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Year in review

Year in review: health protection in NSW, 2010

Centre for Health Protection, NSW Department of Health

The prevention and control of communicable and environmental threats to health is the work of health protection services around the world. This year we expand the usual year in review of communicable disease surveillance in NSW to highlight some of the work of NSW health protection services in 2010. The annual review of notifications of communicable diseases in NSW is embedded within this report; for detail on surveillance data, refer to Tables 1–5, which show disease-specific data on notifiable conditions* reported by: year of onset of illness; month of onset of illness; local health district; and age group and sex.

The **Centre for Health Protection** aims to reduce the threats to health and the burden of illness posed by communicable diseases and the environment in New South Wales (NSW). It achieves this through the development and application of legislation, regulations, policies and guidelines, through allocation of resources, monitoring of program performance (in non-government, community, education, ambulatory and inpatient settings) and collaboration with public health units, local health districts and other agencies. The Centre has three branches which are responsible for these activities:

- The **Environmental Health Branch** facilitates the prevention, assessment and management of environmental factors which can adversely affect human health.
- The **AIDS and Infectious Diseases Branch** is responsible for policy and program management activities that seek to prevent and reduce morbidity associated with bloodborne, sexually transmissible and vaccine-preventable diseases.
- The **Communicable Diseases Branch** conducts surveillance for notifiable communicable diseases and develops control measures to help prevent their spread.

Vaccine-preventable diseases

Notification data

There were 9900 notifications of vaccine-preventable disease reported in NSW in 2010. This represents a 45% increase compared with the previous 5-year average annual disease count. Highlights in 2010 included:

- A continued high level of **pertussis** activity with 9255 notifications, compared with 12 408 in 2009. The number of notifications was highest in children aged 5–9 years (2719 notifications) and 10–14 years (1606 notifications).
- A continued long-term decline in the number of notifications of **meningococcal disease** over the past 10 years (73 notifications compared with 91 in 2009). The greatest decline was in notifications of meningococcal disease due to serogroup C disease, with six cases notified in 2010. Free immunisation against meningococcal disease due to serogroup C meningococcal disease commenced in 2003.
- A small rise in **measles** notifications with 26 cases notified compared with 19 in 2009. Of the notifications in 2010, 15 were associated with an outbreak on the NSW North Coast (three from correctional facilities) linked to an unimmunised person who acquired the infection overseas.

Prevention activities

Immunisation rates for children and adolescents have improved in some age groups in recent years in NSW, however further work is required to improve coverage rates for 12-month old Aboriginal children.

According to the Australian Childhood Immunisation Register, in 2010 full immunisation was recorded for:

- 91.4% of 12-month old children, a decrease of 0.7% from 2009[a]

*Please note that from the May–June 2011 issue of the *Bulletin*, 'notifiable conditions' are now referred to in both text and tables as 'scheduled medical conditions', reflecting the terminology of the NSW *Public Health Act 2010*.

[a]A child is assessed as fully vaccinated at 12 months of age if he/she has received age-appropriate vaccinations against diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type B and hepatitis B.

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Table 1. Disease notifications by year of onset of illness, NSW, 1993–2010

Condition	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Adverse event after immunisation	23	40	28	56	70	95	16	42	111	177	219	187	107	72	239	257	126	168
Anthrax	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Arboviral infection	628	372	525	1221	1804	770	1215	971	1178	652	1015	1138	1077	1918	1495	1835	1408	1510
Barmah Forest virus infection[a]	25	39	271	172	185	134	249	197	395	395	451	400	449	643	574	529	358	252
Ross River virus infection[a]	598	331	236	1031	1600	575	951	748	717	182	492	697	575	1221	839	1152	908	1052
Other[a]	5	2	18	18	19	61	15	26	66	75	72	41	53	54	82	154	142	206
Blood lead level ≥ 15 µg/dl[a]	Not notifiable until December 1996				710	877	699	994	513	499	335	302	234	295	286	263	203	212
Botulism	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
Brucellosis[a]	4	4	2	1	3	3	2	1	1	2	3	7	3	9	4	1	4	2
Chancroid[a]	Not notifiable until December 1998						1	0	0	0	0	0	0	0	0	0	0	0
Chlamydia trachomatis infection						566	2440	3481	4465	5764	7721	9956	11 216	12 027	12 404	13 967	14 923	18 139
Congenital chlamydia[a]	Not notifiable until August 1998					5	14	18	16	15	22	28	46	39	31	44	51	36
Chlamydia – other[a]	Not notifiable until August 1998					561	2426	3463	4449	5749	7699	9928	11 170	11 988	12 373	13 923	14 872	18 103
Cholera[a]	1	0	1	3	1	1	2	0	1	1	0	1	0	3	2	2	3	2
Creutzfeldt-Jakob disease[a]	Not notifiable until April 2004											6	8	11	9	8	10	6
Cryptosporidiosis[a]	Not notifiable until December 1996				156	1127	121	134	194	306	203	351	847	777	542	485	1462	345
Diphtheria[a]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Foodborne illness (NOS)[b]	106	213	270	211	255	201	151	147	56	41	1071	550	309	507	763	667	903	728
Gastroenteritis (institutional)	443	296	1359	554	939	738	673	697	775	1752	3583	12 784	1395	10 641	10 488	10 135	11 769	9386
Giardiasis[a]	Not notifiable until August 1998					401	1091	978	966	858	1027	1228	1448	1721	1943	1779	2097	2289
Gonorrhoea[a]	382	357	428	522	636	1051	1276	1047	1351	1500	1312	1415	1558	1724	1368	1313	1638	2284
Haemolytic uraemic syndrome	Not notifiable until December 1996				3	6	10	9	2	7	5	9	11	11	12	17	4	3
H. influenzae serotype b[a]	124	61	29	13	17	11	13	8	7	10	6	4	7	11	7	8	6	6
Hepatitis A[a]	579	583	612	956	1422	923	412	191	196	146	123	137	79	94	65	69	96	84
Hepatitis B	3567	3944	3947	3439	3097	3155	3441	3675	3749	3370	2721	2668	2710	2481	2596	2524	2620	2466
Hepatitis B – acute viral[a]	95	73	61	43	53	56	72	97	89	87	74	51	56	52	56	44	37	34
Hepatitis B – other[a]	3472	3871	3886	3396	3044	3099	3369	3578	3660	3283	2647	2617	2654	2429	2540	2480	2583	2432
Hepatitis C	5846	7716	6677	6710	6608	6913	7945	7630	7263	6227	4894	4595	4310	4321	4164	3734	3824	3553
Hepatitis C – acute viral[a]	21	14	31	18	19	110	103	214	272	144	122	58	43	56	64	26	40	36
Hepatitis C – other[a]	5825	7702	6646	6692	6589	6803	7842	7416	6991	6083	4772	4537	4267	4265	4100	3708	3784	3517
Hepatitis D[a]	12	19	19	9	11	3	13	12	11	9	12	14	15	15	11	14	9	7
Hepatitis E[a]	1	2	0	3	6	4	7	9	6	6	5	8	7	10	8	14	17	15
HIV infection[a]	589	503	538	450	424	404	379	352	344	397	413	403	392	366	387	326	329	305
Influenza									244	1006	856	1004	1486	683	2067	1891	12 832	1580
Influenza – Type A[a]	Not notifiable until December 2000								216	766	763	817	1167	490	1705	843	12 556	1396
Influenza – Type B[a]	Not notifiable until December 2000								27	239	55	160	298	183	185	1028	162	142
Influenza – Type A&B[a]	Not notifiable until December 2003											0	10	2	3	3	12	36
Influenza – Type NOS[a]	Not notifiable until December 2000								1	1	38	27	11	8	174	17	102	6
Legionellosis	66	60	75	74	33	45	41	41	68	44	59	80	88	78	105	90	94	85
Legionella longbeachae[a]	13	8	16	30	9	18	12	12	29	21	37	27	24	22	29	52	64	42
L. pneumophila[a]	34	30	35	34	18	22	22	26	38	22	22	51	63	56	74	37	28	35
Legionnaires' disease – other	19	22	24	10	6	5	7	3	1	1	0	2	1	0	2	1	2	8
Leprosy	5	3	3	2	0	0	1	2	3	0	2	5	1	1	4	4	0	1
Leptospirosis[a]	16	14	6	33	33	50	56	52	65	39	39	39	34	17	9	17	18	19
Listeriosis[a]	12	10	14	22	23	28	22	18	12	11	28	30	25	26	22	34	27	26
Lymphogranuloma venereum[a]	0	0	0	0	0	0	0	0	0	0	0	1	2	1	0	3	4	55
Malaria[a]	173	184	96	202	173	157	174	227	154	103	119	97	204	136	93	109	88	117
Measles[a]	2345	1483	596	191	272	119	33	31	30	7	18	12	5	60	3	39	19	26
Meningococcal disease	153	142	113	161	218	184	214	247	229	212	194	146	136	102	108	80	91	73
Meningococcal – serogroup B[a]	8	8	27	40	53	54	94	93	88	104	98	81	73	54	76	49	57	49
Meningococcal – serogroup C[a]	8	11	8	38	55	55	59	64	38	54	44	24	15	13	9	9	7	6
Meningococcal – serogroup W135[a]	0	0	1	0	2	4	4	3	1	2	2	5	8	5	2	5	5	4
Meningococcal – serogroup Y[a]	1	1	0	1	0	7	1	7	2	2	5	3	3	1	5	4	3	3
Meningococcal – other	136	122	77	82	108	64	56	80	100	50	45	33	37	29	16	13	19	11
Meningococcal – conjunctivitis	0	0	0	0	0	2	3	4	2	3	4	3	3	5	3	1	4	2
Mumps[a]	13	11	14	27	30	38	32	91	28	29	36	64	109	154	318	76	39	34
Paratyphoid[a,c]	9	11	12	15	5	9	5	14	11	13	22	10	0	0	0	0		
Pertussis	1534	1405	1370	1157	4246	2306	1413	3696	4441	2013	2771	3568	5805	4915	2099	8756	12 408	9255
Pneumococcal disease (invasive)[a]	Not notifiable until December 2000								444	878	796	903	637	564	523	549	474	493
Psittacosis[a]	Not notifiable until December 2000								38	155	88	81	120	94	35	40	22	11
Q fever[a]	403	267	200	286	258	235	164	131	143	308	287	219	143	176	205	166	139	126
Rotavirus[a]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1215
Rubella	1186	233	2375	636	153	78	46	190	58	35	24	18	10	37	9	17	7	12
Congenital rubella[a]	2	4	1	5	0	0	1	0	0	0	1	1	0	0	1	0	0	0
Rubella – other[a]	1184	229	2374	631	153	78	45	190	58	35	23	17	10	37	8	17	7	12
Salmonella infection[a,c]	944	1075	1276	1228	1700	1815	1427	1409	1654	2100	1847	2135	2165	2055	2540	2239	2658	3671
Shigellosis[a]	Not notifiable until December 2000								133	82	57	96	133	74	70	107	148	112
Syphilis	21	64	183	117	95	86	223	291	376	458	775	752	548	609	818	835	929	707
Congenital syphilis	0	2	6	3	3	0	3	3	1	2	3	1	9	4	5	3	0	0
Syphilis infection[a,d]	7	28	131	72	57	44	85	79	65	126	238	293	240	223	451	426	532	387
Syphilis – other[a]	14	34	46	42	35	42	135	209	310	330	534	458	299	382	362	406	397	320
Tetanus	5	4	0	1	3	3	1	3	0	0	1	0	1	2	2	1	1	1
Tuberculosis[a,e]	390	388	443	407	422	384	477	450	421	448	378	408	455	452	452	488	505	392
Typhoid[a]	28	25	27	30	27	18	32	26	30	24	14	38	26	34	32	43	45	28
Verotoxin-producing *Escherichia coli* infections[a]	Not notifiable until December 1996				0	2	0	1	1	6	3	5	16	10	23	19	21	10

