	5	1	13	9	10	20	0	104
Meningococcal disease: type C*	0	2	3	0	14	4	0	7	0	53
Meningococcal disease: type W135*	0	0	1	0	0	0	0	0	0	1
Meningococcal disease: type Y*	0	0	0	0	0	1	0	0	0	2
Meningococcal disease: other	3	1	7	3	11	2	3	8	0	54
Mumps*	1	2	4	1	5	7	1	3	0	29
Paratyphoid*	0	0	0	0	7	1	0	3	0	13
Pertussis	77	91	307	60	255	136	41	195	0	2009
Pneumococcal disease (invasive)*	3	6	101	17	116	93	50	112	2	870
Psittacosis*	2	4	0	4	3	4	78	1	0	144
Q Fever*	30	48	3	21	1	2	1	2	0	305
Rubella*	1	8	1	2	6	2	2	3	0	35
Salmonella infections*	61	234	228	47	248	246	108	197	0	2102
Shigellosis*	1	1	13	1	17	12	4	11	0	85
Total Syphilis	15	9	49	9	136	168	8	63	12	649
Syphilis: <1 year duration*	9	3	13	1	56	0	0	5	1	127
Syphilis: congenital	0	0	0	0	0	0	0	1	0	1
Syphilis: other*	6	6	36	8	80	168	8	57	11	521
Tuberculosis*	1	6	51	2	74	90	9	99	0	446
Typhoid*	0	0	3	0	3	1	0	4	0	23
Verotoxin-producing *Escherichia coli* infections*	0	0	0	0	0	0	1	3	0	5

= includes cases with unknown PHU area

TABLE 5

NUMBER OF DISEASE NOTIFICATIONS, BY AGE AND SEX OF THE CASE, NSW, 2002

Conditions	0–04 yrs M	0–04 yrs F	5–24 yrs M	5–24 yrs F	25–44 yrs M	25–44 yrs F	45–64 yrs M	45–64 yrs F	65 + yrs M	65 + yrs F	Total M	Total F	Total#
AIDS	0	0	0	0	45	2	24	0	1	0	70	2	73
Adverse event after immunisation	58	48	15	20	3	8	4	10	2	6	82	92	174
Total Arboviral infection*	4	3	36	35	129	138	110	123	40	37	319	336	657
Arboviral: Barmah Forest virus infections*	2	3	16	18	73	79	76	82	19	23	186	205	393
Arboviral: Ross River virus infections*	0	0	8	8	38	39	21	35	19	14	86	96	182
Arboviral: other*	2	0	12	9	18	20	13	6	2	0	47	35	82
Blood lead level ≥ 15µg/dl*	28	24	72	5	235	5	137	7	8	2	480	43	524
Chlamydia trachomatis infections*	10	11	899	1896	1396	1113	215	63	15	18	2535	3101	5649
Cholera*	0	1	0	0	0	0	0	0	0	0	0	1	1
Cryptosporidiosis*	76	51	53	38	32	24	14	8	4	5	179	126	305
Food-borne illness(NOS)	0	0	0	0	0	0	0	0	0	0	0	0	0
Gastroenteritis (institutional)	0	0	0	0	0	0	0	0	0	0	0	0	0
Giardiasis*	134	120	77	65	157	142	61	51	24	27	453	405	862
Gonorrhoea*	2	2	232	70	922	76	135	12	9	6	1300	166	1470
Total *H.influenzae type b* infection*	0	2	1	1	1	2	0	0	1	2	3	7	10
H.influenzae type b epiglottitis*	0	0	0	0	1	0	0	0	0	0	1	0	1
H.influenzae type b meningitis*	0	1	0	0	0	0	0	0	0	0	0	1	1
H.influenzae type b septicaemia*	0	0	0	0	0	2	0	0	0	1	0	3	3
H.influenzae type b infection (NOS)*	0	1	1	1	0	0	0	0	1	1	2	3	5
HIV infection*	0	1	22	3	262	22	55	3	6	1	345	30	389
Haemolytic uraemic syndrome	0	1	1	1	1	1	2	0	0	0	4	3	7
Hepatitis A*	1	2	31	14	45	18	15	10	3	9	95	53	149
Hepatitis B: acute viral*	1	0	16	12	34	8	11	1	3	0	65	21	87
Hepatitis B: other*	11	10	263	293	1105	855	470	299	76	61	1925	1518	3463
Hepatitis C: acute viral*	1	2	17	34	54	30	8	4	1	0	81	70	152
Hepatitis C: other*	26	20	671	542	2557	1388	780	375	85	86	4119	2411	6553
Hepatitis D*	1	0	2	0	4	1	2	0	0	0	9	1	10
Hepatitis E*	0	0	0	0	2	1	3	0	0	0	5	1	6
Influenza*	253	167	124	96	39	63	53	63	78	73	547	462	1011
Total Legionnaires' disease	0	0	0	0	5	1	14	4	12	9	31	14	45
Legionnaires' disease: *L. longbeachae**	0	0	0	0	0	0	6	2	8	6	14	8	22
Legionnaires' disease: *L. pneumophila**	0	0	0	0	5	1	7	2	4	3	16	6	22
Legionnaires' disease: other	0	0	0	0	0	0	1	0	0	0	1	0	1
Leprosy	0	0	0	0	0	0	0	0	0	0	0	0	0
Leptospirosis*	0	0	3	1	13	3	14	3	2	0	32	7	39
Listeriosis*	0	0	0	0	0	1	0	1	5	4	5	6	11
Malaria*	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Measles	0	2	4	1	1	0	0	0	0	0	5	3	8
Measles: laboratory confirmed cases*	0	1	3	1	1	0	0	0	0	0	4	2	6
Measles: other	0	1	1	0	0	0	0	0	0	0	1	1	2
Total Meningococcal	34	23	59	45	15	11	10	7	5	4	123	90	214
Meningococcal disease: type B*	24	19	25	18	6	1	3	3	3	2	61	43	104
Meningococcal disease: type C*	3	3	20	12	3	4	3	3	2	0	31	22	53
Meningococcal disease: type W135*	0	0	0	0	0	0	1	0	0	0	1	0	1
Meningococcal disease: type Y*	0	0	0	0	0	1	0	0	0	1	0	2	2
Meningococcal disease: other	7	1	14	15	6	5	3	1	0	1	30	23	54
Mumps*	1	1	4	5	4	7	3	2	1	1	13	16	29
Paratyphoid*	0	1	1	5	1	3	2	0	0	0	4	9	13
Pertussis	112	91	382	407	214	309	156	228	39	67	903	1102	2009
Pneumococcal disease (invasive)*	163	102	47	25	58	47	93	61	136	138	497	373	870
Psittacosis*	1	2	1	6	16	14	48	27	17	12	83	61	144
Q Fever*	0	1	30	14	86	38	96	18	21	0	233	71	305
Rubella*	0	0	14	8	12	0	1	0	0	0	27	8	35
Salmonella infections*	321	266	324	326	210	239	121	128	68	92	1044	1051	2102
Shigellosis*	6	3	9	8	18	18	12	5	4	1	49	35	85
Total Syphilis	2	3	17	27	198	92	156	32	70	44	443	198	649
Syphilis: <1 year duration*	0	1	8	9	80	8	21	0	0	0	109	18	127
Syphilis: congenital	1	0	0	0	0	0	0	0	0	0	1	0	1
Syphilis: other*	1	2	9	18	118	84	135	32	70	44	333	180	521
Tuberculosis*	2	5	24	37	80	98	57	42	58	43	221	225	446
Typhoid*	0	3	4	2	5	3	1	1	0	3	10	12	23
Verotoxin-producing *Escherichia coli* infections*	1	0	0	1	0	0	0	1	0	1	1	3	5