Onset of illness: the earlier of patient reported onset date, specimen date or date of notification.
[a]Laboratory-confirmed cases only. [b]Foodborne illness cases are only those notified as part of an outbreak. [c]From 2005, all paratyphoid recorded as salmonellosis. [d]Includes syphilis primary, syphilis secondary, syphilis < 1 y duration and syphilis newly acquired. [e]Tuberculosis data reported on diagnosis year. [f]Includes cases with unknown PHU.
NOS: not otherwise specified.
No case of the following diseases have been notified since 1991: plague[b], diphtheria[b], granuloma inguinale[b], lyssavirus[b], poliomyelitis[b], rabies, smallpox, typhus[b], viral haemorrhagic fever, yellow fever.
2009 influenza data: cases reported to public health units; contain 50 laboratory notifications from either interstate residents or overseas travellers.
Please note that from the May–June 2011 issue of the *Bulletin*, 'notifiable conditions' are now referred to in both text and tables as 'scheduled medical conditions', reflecting the terminology of the NSW *Public Health Act 2010*.

Table 2. Disease notifications by month of onset of illness, NSW, 2010

Condition	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Adverse event after immunisation	6	14	40	51	16	4	5	5	10	7	7	3	168
Anthrax	0	1	0	0	0	0	0	0	0	0	0	0	1
Arboviral infection	82	168	283	275	161	102	52	56	53	75	106	97	1510
Barmah Forest virus infection[a]	25	23	34	29	26	15	9	12	14	12	27	26	252
Ross River virus infection[a]	48	134	241	236	119	70	15	28	26	39	44	52	1052
Other[a]	9	11	8	10	16	17	28	16	13	24	35	19	206
Blood lead level ≥ 15 µg/dl[a]	3	15	17	13	13	24	26	26	22	21	21	11	212
Brucellosis[a]	1	0	1	0	0	0	0	0	0	0	0	0	2
Chlamydia trachomatis infection	1387	1571	1813	1381	1546	1538	1434	1551	1485	1487	1630	1316	18 139
Congenital chlamydia[a]	1	3	6	1	3	5	2	4	2	3	1	5	36
Chlamydia – other[a]	1386	1568	1807	1380	1543	1533	1432	1547	1483	1484	1629	1311	18 103
Cholera[a]	0	0	0	0	0	0	1	1	0	0	0	0	2
Creutzfeldt-Jakob disease[a]	0	1	1	0	1	1	0	0	1	0	1	0	6
Cryptosporidiosis[a]	51	35	41	30	29	19	23	19	22	21	33	22	345
Foodborne illness (NOS)[b]	225	18	71	71	58	107	16	61	28	29	18	26	728
Gastroenteritis (institutional)	264	159	633	563	798	667	1707	1643	1751	652	277	272	7651
Giardiasis[a]	225	234	271	240	193	173	162	170	158	150	155	158	2289
Gonorrhoea[a]	240	195	194	192	179	198	176	203	179	187	173	168	2284
H. influenzae serotype b[a]	0	0	0	0	2	0	2	1	1	0	0	0	6
Haemolytic uraemic syndrome	1	1	0	0	0	0	0	1	0	0	0	0	3
Hepatitis A[a]	16	13	5	5	6	3	3	2	12	9	6	4	84
Hepatitis B	193	203	237	176	206	232	229	200	221	212	199	158	2466
Hepatitis B – acute viral[a]	2	2	4	2	5	1	2	7	4	1	2	2	34
Hepatitis B – other[a]	191	201	233	174	201	231	227	193	217	211	197	156	2432
Hepatitis C	270	304	288	286	303	308	328	321	333	307	293	212	3553
Hepatitis C – acute viral[a]	2	2	5	1	3	4	3	5	5	3	3	0	36
Hepatitis C – other[a]	268	302	283	285	300	304	325	316	328	304	290	212	3517
Hepatitis D[a]	1	0	0	0	1	2	1	1	1	0	0	0	7
Hepatitis E[a]	1	3	1	1	2	1	3	1	1	1	0	0	15
HIV infection[a]	26	33	24	23	24	28	29	22	31	22	27	16	305
Influenza	54	35	37	70	54	49	99	270	410	274	111	117	1580
Influenza – Type A[a]	49	30	35	67	46	46	90	235	372	241	88	97	1396
Influenza – Type B[a]	3	5	1	1	6	2	6	18	34	33	16	17	142
Influenza – Type A&B[a]	2	0	1	2	2	1	3	16	4	0	5	0	36
Influenza – Type NOS[a]	0	0	0	0	0	0	0	1	0	0	2	3	6
Legionellosis	4	7	10	11	7	9	7	6	4	7	7	6	85
Legionella longbeachae[a]	2	4	7	6	3	6	0	2	1	3	5	3	42
L. pneumophila[a]	1	3	3	5	4	2	6	2	3	3	1	2	35
Legionnaires' disease – other	1	0	0	0	0	1	1	2	0	1	1	1	8
Leprosy	0	0	1	0	0	0	0	0	0	0	0	0	1
Leptospirosis[a]	3	2	2	1	1	2	3	1	2	0	0	2	19
Listeriosis[a]	4	8	4	1	1	1	0	0	0	2	2	3	26
Lymphogranuloma venereum[a]	0	2	2	2	7	8	5	13	6	6	1	3	55
Malaria[a]	5	4	7	6	10	11	13	15	16	11	5	14	117
Measles[a]	1	4	1	1	1	0	1	13	4	0	0	0	26
Meningococcal disease	8	4	5	5	5	3	5	11	7	11	5	4	73
Meningococcal – serogroup B[a]	7	3	3	3	3	2	3	7	4	8	5	1	49
Meningococcal – serogroup C[a]	0	0	0	1	0	1	0	2	0	1	0	1	6
Meningococcal – serogroup W135[a]	0	0	2	0	0	0	0	0	0	1	0	1	4
Meningococcal – serogroup Y[a]	0	0	0	0	0	0	2	0	0	0	0	1	3
Meningococcal – other	1	1	0	1	2	0	0	2	3	1	0	0	11
Meningococcal - conjunctivitis	0	0	0	0	0	0	1	0	1	0	0	0	2
Mumps[a]	1	1	4	4	4	5	3	2	1	3	3	3	34
Pertussis	594	382	374	317	360	338	376	608	970	1473	1857	1606	9255
Pneumococcal disease (invasive)[a]	19	18	32	27	42	61	65	56	60	42	40	31	493
Psittacosis[a]	0	0	0	1	2	1	2	0	1	2	1	1	11
Q fever[a]	12	9	17	8	9	16	12	10	9	5	11	8	126
Rotavirus[a]	58	49	55	52	53	58	76	139	264	186	146	79	1215
Rubella	3	1	3	1	0	0	1	0	1	0	0	2	12
Rubella – other[a]	3	1	3	1	0	0	1	0	1	0	0	2	12
Salmonella infection[a,c]	466	406	477	375	268	222	206	202	165	220	277	387	3671
Shigellosis[a]	7	5	12	6	7	9	11	17	4	15	11	8	112
Syphilis	74	68	73	54	68	67	45	72	51	50	55	30	707
Syphilis infection[a,d]	45	36	35	28	30	41	27	37	23	30	32	23	387
Syphilis – other[a]	29	32	38	26	38	26	18	35	28	20	23	7	320
Tetanus	0	0	0	0	0	0	0	1	0	0	0	0	1
Tuberculosis[a,e]	44	36	41	21	20	36	35	26	37	38	31	27	392
Typhoid[a]	2	6	5	3	1	3	0	2	2	1	2	1	28
Verotoxin-producing *Escherichia coli* infections[a]	3	1	0	0	0	1	1	1	2	1	0	0	10

Onset of illness: the earlier of patient reported onset date, specimen date or date of notification.
[a]Laboratory-confirmed cases only. [b]Foodborne illness cases are only those notified as part of an outbreak. [c]Includes all paratyphoid cases. [d]Includes syphilis primary, syphilis secondary, syphilis < 1 y duration and syphilis newly acquired. [e]Tuberculosis data reported on diagnosis year.
NOS: not otherwise specified.
No case of the following diseases have been notified since 1991: plague[a], diphtheria[a], granuloma inguinale[a], lyssavirus[a], poliomyelitis[a], rabies, smallpox, typhus[a], viral haemorrhagic fever, yellow fever.
2010 influenza data: cases reported to public health units; contain 50 laboratory notifications from either interstate residents or overseas.
Please note that from the May–June 2011 issue of the *Bulletin*, 'notifiable conditions' are now referred to in both text and tables as 'scheduled medical conditions', reflecting the terminology of the NSW *Public Health Act 2010*.