* Laboratory-confirmed cases only NOS = Not Otherwise Specified
# = includes cases with unknown age and sex

TABLE 6

REPORTED DEATHS OF RESIDENTS BY YEAR OF ONSET OF ILLNESS, NSW, 1991 TO 2002

Conditions	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
AIDS	344	330	379	423	355	272	125	69	64	70	38	25
Adverse event after immunisation	0	1	0	1	0	2	1	0	1	1	2	1
Total Arboviral infection*	0	1	0	0	0	0	0	0	0	0	1	0
Arboviral: Ross River virus infections*	0	1	0	0	0	0	0	0	0	0	1	0
Blood lead level ≥ 15µg/dl*	not notifiable until December 1996						2	0	0	0	0	0
Chlamydia trachomatis infections*	not notifiable until August 1998								0	0	0	1
Food-borne illness (NOS)	1	0	1	0	0	0	0	0	0	0	0	0
Gastroenteritis (institutional)	0	1	2	0	1	0	0	1	0	2	1	15
Giardiasis*	not notifiable until August 1998								0	1	0	0
Gonorrhoea*	0	1	0	0	0	0	0	1	0	0	0	0
Total *H.influenzae type b* infection*	4	4	4	1	0	2	0	0	0	1	1	0
H.influenzae type b epiglottitis*	0	1	0	0	0	0	0	0	0	1	0	0
H.influenzae type b meningitis*	2	3	3	0	0	0	0	0	0	0	0	0
H.influenzae type b septicaemia*	0	0	0	1	0	2	0	0	0	0	0	0
H.influenzae type b infection (NOS)*	2	0	1	0	0	0	0	0	0	0	1	0
Haemolytic uraemic syndrome	not notifiable until December 1996						0	0	1	1	0	1
Hepatitis A*	2	1	0	0	0	0	0	2	0	0	0	1
Total Hepatitis B*	1	5	6	1	1	1	1	1	1	1	4	1
Hepatitis B: acute viral*	0	0	1	0	0	0	0	0	0	0	0	0
Hepatitis B: other*	1	5	5	1	1	1	1	1	1	1	4	1
Total Hepatitis C*	4	11	4	6	8	15	23	11	17	20	18	10
Hepatitis C: acute viral*	0	1	0	0	0	0	0	0	0	0	2	0
Hepatitis C: other*	4	10	4	6	8	15	23	11	17	20	16	10
Hepatitis E*	0	0	0	0	0	0	0	0	0	0	1	0
Total Legionnaires' disease	6	12	8	8	7	9	2	6	4	2	3	1
Legionnaires' disease: *L. longbeachae**	0	1	2	0	1	1	0	5	1	1	1	1
Legionnaires' disease: *L. pneumophila**	1	10	5	3	4	6	2	0	2	1	2	0
Legionnaires' disease: other	5	1	1	5	2	2	0	1	1	0	0	0
Leptospirosis*	0	0	0	0	0	0	1	0	0	0	0	1
Listeriosis*	0	0	2	2	2	9	1	5	4	4	3	1
Malaria*	0	1	0	0	0	0	0	0	0	0	0	1
Total Measles	1	2	0	0	0	0	0	0	0	0	0	0
Measles: laboratory confirmed cases*	0	0	0	0	0	0	0	0	0	0	0	0
Measles: other	1	2	0	0	0	0	0	0	0	0	0	0
Total Meningococcal	3	8	11	15	7	7	7	17	14	14	7	19
Meningococcal disease: type B*	0	0	1	1	3	0	4	2	7	6	2	8
Meningococcal disease: type C*	0	0	1	1	0	2	2	10	4	4	5	10
Meningococcal disease: type W135*	0	0	0	0	0	0	0	0	1	0	0	0
Meningococcal disease: type Y*	0	0	0	0	0	0	0	1	0	1	0	0
Meningococcal disease: other	3	8	9	13	4	5	1	4	2	3	0	1
Pertussis	0	0	0	0	2	2	3	1	1	2	0	0
Pneumococcal disease (invasive)*	not notifiable until December 2000										6	99
Psittacosis*	not notifiable until December 2000										1	1
Q Fever*	0	0	0	1	0	1	0	0	2	0	0	1
Salmonella infections*	1	0	0	0	4	4	4	3	3	1	2	3
Total Syphilis	0	0	0	1	1	0	1	0	1	2	1	0
Syphilis: <1 year duration*	0	0	0	0	0	0	0	0	0	0	0	1
Syphilis: congenital	0	0	0	1	1	0	0	0	0	1	0	0
Syphilis: other*	0	0	0	0	0	0	1	0	1	1	1	0
Tetanus	0	0	1	0	0	0	0	0	0	0	0	0
Tuberculosis*	10	26	31	25	23	16	21	25	29	40	33	37

* lab-confirmed cases only NOS = Not Otherwise Specified

PRIORITIES FOR COMMUNICABLE DISEASE CONTROL IN NEW SOUTH WALES, 2003

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This article describes the priorities for the control of communicable disease in New South Wales from 2003.

SUMMARY

The control of communicable diseases is a core function of government, which must be achieved through collaboration with clinicians, laboratory scientists, affected communities, and other government and community-based agencies. Changes in environmental and social conditions, and the development of new prevention technologies, influence the incidence of communicable diseases and the community's ability to control them. The capacity of NSW Health to control communicable diseases also depends on maintaining a strong network of skilled public health professionals.

From 2003, the proposed 'top 10' priorities for communicable disease surveillance, prevention, and control in New South Wales are:

- disease outbreaks, including those caused by emerging diseases and the deliberate release of biological agents;
- blood-borne pathogens (focussing on HIV, hepatitis C and hepatitis B);
- sexually transmissible infections (focussing on HIV, chlamydia, syphilis, and gonorrhoea);
- vaccine preventable diseases (focussing on measles, congenital rubella, invasive pneumococcal disease, invasive *Haemophilus influenza* type b disease, pertussis, and influenza);
- tuberculosis;
- enteric disease;
- meningococcal disease;
- mosquito-borne diseases caused by flaviviruses;
- infections caused by antibiotic resistant organisms;
- infections associated with health care.

BACKGROUND

Throughout history, changes in the environment have presented new threats to human health. When humans lived in small tribal groups, the effects of any new communicable diseases were probably limited by the small size and relative isolation of the group. After causing illness in members of the groups, a newly-introduced communicable disease would probably have burnt itself out as it ran out of susceptible victims. As humans moved into larger community groups, the number of susceptible people in each group increased, often with little in the way of water, sewerage, and social infrastructure to support them. Crowding and squalid living conditions presented opportunities for airborne pathogens to spread readily, and when communal water became contaminated with sewerage, massive outbreaks of enteric disease occurred. As contact between communities grew, through trade or colonisation or conflict, previously isolated communities were exposed to new organisms carried by traders, colonisers, and soldiers, or by the vermin that accompanied them.

Community solutions

From ancient times, communities have developed public services designed to improve living conditions that, in turn, have helped prevent disease. These services have included the provision of potable drinking water and sewerage systems, the drainage of swamps, and quarantine. A range of diverse social policies including public education, welfare, and town planning, contributed to reducing the transmission opportunities for agents of communicable disease.

Public health

Only in the last 200 years or so has the understanding of the germ theory and the importance of some of the most important yet basic public health measures, such as availability of running water and hand-washing, been recognised. The development of immunisation, first against smallpox, and later for a growing number of other diseases including diphtheria, pertussis, tetanus, polio, and measles, led to massive declines in morbidity and mortality associated with these conditions.

Epidemiology

Epidemiological methods for the surveillance, investigation, and control of diseases began with the collection of basic demographic statistics including deaths and their causes. Since then, epidemiology has advanced to harness a wide range of data sources for disease (including mandatory disease notifications and statistical collections on hospitalisations and death), risk (including behavioural, social, and environmental factors), sophisticated analytical study designs (for example, cohort and case-control studies), and meta-analyses that sometimes expose subtle disease risks. An improved understanding of risks enabled the development of better strategies for disease prevention.

Treatments

Antibiotics emerged relatively recently in the treatment of disease. A person's immune system has always been the

mainstay against infection, assisted by the occasional surgical intervention to drain pus or remove gangrenous body parts. Antibiotic treatment only became available on a limited basis during World War II, and has had a dramatic effect on the outcome of a wide range of bacterial and parasitic infections. However, specific treatments remain elusive for most viral infections, and resistance to antibiotics has emerged for many bacterial infections.

Social challenges

Despite technological advances in epidemiology, prevention, control, and treatments, disparities in health status in general—and the incidence of communicable diseases in particular—are still related to poverty and access to services. Certain groups are at increased risk of communicable disease, either because of susceptibility (for example, immunocompromising conditions), age, sex, occupation, behaviours, living conditions, nutrition, or access to services. For example: meat workers are at increased risk of Q fever; people who have lived in countries with high rates of tuberculosis are at increased risk of that disease; people who live in rural NSW are at increased risk of arbovirus infections; men who have sex with men have an increased risk of HIV infection; injecting drug users are at increased risk of blood-borne infections such as hepatitis C; and children who have not been immunised are at increased risk of measles. The disadvantaged, refugees, and indigenous communities, have higher rates of a range of communicable diseases than does the general community. The recognition that certain factors are associated with certain risks can allow for the development of targeted prevention and control measures.

Environmental challenges

Growing populations create new environmental demands. For example, if new land opened up for housing developments contains wetland areas, this can expose new residents to mosquito-borne diseases. Inadequate disposal of sewerage may lead to the contamination of estuarine waters, and the shellfish living in them, with agents of communicable disease such as Norovirus and hepatitis A.

New technologies

New technologies can bring immense benefits, but sometimes carry health risks. Examples include the invention of cooling-tower-based air conditioning systems, which inadvertently provide a breeding ground for *Legionella* bacteria and subsequent outbreaks of legionnaires disease. The development of mass food production has occasionally led to mass food poisoning. Changes in the way animals are farmed and fed have been linked to the outbreak of bovine spongiform encephalopathy ('mad cow' disease) and the subsequent outbreak of the human variant, Creutzfeldt-Jakob disease, in Europe. International air travel now presents the potential for the carriage of exotic diseases, such as Severe Acute Respiratory Syndrome, rapidly across the globe. Improved laboratory technologies have allowed the development of agents of biological warfare, such as the powdered anthrax that was disseminated through mail in the United States in 2001.

New technologies in health care have also had their downsides. Mass treatments with reusable, non-sterile syringes and needles probably contributed to the spread of blood-borne diseases like hepatitis C, hepatitis B, and HIV in some countries, as did blood transfusion before the introduction of screening. The use of immunosuppressive drugs to treat various medical conditions, and the increase in the older population, have meant that more people are vulnerable to infections. The congregation of susceptible and sick people in hospitals and nursing homes facilitates the transmission of infection. The widespread use of antibiotics to treat infection has led to the natural selection of antibiotic-resistant bacteria within populations, making treatment more difficult.

Complacency

The very success of public health interventions is in some ways a threat to their continuation. Because immunisation has practically eliminated many diseases, few Australians are aware of the horrors of diseases like polio and diphtheria; consequently, there is a risk of loss of public support for immunisation programs. Similarly, because new treatments for HIV disease have made the development of AIDS less common in people infected with HIV, there is a risk that preventive safe-sex messages will lose their impact. Because programs providing sterile needles and syringes have been so successful, there are few HIV infections among injecting drug users and there is risk that these programs will be seen as expendable. The decline of tuberculosis treatment services in New York was directly implicated in a resurgence of the disease in that city during the 1980s.

The challenge for public health is to identify, foresee, and respond to new threats as they emerge, while maintaining existing control measures. It is therefore important to regularly review disease control programs to ensure that they focus on minimising the risk posed by threats to public health.