Table 3. Incidence rate of disease notifications by local health district of residence, crude rates per 100 000 population, NSW, 2010 (based on onset of illness)

Condition	Sydney	Central Coast	Far West	Hunter New England	Illawarra Shoalhaven	Mid North Coast	Murrum-bidgee	Nepean Blue Mountains	Northern Sydney	Northern NSW	South Eastern Sydney	South Western Sydney	Southern NSW	Western Sydney	Western NSW
Adverse event after immunisation	1.6	1.3	9.5	3.1	4.1	0.0	7.2	2.9	1.6	0.3	2.8	1.0	3.5	2.2	2.2
Anthrax	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Arboviral infection	4.6	22.7	97.8	29.4	13.7	42.1	74.6	13.0	7.1	77.4	6.8	3.1	43.0	3.3	84.6
Barmah Forest virus infection[a]	0.2	4.1	9.5	5.6	3.4	19.4	3.4	0.3	0.1	25.3	0.0	0.1	10.5	0.2	7.8
Ross River virus infection[a]	1.6	13.9	88.3	21.8	4.7	20.3	70.8	12.2	2.0	47.3	1.1	1.8	30.5	2.3	76.1
Other[a]	2.8	4.7	0.0	2.1	5.4	2.4	0.3	0.6	4.9	4.7	5.8	1.2	2.0	0.7	0.7
Blood lead level ≥ 15 µg/dl[a]	1.8	1.0	22.1	2.4	0.5	0.0	21.6	2.0	0.5	1.0	1.0	1.7	2.0	1.2	20.4
Brucellosis[a]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chlamydia trachomatis infection	300.3	279.5	290.2	318.8	261.3	215.5	236.7	218.7	163.4	287.2	363.0	165.9	205.5	181.5	285.0
Congenital chlamydia[a]	0.0	0.3	0.0	0.5	0.8	0.5	1.0	0.3	0.1	0.3	0.4	1.0	0.5	0.6	1.1
Chlamydia – other[a]	300.1	279.2	290.2	318.4	260.5	215.1	235.6	218.2	163.3	286.9	362.6	164.9	204.5	180.9	283.1
Cholera[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Creutzfeldt-Jakob disease[a]	0.0	0.0	0.0	0.2	0.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Cryptosporidiosis[a]	6.0	5.1	3.2	5.7	1.3	6.6	6.2	5.2	6.7	6.4	4.0	2.4	4.0	3.9	7.4
Giardiasis[a]	38.5	29.7	18.9	28.2	24.1	18.9	31.1	33.0	42.3	6.8	57.3	20.3	19.0	24.9	40.1
Gonorrhoea[a]	86.9	16.7	12.6	21.2	10.9	14.2	4.8	13.0	22.2	16.2	94.8	21.7	4.5	17.3	1.9
H. influenzae serotype b[a]	0.0	0.0	0.0	0.1	0.3	0.5	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0	0.4
Haemolytic uraemic syndrome	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Hepatitis A[a]	1.8	0.3	3.2	0.7	0.8	0.0	0.3	0.3	1.0	1.4	1.2	0.8	0.5	3.4	0.7
Hepatitis B	66.2	6.0	12.6	8.0	11.9	11.3	10.6	16.8	26.9	4.4	48.6	55.0	9.0	67.9	14.1
Hepatitis B – acute viral[a]	0.4	0.0	0.0	0.2	0.5	0.5	1.4	0.3	0.4	0.0	0.1	0.9	0.5	0.2	1.5
Hepatitis B – other[a]	65.9	6.0	12.6	7.8	11.4	10.9	9.2	16.5	26.5	4.4	48.5	54.0	8.5	67.6	12.6
Hepatitis C	61.3	48.3	37.9	37.5	44.0	50.1	42.7	40.6	20.4	71.0	47.1	51.6	53.0	33.5	56.0
Hepatitis C – acute viral[a]	0.4	0.3	0.0	0.5	0.3	0.5	1.7	0.3	0.0	0.3	0.4	0.4	2.0	0.0	3.0
Hepatitis C – other[a]	60.8	48.0	37.9	37.1	43.8	49.2	41.0	40.3	20.3	70.6	46.6	51.2	51.0	33.5	52.7
Hepatitis D[a]	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.4
Hepatitis E[a]	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.6	0.0	0.0	0.0
Influenza	9.5	8.5	6.3	15.2	24.9	23.2	29.8	36.2	17.6	29.7	23.6	14.7	27.5	32.2	26.0
Influenza – Type A[a]	7.5	8.2	3.2	14.0	23.8	22.7	29.4	32.5	15.7	27.0	18.9	13.0	24.0	27.5	22.6
Influenza – Type B[a]	1.9	0.3	3.2	1.0	0.3	0.5	0.0	3.2	1.7	2.0	3.8	1.5	2.5	3.2	1.9
Influenza – Type A&B[a]	0.0	0.0	0.0	0.1	0.8	0.0	0.3	0.3	0.2	0.3	1.0	0.1	0.5	1.5	1.5
Influenza – Type NOS[a]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.1	0.5	0.1	0.0
Legionellosis	1.1	0.9	0.0	1.3	3.1	0.5	0.7	2.9	1.1	0.0	0.7	0.7	2.0	1.6	0.7
Legionella longbeachae[a]	0.2	0.6	0.0	0.3	3.1	0.5	0.0	1.5	0.6	0.0	0.1	0.2	2.0	0.6	0.4
L. pneumophila[a]	0.5	0.3	0.0	0.5	0.0	0.0	0.7	1.5	0.5	0.0	0.6	0.5	0.0	0.9	0.0
Legionnaires' disease – other	0.4	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.4
Leprosy	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Leptospirosis[a]	0.2	0.0	0.0	0.3	0.3	0.0	1.0	0.0	0.1	2.0	0.1	0.2	0.0	0.0	0.4
Listeriosis[a]	0.2	0.3	3.2	0.3	0.3	0.0	0.0	0.0	0.8	0.7	0.4	0.4	0.5	0.2	0.4
Lymphogranuloma venereum[a]	3.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.0	3.2	0.0	0.0	0.5	0.0
Malaria[a]	3.0	0.0	0.0	1.7	2.3	0.5	1.4	0.6	2.0	2.4	1.0	0.9	1.0	2.8	0.0
Measles[a]	0.0	0.6	0.0	0.0	0.0	0.0	0.3	0.3	0.5	4.1	0.1	0.0	0.0	0.0	0.0
Meningococcal disease	0.5	3.2	0.0	1.5	2.1	2.4	0.3	1.4	0.2	0.3	0.6	1.2	0.5	0.5	1.9
Meningococcal – serogroup B[a]	0.2	2.5	0.0	0.9	1.3	1.9	0.0	1.5	0.1	0.0	0.2	0.8	0.5	0.5	1.1
Meningococcal – serogroup C[a]	0.4	0.3	0.0	0.0	0.3	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Meningococcal – serogroup W135[a]	0.0	0.3	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
Meningococcal – serogroup Y[a]	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Meningococcal – other	0.0	0.0	0.0	0.2	0.3	0.0	0.3	0.0	0.0	0.3	0.4	0.2	0.0	0.0	0.4
Meningococcal – conjunctivitis	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
Mumps[a]	1.2	0.6	0.0	0.3	0.8	0.0	0.3	0.0	0.6	0.0	0.6	0.9	0.0	0.0	0.0
Pertussis	118.8	60.3	343.9	87.6	138.5	69.5	190.2	128.4	195.3	72.0	141.4	105.3	238.5	122.0	149.6
Pneumococcal disease (invasive)[a]	6.0	6.0	3.2	7.2	6.7	3.3	5.8	7.8	7.4	7.4	9.0	6.1	7.5	5.2	10.0
Psittacosis[a]	0.0	0.6	0.0	0.3	0.3	0.0	0.3	0.0	0.2	0.0	0.1	0.0	0.0	0.1	0.0
Q fever[a]	0.4	1.3	3.2	5.1	3.4	2.4	0.7	0.6	0.1	7.4	0.1	0.9	2.0	0.4	4.5
Rotavirus[a]	20.3	13.6	3.2	18.8	17.1	9.5	9.2	24.6	24.0	19.9	20.9	9.9	9.0	16.2	7.1
Rubella	0.4	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.1	0.0	0.0	0.0
Rubella – other[a]	0.4	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.2	0.3	0.4	0.1	0.0	0.0	0.0
Salmonella infection[a,b]	57.1	54.6	31.6	43.0	36.5	51.5	58.5	53.6	56.7	76.7	54.7	50.9	34.5	48.4	36.4
Shigellosis[a]	3.3	0.6	0.0	0.8	1.6	0.5	0.7	0.3	1.7	2.4	3.8	1.2	1.5	0.9	0.4
Syphilis	32.9	7.9	22.1	3.6	6.2	4.3	2.4	1.7	4.3	2.7	27.6	8.1	2.5	3.4	9.6
Syphilis infection[a,c]	21.7	1.9	3.2	1.4	0.3	0.5	1.4	1.2	3.4	0.3	20.8	1.4	0.5	1.2	2.2
Syphilis – other[a]	11.2	6.0	18.9	2.3	6.0	3.8	1.0	0.6	1.0	2.4	6.8	6.7	2.0	2.2	7.1
Tetanus	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tuberculosis[a,d]	14.2	1.0	0.0	1.0	2.3	1.4	1.4	3.8	4.2	1.4	10.4	5.3	1.0	10.8	1.5
Typhoid[a]	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.4	0.0	0.8	0.6	0.0	1.0	0.0
Verotoxin-producing *Escherichia coli* infections[a]	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.0

Onset of illness: the earlier of patient reported onset date, specimen date or date of notification.
[a]Laboratory-confirmed cases only. [b]Includes all paratyphoid cases. [c]Includes syphilis primary, syphilis secondary, syphilis < 1 y duration and syphilis newly acquired. [d]Tuberculosis data reported on diagnosis year.
NOS: not otherwise specified
No case of the following diseases have been notified since 1991: plague[a], diphtheria[a], granuloma inguinale[a], lyssavirus[a], poliomyelitis[a], rabies, smallpox, typhus[a], viral haemorrhagic fever, yellow fever.
2010 influenza data: cases reported to public health units; contain 50 laboratory notifications from either interstate residents or overseas.
Please note that from the May–June 2011 issue of the *Bulletin*, 'notifiable conditions' are now referred to in both text and tables as 'scheduled medical conditions', reflecting the terminology of the NSW *Public Health Act 2010*.