A SKILLED WORKFORCE

The control of communicable diseases depends on the coordination and effective functioning of a network of

public health practitioners. Issues that influence this effective functioning include:

- maintaining high skills among members of the network;
- supporting the work of the network through guidelines, ready access to expert advice, data systems, and administrative and quality improvement programs;
- effective communication within the network, and to key stakeholders, including health-care providers and the broader community;
- capacity to respond rapidly to emergencies, and using network capacity to address crises as they emerge.

NSW STRUCTURES

In New South Wales, communicable disease prevention is coordinated primarily through the public health network of local public health units, and the NSW Department of Health's Centre for Health Protection, in partnership with diagnostic laboratories and clinicians. At a local level, public health units work closely with other employees of the area health services, providers of primary and specialist health care, other governmental and non-government agencies, and the community, to ensure that control programs are successfully implemented. At the state level, the Centre for Health Protection (particularly the Communicable Diseases and AIDS–Infectious Diseases and Environmental Health Branches, and the soon to be devolved Food Branch) monitors health indicators and develops policies and programs, based on available evidence, in consultation with a range of advisory committees and other agencies.

THE IMPORTANCE OF DATA

The control of communicable diseases requires both data inputs and information outputs. Data inputs include:

- disease surveillance (monitoring diseases and the detection of outbreaks);
- data on policy implementation (monitoring whether control and prevention programs are put in place);
- investigations (analysing surveillance data, conducting research and investigating outbreaks to identify disease risk factors);
- the scientific literature (monitoring newly identified risks and control measures from around the world);
- intelligence garnered from reports by public health units, and other states and territories (through the Communicable Diseases Network of Australia);
- intelligence derived from international e-mail bulletin boards (such as ProMed);
- data from other agencies on disease threats (reporting diseases in animals, or environmental contamination);
- expert opinion derived from advisory committees. Key Departmental committees include the Public Health Nurses and Surveillance Officers Group, the Public Health Directors Forum, the Meningococcal Diseases Advisory Committee, the Tuberculosis Advisory Committee, the Ministerial Advisory Committee on AIDS Strategy, the Ministerial Advisory Committee on Hepatitis, the Infection Control Advisory Group, the Immunisation Advisory Committee, and the Sexual Health Advisory Committee.

Information outputs include:

- production of the *Notifiable Diseases Manual* (which includes protocols for public health units on how to control transmission following the notification of a case);
- regular publication of surveillance data in the *NSW Public Health Bulletin*, in local newsletters produced by public health units, on the internet, and in the medical literature;
- dissemination of control policies, guidelines, recommendations and fact sheets (through NSW Health Circulars, the *NSW Public Health Bulletin*, letters to area health services, general practitioners, health care workers and schools, the websites of the NSW Department of Health and the area health services, and telephone hot lines);
- contribution to state and national policies on disease control produced by other branches of the NSW Department of Health and other agencies;
- provision of advice to clinicians;
- health alerts and advice issued through the media;
- training of public health professionals in the methods of disease control.

DEVELOPING PRIORITIES

In 2000, NSW Health developed a list of draft priorities for disease control. These priorities included the elimination of measles, congenital rubella, and congenital syphilis; monitoring risk factors for new hepatitis C infections; gaining a better understanding of risk factors for invasive pneumococcal disease and infections associated with health care; and minimising the incidence and management of multi-drug resistant tuberculosis.

There have been several key developments relevant to communicable disease control since 2000 that affect priorities in NSW. Positive developments include:

- increasing rates of immunisation against childhood diseases;
- a decline in reports of new AIDS cases and deaths, primarily due to better treatments for HIV;
- the development of a new state agency for food safety (SafeFood NSW) and Commonwealth funding for

enhanced surveillance of foodborne disease through OzFoodNet;
- funding from the Commonwealth Department of Health and Ageing for targeted immunisation against pneumococcal disease in infants at high risk;
- the introduction of a childhood and school-based vaccination program against meningococcal serogroup C disease;
- the introduction of a mandatory statewide monitoring system for infections associated with healthcare.

On the other hand, threats that have emerged or continued include:

- severe acute respiratory syndrome (SARS) in 29 countries in 2003;
- high rates of hepatitis C and hepatitis B;
- a rise in HIV notifications in NSW;
- increasing rates of unprotected anal intercourse and sexually transmissible infections in men who have sex with men;
- increasing rates of chlamydia in young adults;
- a halt in the decline of rates of tuberculosis;
- cyclical outbreaks of pertussis every three or four years;
- repeated importation of measles cases by overseas travellers and the risk of further transmission of measles to contacts in Australia;
- public concern about the incidence of meningococcal disease;
- high rates of foodborne illness and increasing reports of salmonellosis;
- outbreaks of cryptosporidiosis every four or five years, often linked to contaminated swimming pools;
- outbreaks of mosquito-borne disease (mainly due to Barmah Forest virus and Ross River virus infections);
- increasing incidence of organisms resistant to antibiotics;
- the threat of bio-terrorism in NSW, including the spate of exposures, in late 2001, to white powders that potentially contained anthrax.

PRIORITIES

The following is a list of priorities (in no particular order) for the public health network for communicable disease control in NSW from 2003. Included for each are the major strategies for achieving the priority area, and the draft indicators that can be monitored to assess how well each strategy is implemented. These indicators, when finalised, will be reported annually in the *NSW Public Health Bulletin's* annual communicable diseases Year in Review. Realising these priorities is dependent on NSW Health maintaining a strong network of skilled public health professionals. The proposed 'top 10' priorities for communicable disease surveillance, prevention and control in New South Wales, from 2003, are:

Disease outbreaks, including those caused by emerging diseases and the deliberate release of biological agents

Strategies
- revise the NSW Notifiable Diseases Database;
- provide training for public health staff in outbreak investigation and control;
- improve liaison between public health staff and clinical laboratories;
- maintain a functioning public health network for sharing information advice.

Indicators
- number of statewide training opportunities for public health staff;
- number of disease outbreaks investigated.

Blood-borne infections (focussing on HIV, hepatitis C, and hepatitis B)

Strategies
- maintain high quality surveillance data on the incidence and risk factors for HIV;
- educate communities about risk and prevention;
- maintain and build partnerships with affected communities;
- provide needles and syringe programs;
- support universal hepatitis B vaccination of all children and targeted vaccination of risk groups;

Indicators
- number of needles and syringes distributed in NSW;
- percentage of neonates born to HBV (hepatitis B) positive mothers who are administered HBIG (hepatitis B immunoglobulin) within 12 hours;
- number of newly diagnosed HIV infections by risk group;
- percentage of men who have sex with men who report unprotected anal intercourse;
- percentage of injecting drug users who report sharing injecting equipment;
- number of hepatitis C notifications;
- number of acute hepatitis B infections.