Table 4. Disease notifications by local health district of residence, NSW, 2010 (based on onset of illness)

Condition	Sydney	Central Coast	Far West	Hunter New England	Illawarra Shoalhaven	Mid North Coast	Murrum-bidgee	Nepean Blue Mountains	Northern Sydney	Northern NSW	South Eastern Sydney	South Western Sydney	Southern NSW	Western Sydney	Western NSW	Justice Health	Other	Total[e]
Adverse event after immunisation	9	4	3	27	16	0	21	10	13	1	23	9	7	18	6	0	1	168
Anthrax	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Arboviral infection	26	72	31	258	53	89	218	45	59	229	57	27	86	27	228	0	5	1510
Barmah Forest virus infection[a]	1	13	3	49	13	41	10	1	1	75	0	1	21	2	21	0	0	252
Ross River virus infection[a]	9	44	28	191	18	43	207	42	17	140	9	16	61	19	205	0	3	1052
Other[a]	16	15	0	18	22	5	1	2	41	14	48	10	4	6	2	0	2	206
Blood lead level ≥15 µg/dl[a]	10	3	7	21	2	0	63	7	4	3	8	15	4	10	55	0	0	212
Brucellosis[a]	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Chlamydia trachomatis infection	1714	886	92	2796	1009	456	692	755	1361	850	3024	1440	411	1494	768	178	213	18 139
Congenital chlamydia[a]	0	1	0	4	3	1	3	1	1	1	3	9	1	5	3	0	0	36
Chlamydia – other[a]	1714	885	92	2792	1006	455	689	754	1360	849	3021	1431	410	1489	765	178	213	18 103
Cholera[a]	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2
Creutzfeldt-Jakob disease[a]	0	0	0	2	2	0	1	0	0	0	0	0	0	1	0	0	0	6
Cryptosporidiosis[a]	34	16	1	50	5	14	18	18	56	19	33	21	8	32	20	0	0	345
Giardiasis[a]	220	94	6	247	93	40	91	114	352	20	477	176	38	205	108	2	6	2289
Gonorrhoea[a]	496	53	4	186	42	30	14	45	185	48	790	188	9	142	6	4	42	2284
H. influenzae serotype b[a]	0	0	0	1	1	1	0	1	0	0	0	1	0	0	1	0	0	6
Haemolytic uraemic syndrome	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	3
Hepatitis A[a]	10	1	1	6	3	0	1	1	8	4	11	7	1	28	2	0	0	84
Hepatitis B	378	19	4	70	46	24	31	58	224	13	405	477	18	559	38	67	35	2466
Hepatitis B – acute viral[a]	2	0	0	2	2	1	4	1	3	0	1	8	1	2	4	3	0	34
Hepatitis B – other[a]	376	19	4	68	44	23	27	57	221	13	404	469	17	557	34	64	35	2432
Hepatitis C	350	153	12	329	170	106	125	140	170	210	392	448	106	276	151	359	56	3553
Hepatitis C – acute viral[a]	2	1	0	4	1	1	5	1	0	1	3	4	4	0	8	1	0	36
Hepatitis C – other[a]	348	152	12	325	169	105	120	139	170	209	389	444	102	276	143	358	56	3517
Hepatitis D[a]	1	0	0	0	2	0	0	0	0	0	1	2	0	0	1	0	0	7
Hepatitis E[a]	6	0	0	0	0	0	0	0	1	0	3	5	0	0	0	0	0	15
Influenza	54	27	2	133	96	49	87	125	147	88	197	128	55	265	70	1	56	1580
Influenza – Type A[a]	43	26	1	123	92	48	86	112	131	80	157	113	48	226	61	1	48	1396
Influenza – Type B[a]	11	1	1	9	1	1	0	11	14	6	32	13	5	26	5	0	6	142
Influenza – Type A&B[a]	0	0	0	1	3	0	1	1	2	1	8	1	1	12	4	0	1	36
Influenza – Type NOS[a]	0	0	0	0	0	0	0	1	0	1	0	1	1	1	0	0	1	6
Legionellosis	6	3	0	11	12	1	2	10	9	0	6	6	4	13	2	0	0	85
Legionella longbeachae[a]	1	2	0	3	12	1	0	5	5	0	1	2	4	5	1	0	0	42
L. pneumophila[a]	3	1	0	4	0	0	2	5	4	0	5	4	0	7	0	0	0	35
Legionnaires' disease – other	2	0	0	4	0	0	0	0	0	0	0	0	0	1	1	0	0	8
Leprosy	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Leptospirosis[a]	1	0	0	3	1	0	3	0	1	6	1	2	0	0	1	0	0	19
Listeriosis[a]	1	1	1	3	1	0	0	0	7	2	3	3	1	2	1	0	0	26
Lymphogranuloma venereum[a]	19	0	0	0	0	0	1	0	2	0	27	0	0	4	0	0	2	55
Malaria[a]	17	0	0	15	9	1	4	2	17	7	8	9	2	23	0	0	3	117
Measles[a]	0	2	0	0	0	0	1	1	4	12	1	0	0	0	0	4	1	26
Meningococcal disease	3	10	0	13	8	5	1	5	2	1	5	10	1	4	5	0	0	73
Meningococcal – serogroup B[a]	1	8	0	8	5	4	0	5	1	0	2	7	1	4	3	0	0	49
Meningococcal – serogroup C[a]	2	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	6
Meningococcal – serogroup W135[a]	0	1	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	4
Meningococcal – serogroup Y[a]	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	3
Meningococcal – other	0	0	0	2	1	0	1	0	0	1	3	2	0	0	1	0	0	11
Meningococcal – conjunctivitis	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2
Mumps[a]	7	2	0	3	3	0	1	0	5	0	5	8	0	0	0	0	0	34
Pertussis	678	191	109	768	535	147	556	443	1627	213	1178	914	477	1004	403	0	12	9255
Pneumococcal disease (invasive)[a]	34	19	1	63	26	7	17	27	62	22	75	53	15	43	27	1	1	493
Psittacosis[a]	0	2	0	3	1	0	1	0	2	0	1	0	0	1	0	0	0	11
Q fever[a]	2	4	1	45	13	5	2	2	1	22	1	8	4	3	12	0	1	126
Rotavirus[a]	116	43	1	165	66	20	27	85	200	59	174	86	18	133	19	0	3	1215
Rubella	2	1	0	2	0	0	0	0	2	1	3	1	0	0	0	0	0	12
Rubella – other[a]	2	1	0	2	0	0	0	0	2	1	3	1	0	0	0	0	0	12
Salmonella infection[a,b]	326	173	10	377	141	109	171	185	472	227	456	442	70	398	98	3	13	3671
Shigellosis[a]	19	2	0	7	6	1	2	1	14	7	32	10	3	7	1	0	0	112
Syphilis	188	25	7	32	24	9	7	6	36	8	230	70	5	28	26	0	6	707
Syphilis infection[a,c]	124	6	1	12	1	1	4	4	28	1	173	12	1	10	6	0	3	387
Syphilis – other[a]	64	19	6	20	23	8	3	2	8	7	57	58	4	18	20	0	3	320
Tetanus	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Tuberculosis[a,d]	81	3	0	9	9	3	4	13	35	4	87	46	2	89	4	0	3	392
Typhoid[a]	3	0	0	0	0	0	0	1	3	0	7	5	0	8	0	0	1	28
Verotoxin-producing *Escherichia coli* infections[a]	0	0	0	8	0	0	0	0	0	2	0	0	0	0	0	0	0	10

Onset of illness: the earlier of patient reported onset date, specimen date or date of notification.
[a]Laboratory-confirmed cases only. [b]Includes all paratyphoid cases. [c]Includes syphilis primary, syphilis secondary, syphilis < 1 y duration and syphilis newly acquired. [d]Tuberculosis data reported on diagnosis year. [e]Includes cases with unknown local health district.
NOS: not otherwise specified
Please note that from the May–June 2011 issue of the *Bulletin*, 'notifiable conditions' are now referred to in both text and tables as 'scheduled medical conditions', reflecting the terminology of the NSW *Public Health Act 2010*.

Table 5. Disease notifications by age group and sex of the case, NSW, 2010 (based on onset of illness)

Condition	0–4 yrs		5–24 yrs		25–44 yrs		45–64 yrs		65+ yrs		Missing		Total		Grand Total[e]
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	
Adverse event after immunisation	35	58	29	12	9	3	8	2	4	2	0	0	85	77	168
Anthrax	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Arboviral infection	0	1	97	76	311	250	314	290	81	84	0	0	803	701	1510
Barmah Forest virus infection[a]	0	1	10	13	29	33	65	59	18	23	0	0	122	129	252
Ross River virus infection[a]	0	0	60	53	229	172	227	196	61	50	0	0	577	471	1052
Other[a]	0	0	27	10	53	45	22	35	2	11	0	0	104	101	206
Blood lead level ≥15 µg/dl[a]	4	7	3	24	3	106	6	52	1	6	0	0	17	195	212
Brucellosis[a]	0	0	0	0	0	1	0	1	0	0	0	0	0	2	2
Chlamydia trachomatis infection	37	30	7017	3710	2859	3563	169	623	3	38	6	1	10 091	7965	18 139
Congenital chlamydia[a]	24	12	0	0	0	0	0	0	0	0	0	0	24	12	36
Chlamydia – other[a]	13	18	7017	3710	2859	3563	169	623	3	38	6	1	10 067	7953	18 103
Cholera[a]	0	0	0	1	0	1	0	0	0	0	0	0	0	2	2
Creutzfeldt-Jakob disease[a]	0	0	0	0	0	0	1	0	2	3	0	0	3	3	6
Cryptosporidiosis[a]	50	71	49	47	40	47	15	8	7	11	0	0	161	184	345
Giardiasis[a]	278	369	195	194	396	362	165	156	101	61	1	1	1136	1143	2289
Gonorrhoea[a]	2	2	187	478	140	1133	24	292	1	16	0	2	354	1923	2284
H. influenzae serotype b[a]	2	2	0	0	1	0	0	1	0	0	0	0	3	3	6
Haemolytic uraemic syndrome	1	1	1	0	0	0	0	0	0	0	0	0	2	1	3
Hepatitis A[a]	1	2	21	24	10	10	3	6	5	2	0	0	40	44	84
Hepatitis B	3	3	193	209	624	676	215	355	65	80	2	1	1102	1324	2466
Hepatitis B – acute viral[a]	2	0	2	7	4	10	2	4	2	1	0	0	12	22	34
Hepatitis B – other[a]	1	3	191	202	620	666	213	351	63	79	2	1	1090	1302	2432
Hepatitis C	7	5	160	166	706	1168	378	805	59	64	4	7	1314	2215	3553
Hepatitis C – acute viral[a]	2	1	5	2	11	8	2	4	1	0	0	0	21	15	36
Hepatitis C – other[a]	5	4	155	164	695	1160	376	801	58	64	4	7	1293	2200	3517
Hepatitis D[a]	0	0	0	3	0	2	1	1	0	0	0	0	1	6	7
Hepatitis E[a]	0	0	2	1	3	6	1	2	0	0	0	0	6	9	15
HIV infection[a]	0	0	3	29	15	185	5	59	0	7	0	0	23	280	305
Influenza	77	89	194	149	244	170	181	175	126	126	14	11	836	720	1580
Influenza – Type A[a]	67	71	167	126	226	154	166	161	107	106	13	10	746	628	1396
Influenza – Type B[a]	9	17	24	21	12	10	9	13	12	12	0	1	66	74	142
Influenza – Type A&B[a]	0	1	2	2	5	4	5	1	7	8	1	0	20	16	36
Influenza – Type NOS[a]	1	0	1	0	1	2	1	0	0	0	0	0	4	2	6
Legionellosis	0	0	0	1	4	6	9	26	16	22	0	0	29	55	85
Legionella longbeachae[a]	0	0	0	1	2	2	6	16	9	6	0	0	17	25	42
L. pneumophila[a]	0	0	0	0	1	3	2	8	6	14	0	0	9	25	35
Legionnaires' disease – other	0	0	0	0	1	1	1	2	1	2	0	0	3	5	8
Leprosy	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Leptospirosis[a]	0	0	0	4	1	4	2	7	0	1	0	0	3	16	19
Listeriosis[a]	0	0	0	0	1	0	4	1	11	9	0	0	16	10	26
Lymphogranuloma venereum[a]	0	0	0	0	0	31	0	23	0	1	0	0	0	55	55
Malaria[a]	1	4	14	20	16	25	8	20	4	5	0	0	43	74	117
Measles[a]	1	0	6	14	1	4	0	0	0	0	0	0	8	18	26
Meningococcal disease	13	15	13	14	3	1	5	3	3	3	0	0	37	36	73
Meningococcal – serogroup B[a]	11	10	9	12	2	0	1	2	0	2	0	0	23	26	49
Meningococcal – serogroup C[a]	1	0	1	0	0	1	0	0	3	0	0	0	5	1	6
Meningococcal – serogroup W135[a]	0	1	0	0	0	0	1	1	0	1	0	0	1	3	4
Meningococcal – serogroup Y[a]	0	0	1	0	0	0	2	0	0	0	0	0	3	0	3
Meningococcal – other	1	4	2	2	1	0	1	0	0	0	0	0	5	6	11
Meningococcal – conjunctivitis	0	0	0	0	0	1	0	0	1	0	0	0	1	1	2
Mumps[a]	0	0	4	2	12	8	5	1	0	1	1	0	22	12	34
Pertussis	727	657	2589	2360	967	418	658	395	263	179	3	4	5207	4013	9255
Pneumococcal disease (invasive)[a]	32	66	16	19	25	42	56	58	86	92	0	0	215	277	493
Psittacosis[a]	0	0	0	0	1	2	4	3	0	1	0	0	5	6	11
Q fever[a]	0	1	4	9	16	28	11	48	1	8	0	0	32	94	126
Rotavirus[a]	357	391	91	117	49	36	42	24	62	38	0	0	601	606	1215
Rubella	0	0	2	1	4	3	0	2	0	0	0	0	6	6	12
Rubella – other[a]	0	0	2	1	4	3	0	2	0	0	0	0	6	6	12
Salmonella infection[a,b]	383	453	531	490	408	398	299	251	242	194	0	2	1863	1788	3671
Shigellosis[a]	7	2	16	5	15	30	8	24	1	3	0	0	47	64	112
Syphilis	0	0	6	46	63	315	21	173	30	51	0	0	120	585	707
Syphilis infection[a,c]	0	0	0	35	12	222	1	107	0	8	0	0	13	372	387
Syphilis – other[a]	0	0	6	11	51	93	20	66	30	43	0	0	107	213	320
Tetanus	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Tuberculosis[a,d]	2	1	38	50	66	98	32	42	16	43	0	0	154	234	392
Typhoid[a]	3	2	6	3	3	8	1	2	0	0	0	0	13	15	28
Verotoxin-producing *Escherichia coli* infections[a]	0	0	2	2	2	0	2	0	0	2	0	0	6	4	10

Onset of illness: the earlier of patient reported onset date, specimen date or date of notification.
[a]Laboratory-confirmed cases only. [b]Includes all paratyphoid cases. [c]Includes syphilis primary, syphilis secondary, syphilis < 1 y duration and syphilis newly acquired. [d]Tuberculosis data reported on diagnosis year. [e]Includes cases with unknown age and sex and people who identify as transgender.
NOS: not otherwise specified. F: female. M: male.
Institutional gastrointestinal outbreaks and foodborne illness are excluded from this table as complete demographic data are not routinely collected.
No case of the following diseases have been notified since 1991: plague[a], diphtheria[a], granuloma inguinale[a], lyssavirus[a], poliomyelitis[a], rabies, smallpox, typhus[a], viral haemorrhagic fever, yellow fever.
2010 influenza data: cases reported to public health units; contain 50 laboratory notifications from either interstate residents or overseas.
Please note that from the May–June 2011 issue of the *Bulletin*, 'notifiable conditions' are now referred to in both text and tables as 'scheduled medical conditions', reflecting the terminology of the NSW *Public Health Act 2010*.

- 92.4% of 2-year old children, a decrease of 0.1% from 2009[b]
- 87.6% of 5-year old children, an increase of 4.3% from 2009.[c]

In 2010, full immunisation coverage in Aboriginal children was recorded for:

- 86.6% of 12-month old Aboriginal children, a decrease of 0.4% from 2009[a]
- 91.9% of 2-year old Aboriginal children, an increase of 1.4% from 2009[b]
- 82.3% of 5-year old Aboriginal children, an increase of 2.2% from 2009.[c]

In 2010, the NSW School-Based Vaccination Program vaccinated:

- 70% of Year 7 and 62% of Year 10 children with the diphtheria-tetanus-pertussis vaccine booster
- 77% of Year 7 girls with at least one dose and 67% of Year 7 girls for three doses of human papillomavirus vaccine
- 63% of Year 7 children with at least one dose and 57% of children with two doses of hepatitis B vaccine (hepatitis B vaccination is only offered to children who have not previously received a full course)
- 34% of Year 7 children with varicella vaccine (varicella vaccination is only offered to children without history of infection or vaccination).

These data do not include children who received these free vaccines from general practitioners (GPs) or other immunisation providers.

In response to increased pertussis and measles notifications, the following initiatives continued in 2010:

- Information provided for new parents of babies registered with Medicare stressing the importance of vaccinating their baby on time and ensuring other household members are up to date with their pertussis vaccinations.
- Free pertussis vaccine provided for new parents, grandparents and other adults who regularly care for infants less than 12 months of age to protect infants too young to be vaccinated (233 565 doses distributed to GPs in 2010).
- Free measles-mumps-rubella vaccine provided to contacts of people with measles to prevent further transmission in the community.
- Communication with health care workers and the public through the media, the NSW Health website and specific fax streams.

[b]A child is assessed as fully vaccinated at 2 years of age (24 to <27 months of age) if he/she has received age-appropriate vaccinations against diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type B, hepatitis B, measles, mumps and rubella.

[c]A child is assessed as fully vaccinated at 5 years of age if he/she has received age-appropriate vaccinations against diphtheria, tetanus, pertussis, polio, *Haemophilus influenzae* type B, hepatitis B, measles, mumps and rubella.

Bloodborne viruses

Notification data

There was an overall slight decrease in bloodborne virus notifications in NSW in 2010. Highlights included:

- A slight decrease in the total number of **hepatitis B** notifications, with 2466 reported in 2010 (2620 notifications in 2009). Hepatitis B notifications were predominantly in men and women aged 25–39 years.
- A slight decrease in undifferentiated **hepatitis C** notifications, with 3517 reported in 2010 (3784 notifications in 2009). Hepatitis C was most prevalent in men and women aged 25–54 years.
- Notifications of **newly acquired hepatitis B and hepatitis C** infection remained stable.
- A slight decrease in **human immunodeficiency virus (HIV) infection** notifications**,** with 305 reported in 2010 (329 notifications in 2009). In 2010, 230 notifications (75%) were reported to be homosexually acquired. The number of HIV infections reported to be heterosexually acquired decreased from 77 in 2009 to 50 in 2010.

Note that because of the chronic nature of hepatitis B and hepatitis C infection, repeat testing and repeat notification of cases is common for these conditions. Recent improvements in methods for cleaning data have resulted in the identification of duplicate notifications for hepatitis B and C cases. This has led to a more accurate count of cases through a reduction in the number of case notifications for previous years, particularly before 2005.

Prevention activities

NSW Health has a range of policies and strategies in place to control the spread of HIV, hepatitis B and hepatitis C, including regular campaigns to promote safe sex, needle and syringe programs to provide sterile equipment to injecting drug users, and support of the management of patients with sexually transmissible infections and hepatitis C. Recent highlights have included:

- An independent evaluation in 2010 of the *NSW HIV/AIDS, Sexually Transmissible Infections and Hepatitis C Strategies 2006–2010*, and the supporting *Implementation Plan for Aboriginal People*. The evaluation found that efforts to prevent these conditions and to provide care for those affected have been effective.
- The 2008 Review of Hepatitis C Treatment and Care Services[1] which recommended that NSW double the number of people on antiviral treatment by 2013. Policy initiatives have been implemented to: increase the capacity of specialist services; strengthen area-wide infrastructure; increase the nursing workforce; and trial the provision of treatment in community settings. Since the review, program initiatives (including establishment of additional clinical and program positions across NSW) have resulted in: a 42% increase (from 1264 people in 2005–2006 to 1800 people in 2008–2009) in the number of public patients treated for hepatitis C; and a 136% increase (from 28 sites in 2005–2006 to 66 sites

in 2008–2009) in the number of public sites offering treatment.
- Ongoing commitment to prevention policies that employ a harm reduction approach, such as the NSW Needle and Syringe Program. According to an evaluation,[2] during the period 2000–2009, the Program prevented 23 324 cases of HIV and 31 953 cases of hepatitis C.
- In 2010, the NSW Needle and Syringe Program comprised 864 outlets (332 public sector outlets, 373 pharmacies and 159 dispensing machines). Approximately 9.5 million needles and syringes were dispensed and over 12 000 referrals were provided to drug treatment services, hepatitis services and other health and welfare agencies for people who inject drugs.
- In 2010, NSW publicly funded HIV and sexual health clinics provided 77 375 occasions of services to 6472 clients related to HIV treatment, management, and care. This was an increase of 3.2% of clients compared with 2009.

The regulation of skin penetration industries, and the enforcement of prescribed infection control and equipment standards, is an important part of bloodborne virus control in NSW. In 2010 a Skin Penetration Working Group was established to oversee policies and programs implemented through public health units (PHUs). The group aims to initiate a planning process to strengthen the infection control component of TAFE courses for the skin penetration industry.

Sexually transmissible infections

Notification data

Highlights in 2010 included:
- A decline in the number of **infectious syphilis** notifications with 387 reported in 2010 (532 notifications in 2009, a peak in recent years).
- An outbreak of **lymphogranuloma venereum (LGV)**, with 55 notifications reported in 2010, compared with four in 2009. All notifications were reported in men, and most were aged between 30 and 50 years. The number of notifications decreased during November and December 2010. The outbreak in NSW occurred in the global context of increased rates of LGV infection in Europe and North America amongst men who have sex with men. Timely surveillance, early recognition and treatment of this disease are important.
- A sustained increase in the number of **chlamydia** notifications, with 18 103 notifications. This represents a 21% increase compared with 2009 when 14 872 notifications were reported. Cases were most commonly reported in women aged 20–29 years.
- An increase in the number of **gonorrhoea** notifications, with 2284 notifications. This represents a 39% increase compared with 2009 when 1638 notifications were reported. Cases were most common in men aged 20–39 years.