Sexually transmissible infections (focussing on HIV, chlamydia, syphilis, and gonorrhoea)

Strategies
- monitor the number and characteristics of bacterial sexually transmissible infections through laboratory surveillance;
- enhance surveillance for new syphilis infections;
- educate communities about safe sex;
- improve tracing of contacts of infectious patients.

Indicators

- number of new syphilis infections for which enhanced data is available;
- review of contact tracing policy;
- proportion of STI notifications for which contact tracing is reported to have occurred;
- number of babies born with congenital syphilis;
- number of cases of new syphilis infections;
- number of cases of gonorrhoea infections.

Vaccine preventable diseases (focussing on measles, congenital rubella, invasive pneumococcal disease, invasive *Haemophilus influenzae* type b disease, pertussis, and influenza)

Strategies

- maintain high quality surveillance to monitor the incidence and risk factors for measles, congenital rubella, invasive pneumococcal disease, invasive *Haemophilus influenzae* type b (Hib) disease, pertussis, and influenza;
- maximise the number of children fully immunised according to the standard childhood immunisation schedule;
- identify and protect susceptible people exposed to measles, Hib disease and pertussis;
- encourage travellers to immunise routinely against measles, mumps, and rubella;
- encourage adults to be vaccinated by facilitating free vaccination against influenza for all persons aged over 65 years;
- screen and, where necessary, vaccinate health care workers against occupationally transmissible infections.

Indicators

- proportion of children fully immunised at 12 months to less than 15 months;
- 80 per cent of people aged over 65 years immunised against influenza;
- the percentage of Aboriginal and Torres Strait Islanders people immunised against influenza and pneumococcal disease;
- number of measles cases;
- number of cases of vaccine preventable diseases in Aboriginal and Torres Strait Islander persons aged over 50 years;
- number of area health services that report implementation of occupational screening and vaccination policy.

Tuberculosis

Strategies

- collect and analyse data on the incidence, risk factors, and molecular epidemiology of tuberculosis cases, and the outcome of case treatment;
- provide high quality counselling and treatment services;
- identify, counsel, screen, and treat high risk contacts of infectious cases;
- detect early cases in health care workers.

Indicators

- release of revised tuberculosis control policies;
- number of tuberculosis cases notified by region of birth, age group, indigenous status, and HIV status.

Enteric disease

Strategies

- develop a better system for gathering summary data on the incidence, extent, and risk factors contributing to outbreaks of enteric disease;
- work with the food safety authority to improve community education about safe food handling and hand-washing.

Indicators

- release of revised policies for enteric disease investigation;
- proportion of reported outbreaks of enteric disease investigated using epidemiological methods.

Meningococcal disease

Strategies

- collect and analyse enhanced surveillance data on the risk factors and management of meningococcal cases in NSW;
- communicate accurate information to close contacts of cases, the public, and health care workers, about the signs, symptoms, and management of the disease;
- identify and protect close contacts of cases of meningococcal disease.

Indicators

- proportion of school-aged children vaccinated against meningococcal C disease;
- incidence of meningococcal type C disease in people aged less than <20 years.

Mosquito-borne diseases caused by flaviviruses

Strategies

- identify through laboratory surveillance and rapidly investigate possible cases of Murray Valley encephalitis and Kunjin virus infection;
- monitor the risk for Murray Valley encephalitis through regular serological monitoring of sentinel chicken flocks in western NSW;
- communicate prevention advice to people living in or travelling to epidemic areas.

Indicators

- number of chicken flocks used to monitor Kunjin and Murray Valley encephalitis;

- number and location of notifications of Kunjin and Murray Valley Encephalitis infections.

Infections caused by antibiotic resistant organisms

Strategies

- monitor multi-drug resistant tuberculosis (MDR-TB), methicillin resistant *Staphylococcus aureus* (MRSA) and vancomycin resistant enterococci (VRE) and Vancomycin Intermediate *Staphylococcus aureus* (VISA) infections in public hospitals;
- review the public health issues related to the emergence of antibiotic resistance.

Indicators

- report on the public health issues related to antibiotic resistance;
- reports of MRSA, VRE, and VISA in public hospitals.

Infections associated with health care

Strategies

- review statewide infection control, and the infection-control-related aspects of sterilising services;
- review data collected under the *Infection Control Program Quality Monitoring Indicator* initiative;
- develop a mandatory routine system for monitoring local compliance with the *Infection Control Policy*.

Indicators

- release a *NSW Statement of Strategic Directions for Infection Control* and revision of the *Infection Control Policy*;
- incidence of infections and exposures targeted under the *Infection Control Program Quality Monitoring Indicator* system.

Comments on this list of communicable diseases control priorities are welcome, and should be made to the Director, Communicable Diseases Branch, Locked Mail Bag 961, North Sydney, NSW, 2059.

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FACT*SHEET*

VIRAL GASTROENTERITIS

WHAT IS VIRAL GASTROENTERITIS?

Viral gastroenteritis is a common infection of the stomach and intestines that results in vomiting and diarrhoea. It can be caused by a number of different viruses, such as Rotavirus and Norovirus (previously known as Norwalk-like virus). There are many other causes of non-viral gastroenteritis including bacteria, toxins, parasites, and some non-infectious diseases.

WHAT ARE THE SYMPTOMS OF VIRAL GASTROENTERITIS?

The main symptoms of viral gastroenteritis are vomiting and watery diarrhoea. Other symptoms may include nausea, fever, abdominal pain, headache, and muscle aches. Dehydration can follow. Symptoms can take between one and three days to develop and usually last between one and two days, sometimes longer.

HOW IS VIRAL GASTROENTERITIS DIAGNOSED?

A diagnosis of viral gastroenteritis is based on the person's symptoms. Laboratory confirmation is rarely sought, except in outbreaks when testing of vomit or faeces is important.

WHO IS MOST AT RISK OF VIRAL GASTROENTERITIS?

Viral gastroenteritis can affect people of all ages.

HOW IS VIRAL GASTROENTERITIS SPREAD?

Viral gastroenteritis is highly infectious and is spread by the vomit or faeces of an infected person through:

- person-to-person contact, for example shaking hands with someone who has been sick and has the virus on their hands;
- contaminated surfaces;
- contaminated food or drink.

There may also be the possibility of infection being spread through aerosol particles when people vomit.

In most cases, spread occurs from a person who has symptoms. Some people can pass on the infection without symptoms, particularly in the first 48 hours after recovery.

HOW CAN VIRAL GASTROENTERITIS BE PREVENTED?

After using the toilet, changing nappies, and before eating or preparing food, wash your hands thoroughly with soap and running water for at least 15 seconds and dry them with a clean towel.

WHAT SHOULD PEOPLE WITH VIRAL GASTROENTERITIS DO?

There is no specific treatment for viral gastroenteritis except rest and drinking plenty of fluids. Most people will recover without any complications. However, viral gastroenteritis can be serious for those who may have difficulty replacing fluids lost through vomiting and diarrhoea.

People with vomiting or diarrhoea should:

- rest at home; not attend work or school or child care;
- not prepare food for others; and not care for patients, children, or the elderly. These precautions should continue until 48 hours after recovery;
- wash hands thoroughly with soap and running water after using the toilet;
- drink plenty of clear fluids, for example juice or soft drink diluted 1 part to 4 parts water, to prevent dehydration. Avoid undiluted fruit juice and soft drinks as they may increase dehydration and diarrhoea. Rehydration drinks that replace fluids lost are available from chemists. Intravenous fluids may be needed in severe cases of dehydration.

Babies with symptoms of gastroenteritis, and other people who are unable to keep fluids down, or are dehydrated, have ongoing symptoms, or who are concerned, should see a doctor as soon as possible.

WHAT SHOULD CARERS DO?

People caring for those with gastroenteritis should wash hands thoroughly with soap and running water after any contact with the sick person. Cleaning soiled surfaces and clothing reduces further spread of the virus.

When cleaning up vomit or faeces:

- wear gloves; hands should be washed after gloves are removed and disposed;
- use disposable paper towels or rags to remove any solid material and seal them in a plastic bag before placing in the rubbish bin;
- clean any soiled object or surface with hot water and detergent and allow to dry thoroughly.
- some people also recommend wearing a mask.

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WHAT IF THERE IS AN OUTBREAK OF VIRAL GASTROENTERITIS?

Outbreaks of viral gastroenteritis increase in winter and are common within families and group settings including nursing homes, hospitals, childcare centres, and schools. Doctors and hospitals are required to notify their local public health unit whenever there are at least two cases of gastroenteritis that are linked.

Public health units are able to:

- advise on how to control the outbreak;
- investigate outbreaks to determine the source and mode of transmission;
- advise on the exclusion of people with viral gastroenteritis from work, school or other public gatherings.

For further information about how to look after children with gastroenteritis see the Gastroenteritis in Children fact sheet jointly developed by the Children's Hospital Westmead at www.chw.edu.au and the Sydney Children's Hospital at www.sch.edu.au.

For more information please contact your doctor, local public health unit, or community health centre.

September–October 2003

COMMUNICABLE DISEASES REPORT, NSW, FOR JULY 2003

TRENDS

Notifications of communicable diseases for July were consistent with notifications in previous winters with: increased reports of meningococcal disease and invasive pneumococcal disease, and decreased reports of arbovirus infections and salmonellosis (Figure 1 and Table 1).

MEASLES IN WENTWORTH

The Wentworth Public Health Unit reported a measles outbreak, with nine confirmed cases, beginning early June 2003. Eight cases have been linked through contact with the first case. No link has been established in the ninth case.

The outbreak started in June when a young adult (Case 1), who had recently returned from a holiday in Asia, presented to the Emergency Department of a Sydney hospital with a fever and rash. The patient presented again the next day and was admitted. Measles was confirmed five days later by serology (IgM+). The case had no history of immunisation for measles.

Two people who were in the Emergency Department at the same time as Case 1 later became ill with measles. One was a two-month old baby (Case 2) whose onset of rash was eight days after exposure to Case 1. While the incubation period appears short, measles was confirmed from a nasopharyngeal swab. The other was the baby's father (Case 3) who developed symptoms 12 days after exposure. The mother of the baby was immune to measles, with serology showing her to be IgG positive. The father had not been immunised against measles. Subsequently, the baby's unimmunised sibling developed measles (Case 4), probably contracted from his father (Case 3). Onset of rash in Case 4 was 13 days after the start of the infectious period of Case 3.

While infectious, Case 3 presented to the Emergency Department at the hospital. Ten days later, two more people developed symptoms of measles. One was a staff member of the Emergency Department (Case 5); the other was a child (Case 6), who was present in the Emergency Department at the same time as Case 3. Case 6 was reported to have been immunised outside Australia. Measles was confirmed in Cases 5 and 6 by immunofluorescence from a throat swab.

Subsequently, another member of staff of the hospital also contracted measles (Case 7), over 35 years of age, which would be considered to be outside the risk age (based on likely natural immunity from exposure as a child). Exposure is likely to have been with Case 5, the staff member from the Emergency Department.

Case 6 had attended church while infectious, and a member of the church congregation who had been in contact with Case 6 developed symptoms 10 days later (Case 8). Measles was confirmed by serology.

The further case in the Wentworth area was a young adult (Case 9). Although Case 9 lives in the same local government area as Cases 1–8, no other link has been established.

Two other confirmed cases of measles in Western Sydney, and one confirmed case in South East Sydney, were subsequently reported, but no links have been established to the Wentworth cluster.

Contact tracing for the nine cases in the Wentworth Area was extensive and involved telephoning possible contacts who might have been exposed while attending: the Emergency Department; a local medical centre (several occasions); a childcare centre; and the church attended by Cases 6 and 8. A letter was translated for members of the church congregation. Possible contacts were advised to be immunised with measles, mumps and rubella (MMR) vaccine or given immunoglobulin as prophylaxis.

This investigation highlights the need for clinicians to consider measles as a diagnosis in people presenting with fever and rash. Patients presenting with possible measles should be immediately isolated from other patients to minimise the risk of transmission within health care settings. In addition, health care managers and health care workers should ensure that they are immune to measles (either through previous known infection or receipt of two doses of a measles-containing vaccine); and, if in doubt, seek measles immunisation.

A CASE OF MENINGOCOCCAL DISEASE AND CHICKENPOX

The South Eastern Sydney Public Health Unit reported that in July, a young adult (Patient A) presented to an Emergency Department with a three-day history of headache and rhinorrhoea, and a one-day history of rash. On examination, his temperature was 37.8 degrees celsius and he had a vesicular rash on his torso, upper and lower limbs, and hands. The provisional diagnosis was chickenpox.