Overall, notifications of sexually transmissible infections (STIs) in NSW continue to rise. Chlamydia continues to be the most commonly notified STI in NSW. At least some of these increases are likely to be associated with increased screening and case detection.

Prevention activities

In 2010 in NSW, publicly funded sexual health clinics provided 23 900 occasions of services related to STI treatment, management and care. This is an increase of 4.3% compared with 2009. Services were provided to 12 513 clients, an increase of 4.1% compared with 2009.

In 2010, NSW Health led a national response to an increase in syphilis notifications amongst gay men and other men who have sex with men through *The National Gay Men's Syphilis Action Plan*.[3] The Plan aimed to achieve a sustained reduction in the incidence of infectious syphilis in Australian gay and homosexually active men by 2013. The Plan outlined a range of evidence-based interventions to inform prevention efforts.

In 2010, NSW Health commenced the second phase of the successful 2009 HIV and STI education campaign, *Get Tested, Play Safe*.[4] The aim of the campaign was to reinforce STI awareness, increase testing, and improve safe sex behaviour among young people.

Enteric diseases (infectious, food and water)

Notification data

There were 6665 notifications of enteric disease in 2010, a 27% increase compared with the average annual disease count for the previous 5 years. Highlights included:
- A large increase in the number of **salmonellosis** notifications, with 3671 reported in 2010. This represents an increase of 60% compared with the annual average for the previous 5 years and is the largest number of notifications on record in NSW. The increase was in part explained by an ongoing increase of *Salmonella enterica* serovar Typhimurium PT 170 notifications. This increase has been observed nationally and is the subject of an ongoing investigation.
- A decrease in reports of **probable outbreaks of foodborne disease**, with 59 notifications affecting over 728 people reported in 2010. This represents a 15% decline when compared with the 68 notifications affecting 903 people reported in 2009.
- A decrease in reports of **probable outbreaks of viral gastroenteritis in institutions**, with 518 notifications affecting 9386 people. This represents a 14% decline when compared with the 600 outbreaks affecting 11 769 people reported in 2009.
- Eleven point-source outbreaks of ***Salmonella enterica* serovar Typhimurium** most likely associated with the consumption of sauces prepared with raw eggs, deep fried ice-cream prepared with raw eggs, and pork rolls.

Prevention activities

Food

NSW Health works with OzFoodNet nationally and the NSW Food Authority (NSWFA) locally to investigate and control *Salmonella* outbreaks and food contamination incidents.

In 2010, NSW Health and the NSWFA finalised the *Investigation of Foodborne Illness Response Protocol – Operations Procedures Manual*.

With the Environmental Health Branch the Health Risk Policy Unit assessed a number of potential food contamination issues for the NSWFA in 2010. Risk assessments were conducted for the following public health investigations:

- High iodine content in soy milk products, resulting in immediate recall of the product.
- Weight loss products, found to be toxic and harmful to the health of adults and children.

Drinking water

NSW Health is the public health regulator of the major water utilities through operating licences and memoranda of understanding (for Hunter Water Corporation, Sydney Water Corporation and Sydney Catchment Authority). In 2010 the Water Unit and PHUs worked with these utilities to:

- ensure compliance with relevant guidelines including the *Australian Drinking Water Guidelines*[5] and the *Australian Guidelines for Water Recycling*[6]
- undertake major projects including Sydney Water's *Five-Year Drinking Water Quality Management Plan*[7] and the *Ten Year Review of the Sydney Water Inquiry*[8]
- monitor the compliance of utilities with the NSW *Fluoridation of Public Water Supplies Act 1957*.

The Water Unit and PHUs exercise public health oversight of more than 100 water utilities in regional NSW through the *NSW Health Drinking Water Monitoring Program*,[9] which provides guidance on drinking water monitoring and is supported by NSW Health laboratories. In 2010 there was an improvement in regional sampling compliance with:

- 96% of expected microbiological samples taken, compared with 95% in 2009
- 100% of expected chemistry samples taken, up from 98% in 2009.

NSW Health is responsible for reviewing applications from private recycled water or drinking water suppliers for licences under the *Water Industry Competition Act 2006*. In 2010, the Water Unit and PHUs:

- reviewed six licence applications for recycled water
- advised local councils and the NSW Office of Water on more than 30 new and ongoing recycled water schemes regulated under the *Local Government Act 1993*.

Respiratory disease (infectious and environmental)

Notification data

Highlights in 2010 included:

- Notifications of **pandemic (H1N1) 2009 influenza** decreased substantially in 2010 compared with the previous pandemic year. In 2010, notifications were most commonly reported in people aged 15–50 years. In total, 66 people were admitted to intensive care units for treatment and there were eight recorded deaths (although there are likely to be many more hospitalisations and deaths associated with the infection that remained unrecognised).
- At the time of this report the **tuberculosis (TB)** data for 2010 remained incomplete, however preliminary analysis indicated that there was a decrease in both the overall number of TB notifications in 2010 (392 notifications) compared with 2009 (505 notifications), and the number of multi-drug resistant tuberculosis (MDR-TB) cases identified (five cases in 2010 and 10 in 2009).
- One case of **extensively drug-resistant tuberculosis (XDR-TB)** was identified in a NSW resident who had been treated previously for TB overseas. XDR-TB (TB that is resistant to isoniazid and rifampicin, plus resistant to any fluoroquinolone and at least one of three injectable second-line drugs) is a rare event in Australia and this is the second case identified.
- An overall decrease in the number of **Legionnaires' disease** notifications with 85 reported in 2010 compared with 94 in 2009. A slight increase in the number of notifications of *Legionella pneumophila*, with 35 reported in 2010 compared with 28 in 2009. Notifications of *L. longbeachae* were lower in 2010 (42 notifications) compared with 2009 (64 notifications).

Prevention activities

Pandemic control activities

In 2010, NSW public health services continued to promote vaccination against pandemic (H1N1) 2009 influenza and to prepare for a possible second pandemic wave. A thorough review of the pandemic influenza response in 2009 led to the development of the following documents in 2010:

- *Key recommendations on pandemic (H1N1) 2009 influenza*.[10] This is a summary report of the principle lessons learned with recommendations for future pandemic planning and response.
- *NSW Health influenza pandemic plan, Version 2.0*.[11] This is a major revision of the NSW pandemic plan for the health sector which acknowledges the need for greater flexibility in response options for pandemic influenza strains of varying severity. It also reinforces the key elements of pandemic influenza preparedness and response.

TB prevention and control activities

In NSW, a network of public health services provide free and confidential screening, diagnostic, treatment and

management services for persons identified with tuberculosis and the general community.

Legionella control activities

In 2010 a statewide survey of cooling towers was undertaken to assess compliance with guidelines for testing of cooling towers for *Legionella*.

Vectorborne diseases

Notification data

Highlights in 2010 included:

- The total number of notifications of vectorborne diseases in 2010 (1632 notifications) was similar to 2009 (1502 notifications). The most commonly notified vectorborne disease in 2010 was **Ross River Virus** with 1052 notifications received, a 16% increase compared with 2009 (908 notifications), but a similar number to the median number of notifications for the years 2006–2009 (1033 notifications). **Barmah Forest Virus** infection was the second most commonly notified vectorborne disease (252 notifications), a decrease of 30% compared with 2009 (358 notifications), and a decrease of 55% compared with the median number of notifications for the years 2006–2009 (554 notifications).
- A 43% increase in the number of **dengue** notifications with 194 notifications reported compared with 136 notifications in 2009. While there is no local transmission of dengue in NSW, globally it is the most common mosquito-borne viral disease of humans and in recent years has become a major international public health concern. With increasing international travel and migration, mosquito-borne diseases such as dengue, malaria and chikungunya may become increasingly common among travellers returning to NSW.

Prevention activities

The Environmental Health Branch administers the NSW arbovirus surveillance program. This program encompasses mosquito trapping and monitoring of virus activity in mosquito populations, and monitoring for antibody seroconversion of sentinel chicken flocks that are located in a number of strategic sites throughout rural NSW. The trapping and surveillance program is designed to cover the period of seasonal increase and decrease in the populations of the major arbovirus vectors, from mid-spring to mid-autumn, and also to cover the period for natural activity and transmission of arbovirus infections.

Environmental exposures and risk assessment

Air pollution

Air pollution arises from many sources including bushfires, car engines, wood-burning heaters, power stations, mining and other industries. The Environmental Health Branch is involved in a range of activities to improve air quality and in 2010 represented NSW Health in a multi-agency senior advisory group on coal mining. In collaboration with local PHUs, the Branch engaged in a number of activities to address concerns raised by the local community in relation to air quality associated with coal mining and power stations in the Upper Hunter Region. For example:

- Hunter New England Health Study,[12] including analysis of emergency department presentations, hospital separations, cancer and death register data
- Initiation of a cancer cluster investigation[13] and independent review that found the cluster was a chance occurrence
- The establishment of the Expert Advisory Committee on Air Pollution that found that there were indications that asthma may be a more important issue in the Upper Hunter region[14]
- An analysis of general practitioner presentations, treatments and diagnoses to examine the potential health effects of the mining industry and other exposures in Singleton, Muswellbrook and Denman.[15]

Major development assessment

Historically, mining activity has contributed to the presence of lead in the environment of the Broken Hill community. In 2010, NSW Health evaluated the impact of the re-opening of the Broken Hill lead mine on community blood levels. An evaluation of the health risk assessment undertaken by the company was completed. The evaluation recommended that a program of blood lead monitoring be instituted as part of the mine's conditions of approval.

In 2010, the Environmental Health Branch represented NSW Health in a multi-agency senior advisory group on coal-seam gas issues.

Aboriginal health

Housing for Health

Housing for Health is an evidence-based housing repair and maintenance program that focuses on improving the safety and health of residents in those homes.[16]

- Since 1998, over 11 500 Aboriginal people living in 2771 houses in 72 Aboriginal communities have benefited from the Housing for Health program.
- Approximately 70 000 items have been fixed that specifically relate to improved safety and health through the program.
- An evaluation of the NSW Housing for Health program found that populations exposed to the program were 40% less likely to be hospitalised with infectious diseases compared with the rest of the rural NSW Aboriginal population.[17] These findings demonstrate the importance of social determinants in improving health outcomes for Aboriginal people.