Ten days earlier Patient A had a two-hour contact in a bar with another young adult (Patient B) who was later diagnosed with invasive meningococcal disease.

The South Eastern Sydney Public Health Unit recommended that clinicians test Patient A's blood for culture, meningococcal serology, and nucleic acid testing by polymerase chain reaction (PCR), along with a throat swab. Additionally, vesicular lesions were swabbed, and blood was taken for varicella serology. Patient A stayed in the Emergency Department overnight for observation.

The following day, serology results were available; *Neisseria meningitidis* IgM antibody was [low] positive. Further blood samples were taken for culture, meningococcal and varicella serology, and meningococcal PCR. Patient A was treated with 1g of ceftriaxone. Patient A's partner, who had developed an influenza-like illness, was also given 1g of ceftriaxone. Patient A's rash had extended considerably, and again a clinical diagnosis of chickenpox was made.

Urgent immunofluorescence testing was performed on Patient A's vesicle fluid, and it was found to be positive for varicella (the virus that causes chickenpox). In the meantime, Patient B was confirmed to have serogroup B invasive meningococcal disease.

Further serology results on Patient A were reported: total meningococcal IgM was equivocal, but IgM was positive for *N. meningitidis* C-capsule (indicating serogroup C infection). Patient A not only had confirmed chickenpox (varicella IgM also positive) but invasive meningococcal disease, albeit of a different serogroup to Patient B. W135 was isolated from the throat swab (there is antigenic cross reaction between C and W135). Patient A's close contacts were followed-up and managed according to national protocol.

ENTERIC DISEASES

Three outbreaks of gastroenteritis in institutions were reported in separate area health services in July. The Central Sydney Public Health Unit reported a large outbreak in a nursing home involving 70 residents and seven staff. Public Health Unit staff visited the nursing home and provided advice on infection control procedures.

The Central Coast Public Health Unit also reported an outbreak in a nursing home. This outbreak involved 12 people.

The Hunter Public Health Unit reported an outbreak involving two groups of approximately 20 people attending a recreational centre used for school camps. The illness was suggestive of Norovirus infection.

FIGURE 1

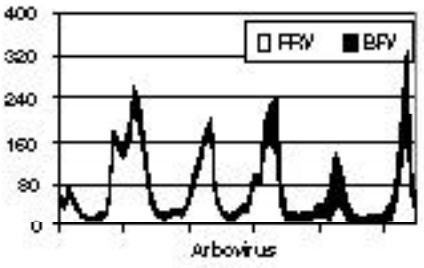
REPORTS OF SELECTED COMMUNICABLE DISEASES, NSW, JANUARY 1998 TO JULY 2003, BY MONTH OF ONSET

Preliminary data: case counts in recent months may increase because of reporting delays.
Laboratory-confirmed cases only, except for measles, meningococcal disease and pertussis
BFV = Barmah Forest virus infections, RRV = Ross River virus infections
LI = Legionella longbeachae infections, Lp = L. pneumophila infections
Gp C and Gp B = disease due to serogroup C and serogroup B infection, other/unk = other or unknown serogroups

NSW population	
Male	50%
<5	7%
5–24	28%
25–64	52%
65+	13%
Rural*	42%

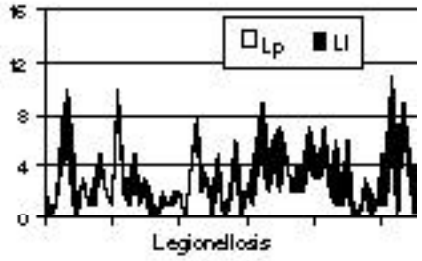
cases

May–July 03	
Male	47%
<5	1%
5–24	7%
25–64	81%
65+	11%
Rural	96%

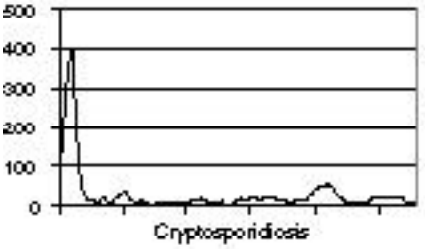


cases

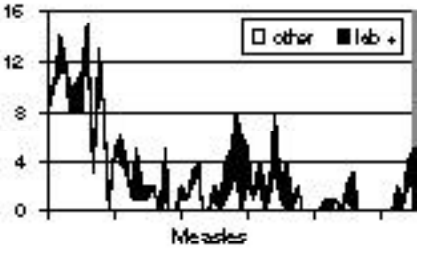
May–July 03	
Male	63%
<5	0%
5–24	0%
25–64	75%
65+	25%
Rural	31%



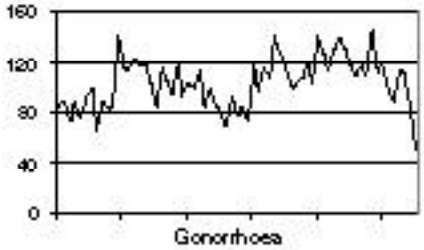
May–July 03	
Male	53%
<5	35%
5–24	35%
25–64	24%
65+	6%
Rural	53%



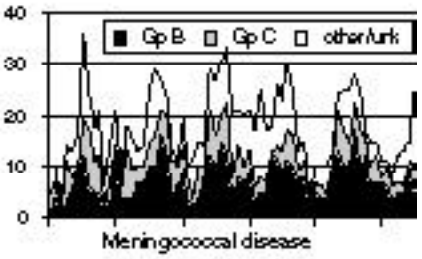
May–July 03	
Male	89%
<5	56%
5–24	11%
25–64	33%
65+	0%
Rural	0%



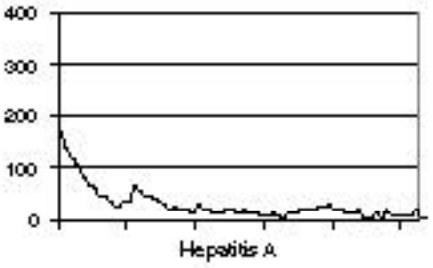
May–July 03	
Male	86%
<5	1%
5–24	22%
25–64	75%
65+	1%
Rural	16%



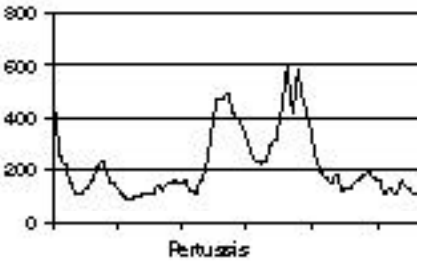
May–July 03	
Male	59%
<5	35%
5–24	32%
25–64	17%
65+	17%
Rural	41%