In 2010 the Housing for Health program was involved in the following activities:

- Completion of projects in Glenn Innes, Toomelah/ Boggabilla, Narrabri/Wee Waa, Goodooga, Dorrigo, Tabulam and Tingha/Inverell.
- New projects in Bourke, Enngonia, Wilcannia and La Perouse.
- A trial project with the Aboriginal Housing Office Backlog Maintenance Program in Coffs Harbour.

The Aboriginal Communities Water and Sewerage Program

Clean water and functioning sewerage systems are a prerequisite for good health. Widespread availability of these essential services will improve outcomes by reducing communicable diseases such as skin infections and diarrhoeal illness.

The Aboriginal Communities Water and Sewerage Program is a joint partnership between the NSW Government and the NSW Aboriginal Land Council.[18] The Program aims to ensure adequate operation, maintenance and monitoring of water supplies and sewerage systems in more than 60 Aboriginal communities in NSW. NSW Health is involved in the development and roll-out of the Program across the state.

- 31 Aboriginal communities with a population of 3000 people are now receiving improved water and sewerage services. This includes 17 new communities in 2010, servicing a population of around 1800 people.
- PHUs are working with communities, the NSW Office of Water, local water utilities and service providers to implement Risk-Based Water and Sewerage Management Plans.

The Aboriginal Environmental Health Officer Training Program

The Aboriginal Environmental Health Officer Training Program aims to increase opportunities for workforce participation by Aboriginal people and enhance the involvement of Aboriginal people in improving environmental health outcomes. Since 1998, 11 Aboriginal Environmental Health Officers have graduated from the Program. Six Aboriginal Environmental Health Officer Trainees were participating in the Program in 2010. The percentage of Aboriginal people employed within the NSW Health Environmental Health workforce increased from 0% in 1998 to over 17% in 2008.

Program activities

- In 2010, two new trainee positions were created under funding agreements between the Aboriginal Environmental Health Unit and the former area health services.
- One trainee position was created under an agreement between the Aboriginal Environmental Health Unit, the Sydney South West PHU and Camden Council. Negotiations are in place to expand the Program further.

Acknowledgments

Protecting the health of the community is a collaborative effort, involving public health units, clinicians, laboratory scientists, affected communities, and other government and community-based organisations. We thank all those involved for the role they played in NSW in 2010.

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Compliance with sharps waste standards by a sample of Sydney acupuncture premises

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Abstract: Aim: To examine current practices with regard to the safe collection, storage and disposal of sharps waste in acupuncture premises and to determine compliance with the NSW *Public Health (Skin Penetration) Regulation 2000* and the NSW Health *Skin Penetration Code of Best Practice*. **Methods:** A random sample of acupuncturists in the City of Sydney local government area was selected and surveyed using a structured questionnaire. **Results:** All 26 acupuncturists surveyed had sharps disposal bins and complied with the Regulation, but the following elements of the Code were not uniformly followed: regular disposal of sharps (77%), disposal through a waste contractor (23%) and placement of bins out of reach of visitors (8%). **Conclusion:** Regular disposal of sharps containers in acupuncture premises could be improved.

Acupuncture premises in New South Wales (NSW) are regulated under the *Public Health Act 1991* and the *Public Health (Skin Penetration) Regulation 2000* (the Skin Penetration Regulation).[1] Skin penetration operators who are not registered health practitioners and are not under the direct supervision of a registered health practitioner are required to comply with this legislation. In addition, NSW Health released the *Skin Penetration Code of Best Practice* (Code of Best Practice) in March 2001 to provide additional guidance.[2] Items under this Code are not enforceable by NSW Health or by local councils.

Contaminated waste, such as needles used to penetrate the skin, is produced by acupuncture procedures. These needles are potentially hazardous to human health if a needlestick injury occurs, for example as a result of the handling of a sharps disposal bin that is overflowing. This may result in infection with a bloodborne virus such as HIV, hepatitis B or hepatitis C.[3] Contaminated sharps are considered a bio-hazard and are a risk to the community, especially to children, if they are accessible.[2]

The transmission of bloodborne viruses following needlestick injuries,[4–6] and more rarely acupuncture, has been documented.[7,8] The risk of contracting a bloodborne virus infection after a needlestick injury depends on the probability of the needle having been used on an infected person and the amount of viable virus transferred within the injury.[9] When the source is positive, the transmission rate for hepatitis B is estimated to be 1 in 3, while for hepatitis C it is 1 in 30 and for HIV it is 1 in 300.[10]

In recent years, environmental health officers from NSW public health units (PHUs) had observed that sharps disposal bins in acupuncture premises were often overfilled with sharps and located in areas where children could access them. In addition, the operators had no waste contract for disposing of sharps bins. These anecdotal observations demonstrated a need to undertake a survey to assess the collection, storage and disposal of sharps waste in acupuncture premises. We are not aware of any other survey of sharps disposal in acupuncture premises since the introduction of the Skin Penetration Regulation in 2000. The two aims of the survey were: to examine current practices in regard to the safe collection, storage and disposal of sharps waste in acupuncture premises; and to determine the level of compliance with the Skin Penetration Regulation and the Code of Best Practice.

Methods

The survey was conducted in the City of Sydney local government area (LGA). For the purpose of this study, acupuncture is defined as an ancient Chinese form of treatment which involves inserting fine needles into selected points of the body.[11]

A pilot study of seven acupuncture premises in the St George area, chosen from the Yellow Pages telephone directory, was used to test the survey instrument. A random sample of approximately 50% of acupuncturists was

selected from the City of Sydney Council's Skin Penetration Register. Where premises from the list were visited and were closed or no longer operating other premises in close proximity were selected. The aims and objectives of the survey were explained to the managers prior to the survey being undertaken; however, managers were not forewarned of the survey. The manager of each acupuncture premise was interviewed face-to-face using a structured questionnaire. The questionnaire asked for details on: the type of procedures carried out; the number of sharps generated; the method of disposal of sharps; possession of the Skin Penetration Regulation and the Code of Best Practice; details of qualifications held by the acupuncturist; and proficiency in the English language. No ethics approval was sought for this compliance survey.

All data was coded and entered into a statistical database computer software package (SPSS, version 17.0, Chicago, IL, USA) by one individual to maintain uniformity and participant confidentiality.

Results

The survey was undertaken between June and September 2009. Twenty-six acupuncturists (52%) were selected from the 50 identified in the Skin Penetration Register. Of these, four were not available; two were no longer in operation and two were closed on the day of inspection. These four premises were substituted with acupuncture premises that were in close proximity to them, two of which were not registered with the City of Sydney Council.

All premises were privately owned and operated. The premises commonly had multiple rooms or areas for acupuncture treatments. Most offered additional services including traditional Chinese medicine, massage and Chinese herbal medicine.

Eight acupuncture premises (31%) had been in operation for less than 5 years, five (19%) for 5–9 years, eight (31%) for 10–19 years and five (19%) had been operating for longer than 19 years.

All managers interviewed were also practicing acupuncturists. Twenty-four (92%) stated that English was not their first language, although 21 (81%) stated that they could read and write in English. The managers for whom English was not their first language were still able to be interviewed in English.

All 26 premises used disposable needles and had sharps disposal bins. The median number of sharps generated per day was 40 (range 1–200), although many managers had difficulty giving a precise answer to this question. The median number of sharps disposal bins was two (range 1–12). Sharps disposal bins ranged in capacity from 1 to 20 litres.

Table 1. Location of sharps waste disposal bins described in a compliance survey of 26 acupuncture premises in the Sydney local government area, 2009

Location	Number	%
On floor	12	46.2
On desk	3	11.5
On shelf	3	11.5
On cupboard	1	3.8
On bench	1	3.8
On containers	1	3.8
On trolley	1	3.8
Under bed	1	3.8
Under sink	1	3.8
Unknown	2	7.7
Total	**26**	**100**

Twenty-one premises (81%) had a sharps disposal bin in each treatment room. The remaining premises had the bins nearby to the treatment rooms. Half kept them on the floor, of which one was stored under the treatment bed. The majority of others stored the used containers on a desk or shelf (Table 1).

Eight acupuncturists (31%) had never disposed of their sharps bins. These eight premises generated a median of 15 sharps per day (range 1–150). For those who did dispose of their sharps bins, most ($n = 14$, 54%) did this at least once per year, and three (12%) disposed of sharps bins approximately every 2 years. One acupuncturist only disposed of sharps every 2–3 years.

Only six premises (23%) had a licensed waste contract for the removal of waste and the same number could produce records of the removal. One had a handwritten note from a local physiotherapist about the sharps waste removal from his premises that had last been undertaken some 3 years previously.

Although seven acupuncturists stated they had copies of the Skin Penetration Regulation and the Code of Best Practice, only five (19%) could produce the documents (Table 2).

A number of questions were asked about the acupuncturists' qualifications. Only one had no formal qualifications and stated that they had been trained in the profession by relatives. Details were obtained about whether the qualifications were obtained overseas or in Australia. The most common qualification, a Bachelors Degree obtained in China, was held by 13 acupuncturists (50%). Five acupuncturists (19%) had obtained a Masters Degree in Australia (Table 3).

Twenty-four premises (92%) were registered with the City of Sydney Council and 21 (73%) said that they had been

Table 2. Selected responses to survey questions by the managers of 26 acupuncture premises in the Sydney local government area, 2009

Response	English first language		Can read and write English		Registered with City of Sydney Council		Code Sighted		Regulation sighted		Waste contract		Disposal records sighted	
	n	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)	*n*	(%)
Yes	2	(8%)	21	(81%)	24	(92%)	5	(19%)	5	(19%)	6	(23%)	6	(23%)
No	24	(92%)	5	(19%)	2	(8%)	21	(81%)	21	(81%)	20	(77%)	20	(77%)
Total	**26**	**(100%)**	**26**	**(100%)**	**26**	**(100%)**	**26**	**(100%)**	**26**	**(100%)**	**26**	**(100%)**	**26**	**(100%)**

Table 3. Highest qualifications of acupuncturists surveyed in 26 acupuncture premises in the Sydney local government area, 2009

Qualifications	Country where qualification obtained		Total *N*
	Australia *n*	China *n*	
No formal qualifications	–	–	1
Diploma	2	1	3
Bachelors Degree	3	13	15[a]
Masters Degree	5	2	7
Total	**10**	**16**	**26**

[a]One person had two Bachelors Degrees, one obtained in China and one in Australia.

inspected by the Council within the previous year (Table 3). The two premises that were not registered had opened their operations without any development application to Council and appeared to be unaware that they needed to be registered. Both had been in operation for 2 years or less. Neither of these premises had a waste contract for the disposal of sharps, nor did the managers have knowledge of the Skin Penetration Regulation or Code of Best Practice.