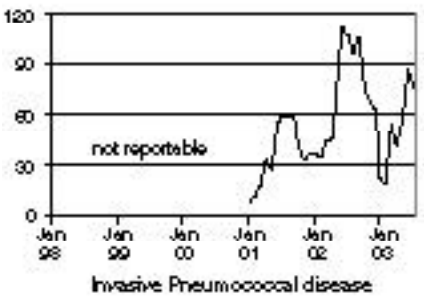
May–July 03	
Male	65%
<5	6%
5–24	24%
25–64	59%
65+	12%
Rural	29%



May–July 03	
Male	39%
<5	8%
5–24	40%
25–64	46%
65+	6%
Rural	36%



May–July 03	
Male	55%
<5	36%
5–24	9%
25–64	26%
65+	30%
Rural	40%



May–July 03	
Male	67%
<5	22%
5–24	22%
25–64	56%
65+	0%
Rural	8%

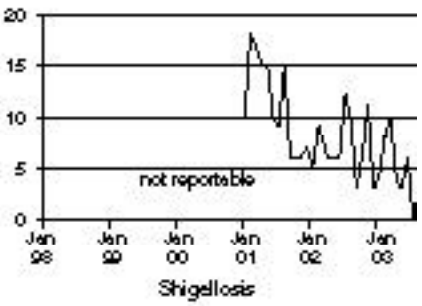


TABLE 1 REPORTS OF NOTIFIABLE CONDITIONS RECEIVED IN JULY 2003 BY AREA HEALTH SERVICES

Condition	Area Health Service																		Total	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	CHS	for July†	To date†
Blood-borne and sexually transmitted																				
Chancroid*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlamydia (genital)*	78	70	49	20	46	20	56	27	91	25	24	17	18	32	2	27	22	6	633	4,061
Gonorrhoea*	17	6	8	2	3	2	1	1	24	2	1	4	1	-	-	1	2	-	75	744
Hepatitis B - acute viral*	-	-	-	2	-	-	1	1	1	-	-	-	-	-	-	-	-	-	5	45
Hepatitis B - other*	56	32	66	2	1	5	10	4	40	5	-	2	2	1	1	-	2	5	235	1,837
Hepatitis C - acute viral*	1	-	1	-	-	-	3	-	-	-	-	-	1	-	-	-	-	-	6	55
Hepatitis C - other*	68	23	85	38	-	37	37	39	54	30	3	10	12	11	-	12	14	40	517	3,768
Hepatitis D - unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
Syphilis	19	-	7	-	10	3	-	1	30	-	-	3	-	1	-	1	2	-	81	529
Vector-borne																				
Barmah Forest virus*	-	-	-	1	-	-	-	-	-	22	5	-	-	-	-	-	-	-	28	363
Ross River virus*	-	1	-	-	-	1	1	1	-	14	4	-	1	1	2	1	-	-	27	441
Arboviral infection (Other)*	-	1	-	-	-	-	1	-	2	1	-	-	-	-	-	-	-	-	5	60
Malaria*	1	1	-	-	-	1	-	-	1	2	-	-	-	-	-	-	-	-	6	80
Zoonoses																				
Anthrax*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Leptospirosis*	-	-	-	-	-	-	-	-	-	1	-	-	-	1	-	-	-	-	2	31
Lyssavirus*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Psittacosis*	-	1	3	-	2	-	2	-	1	1	-	-	-	-	-	-	-	-	10	33
Q fever*	-	-	-	-	-	-	5	-	-	3	-	8	4	-	-	1	-	-	21	207
Respiratory and other																				
Blood lead level*	1	2	-	5	1	-	11	1	1	-	4	1	4	-	-	-	-	-	31	296
Influenza*	4	-	6	1	-	-	-	4	1	1	1	2	-	-	-	2	1	-	23	131
Invasive pneumococcal infection*	7	8	10	5	19	10	16	8	12	2	3	-	1	3	-	1	4	-	110	374
Legionella longbeachae infection*	-	-	1	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	3	26
Legionella pneumophila infection*	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	18
Legionnaires- disease (Other)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Meningococcal infection (invasive)*	2	1	2	2	1	-	3	3	5	2	1	-	-	-	-	-	1	-	23	97
Tuberculosis	3	7	3	-	2	-	2	-	5	-	-	-	-	-	-	-	-	-	22	199
Vaccine-preventable																				
Adverse event after immunisation	-	1	-	2	-	2	4	-	1	-	-	-	-	3	-	1	-	-	14	112
H. *Influenzae b* infection (invasive)*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Measles	-	-	2	4	-	-	-	-	1	-	-	-	-	-	-	-	-	-	7	11
Mumps*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20
Pertussis	14	16	27	11	14	3	19	12	27	3	11	3	2	5	-	2	6	-	175	1,025
Rubella*	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	2	20
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Enteric																				
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cryptosporidiosis*	-	3	4	-	1	-	1	-	-	2	1	-	1	-	-	-	-	-	13	126
Giardiasis*	8	10	17	9	6	2	11	3	10	-	-	1	3	2	-	4	-	-	87	597
Haemolytic uraemic syndrome	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Hepatitis A*	1	1	1	2	1	-	1	-	-	-	-	-	-	-	-	-	2	-	9	65
Hepatitis E*	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	3
Listeriosis*	1	-	1	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	4	20
Salmonellosis (not otherwise specified)*	5	9	14	3	14	2	9	1	10	6	1	2	3	3	-	2	1	-	85	1,324
Shigellosis*	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	38
Typhoid and paratyphoid*	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	19
Verotoxin producing *E. coli**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* lab-confirmed cases only + includes cases with unknown postcode * * HIV and AIDS data are reported separately in the *NSW Public Health Bulletin* each quarter

CSA = Central Sydney Area
NSA = Northern Sydney Area
WSA = Western Sydney Area
WEN = Wentworth Area
SWS = South Western Sydney Area
CCA = Central Coast Area
HUN = Hunter Area
ILL = Illawarra Area
SES = South Eastern Sydney Area
NRA = Northern Rivers Area
MNC = North Coast Area
NEA = New England Area
MAC = Macquarie Area
MWA = Mid Western Area
FWA = Far West Area
GMA = Greater Murray Area
SA = Southern Area
CHS = Corrections Health Service

NSW PUBLIC HEALTH BULLETIN

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