Discussion

Used needles are potentially hazardous to human health if exposure occurs. The reporting of needlestick injuries and bloodborne virus transmission in acupuncture settings is rare and a systematic review by Ernst and Sherman concluded that there is a modest association between acupuncture and hepatitis C.[11] Looking at the statistics of needlestick injuries in an Australian hospital setting, Bi et al in 2008 reported that 11% were a result of the incorrect handling of sharps.[12]

In August 2000, NSW Health introduced the Skin Penetration Regulation whereby for the first time it was a requirement to have a sharps bin in a skin penetration premises. A previous survey into the infection control and hygiene practices within skin penetration premises undertaken by Bouwman et al in 1991 found that only 32% of acupuncture premises had a sharps bin; a follow-up survey in 1994 found only 53% of premises had a sharps waste bin.[13] Our finding that all acupuncturists had a sharps waste bin suggests that there has been a large improvement, we presume as a direct result of the legal requirement adopted in 2000, and the ensuing regulation and education undertaken by local councils and PHUs.

Nearly all acupuncturists stored their sharps in yellow Australian Standards approved sharps containers that are puncture proof, waterproof and leakproof. One acupuncturist, however, was storing used sharps in a drink bottle and one acupuncturist from the pilot sample had stored used sharps in a used 'bacterial baby wipes' container. Although this information was not formally recorded for this study, the overfilling of the sharps containers to the point where the sharps were 'sticking out' of the lid was observed.

The Skin Penetration Code of Best Practice was released in 2001 and it is this document that provides guidance on waste disposal. Elements of this Code, in particular the recommendation to have a sharps waste contract and to ensure sharps waste containers are located in a safe position, could be incorporated into a revision of the Skin Penetration Regulation to promote safe storage and disposal of sharps.

Box 1. Recommendations to skin penetration operators contained in Section 6 of the *Skin Penetration Code of Best Practice*

- Ensure there is an accessible sharps container for the disposal of sharps as close as practical to the point of generation
- Immediately dispose of sharps as this protects operators, staff and clients from potential injury
- Ensure that sharps containers are not accessible to visitors, particularly children
- Ensure that sharps containers are not overfilled
- Ensure that sharps containers are sealed and stored for disposal
- Ensure that sharps are not forced into sharps containers
- Do not re-sheath used needles prior to disposal
- Do not remove sharps once placed into a sharps container

Source: NSW Health. *Skin Penetration Code of Best Practice*. March 2001.

Another finding was that eight (31%) of the acupuncturists surveyed had never disposed of their sharps waste, and it was common to witness premises with multiple full yellow Australian Standards approved sharp disposal bins that had never been disposed of. Further, the Code of Best Practice recommends that sharps containers are not accessible to visitors, especially to children, and this survey found containers located on the floor. These acupuncture premises would not meet this recommendation unless other steps were in place to prevent child access.

The recommended method for the removal of contaminated waste is by a licensed waste contractor; however, only six operators had a formal licensed waste contract. Some acupuncturists claimed that they had an informal arrangement with either a general practice or a local public hospital where they were able to dispose of their sharps waste at minimal cost, however, none of these had any record of the disposal.

In 1994, Bouwman et al found that 40% of acupuncture premises had a contract for the removal of sharps waste. This is higher than what was found in this study some 15 years later, however, the survey population may have differed and this was a much smaller study.

Only 19% of the acupuncturists surveyed had a copy of the Skin Penetration Regulation and the Code of Best Practice. This finding indicates a need for industry-wide education. Also, unregistered acupuncturists in this sample were lacking in knowledge of appropriate professional regulations and guidelines. They had also reported that they were unaware of the requirement to be registered with Council. It is likely that there are other premises operating in NSW and an opportunity for industry-wide education should be mindful to include these unregistered acupuncturists.

Many acupuncturists appeared to be highly qualified; however, because we were not able to access or verify qualifications, we may have overreported the level of qualifications held. It should be noted that the majority of qualifications held were obtained overseas, so education about local regulations needs to occur outside of the education sector.

This is a small survey in a limited geographical area of Sydney and the results may not be indicative of all acupuncturists across NSW. There is a further limitation to the survey as the Skin Penetration Register, from which the sample was drawn, is not a complete list of acupuncturists in the area. This is because some premises are not registered with the Council and are therefore not included on the Register. The sample surveyed may therefore underrepresent the actual number of practising acupuncturists in the City of Sydney LGA and may also draw from a sample of relatively well-informed practices.

Conclusion

This small compliance survey found it encouraging that acupuncturists in the City of Sydney have sharps waste disposal bins and appear to hold qualifications in acupuncture. However, the regular disposal of sharps waste should be improved and this could be achieved by providing education to acupuncturists regarding the Skin Penetration Regulation and the Code of Best Practice and by translating these documents into other languages. Sections of the Code of Best Practice, particularly those relating to the safe collection storage and disposal of sharps, should be formally incorporated into the Skin Penetration Regulation.

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Increased presentations to emergency departments for asthma associated with rye grass pollen season in inland NSW

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Abstract: Aim: This study measured the frequency and geographical extent of peaks in asthma presentations to emergency departments in inland NSW; it assessed the characteristics of patients who presented at peak presentation times during the rye grass pollination season (October–November) and at other times of the year. **Methods:** Data describing over 13 years of daily emergency department presentations with a provisional diagnosis of asthma at nine inland NSW base hospitals were assembled. Days of counts in the top 0.1 percentile for each emergency department were classified as peak asthma count days. **Results:** While the rye grass pollen season accounts for only 17% of days in the year, 53% of peak asthma count days fell within that period. Patients aged over 14 years represented 74% of visits on peak asthma count days during the pollen season and 50% on peak days at other times of the year. **Discussion:** Under the right climatic conditions, rye grass pollen may be responsible for presentations for acute asthma to emergency departments in inland NSW.

Asthma is an important public health problem in Australia, with over 2 million people suffering from the condition in 2005. This represents one of the highest prevalences of asthma in the world.[1] While asthma is a chronic condition, people with asthma can have acute exacerbations, or attacks, which can restrict their breathing sufficiently to cause them to present to hospital for emergency treatment, and which can on occasion be fatal.[2] Triggers for acute asthma attacks vary between individuals but include exposure to indoor and outdoor allergens, air pollutants, respiratory tract infections, exercise, weather changes, foods, additives, drugs and emotional stress.[3]

Hospital admissions for asthma in Australia are more frequent in remote areas and in socioeconomically disadvantaged areas than in major cities.[1] Children have higher rates of emergency department visits and hospital admissions for asthma than adults, particularly during February and May in Australia, while adults have higher rates during the winter months. In regional New South Wales (NSW) marked increases in the incidence of acute asthma exacerbations have been reported in late spring and early summer.[4]

Other environmental factors implicated in these epidemics include sudden changes in temperature, high rainfall and humidity, viral infections, increased ozone levels, small-particle atmospheric fungal spores and grass pollens.[4,5] Previous studies have found a positive correlation between allergy to annual rye grass pollen and spring asthma exacerbation.[4,6–8] A case-control study conducted in six inland rural towns in NSW showed a close temporal association with thunderstorms during late spring and early summer, ruptured rye grass pollen grains and the onset of an asthma epidemic.[9]

The timing of rye grass pollen activity varies from state to state; however, in south-eastern Australia it is generally from late September to the end of December, with seasonal peaks around mid-October to early December.[10]

We conducted a descriptive epidemiological study to assess the frequency and geographical range of unusually large daily counts of asthma presentations to emergency departments in regional NSW and their relation to the rye grass pollination season.

Methods

Data were obtained from the NSW Department of Health centralised Emergency Department Data Collection, which currently contains records of visits to emergency departments in over 90 hospitals in NSW. Depending on the patient management software and coding systems in use, asthma visits were identified from codes of the International Classification of Diseases (ICD) versions 9 and 10[11,12] and the Standardised Nomenclature of Medicine Clinical Terminology (SNOMED CT).[13] The ICD-9 code used was 493, and the ICD-10 codes used were J45 and J46.

10.1071/NB10035

Table 1. Minimum and maximum counts of daily asthma presentations for peak asthma count days and overall median count at nine inland hospitals in NSW for the period July 1996–December 2009

Hospital emergency department	Asthma presentations for peak asthma count days		Median count
	Minimum	Maximum	
	n	*n*	*n*
Albury	10	21	1
Wagga Wagga	36	164	1
Griffith	6	9	1
Dubbo	7	23	1
Orange	7	11	1
Broken Hill	6	8	1
Goulburn	4	8	1
Bathurst	5	16	1
Tamworth	11	20	1

Peak asthma count days were defined as daily counts of asthma visits which were in the top 0.1 percentile of asthma visit counts at each hospital.

Daily presentations to emergency departments resulting in a provisional diagnosis of asthma between 1 July 1996 and 31 December 2009 were recorded at nine large regional inland NSW hospitals in Tamworth, Bathurst, Orange, Albury, Griffith, Wagga Wagga, Dubbo, Goulburn and Broken Hill. Peak asthma count days at each emergency department were considered those on which daily counts fell within the upper 0.1 percentile of all daily counts for the emergency department. Peak asthma count days were further classified into those that occurred during the period recognised as being the rye grass pollination season, 15 October–30 November,[10] and those occurring on other days of the year.

We further classified individual emergency department visit records into those on a peak count day during the rye grass pollination season, those on a peak count day at other times of the year and all remaining days. To assess variation in demographics, urgency and severity, we calculated the frequency distribution of asthma emergency department visits in each category by age, sex, arrival mode, triage category and mode of separation.

Results

Between 1 July 1996 and 31 December 2009, there were 45 215 presentations to the nine selected emergency departments assigned a provisional diagnosis of asthma. The median daily count for each hospital emergency department was one. A total of 78 peak asthma count days were identified in all emergency departments during this time. The peak asthma counts ranged from 36–164 in Wagga Wagga to 6–8 in Broken Hill (Table 1). The largest sudden epidemic at any emergency department in the study occurred on 30 and 31 October 1997 at Wagga Wagga Base Hospital, where, over a 24-hour period, 215 visits were assigned a provisional diagnosis of asthma. The second largest event occurred at the same emergency department at around the same time in 1996, with 84 visits for asthma over 48 hours.

Figure 1 shows the distribution of peak asthma count days throughout the year, showing clustering of these days during the rye grass pollination period. Even though this period comprises only 17% of days of the year, it contains 53% of the peak asthma count days identified. Every peak asthma count day at Wagga Wagga and Albury base hospitals occurred during this period; however, all peak asthma count days at Broken Hill Base Hospital fell outside the pollination period.

Table 2 compares the characteristics of patients presenting on peak asthma count days during the rye grass pollination season with those presenting on other peak asthma count days and all remaining days. Patients presenting on peak asthma count days during the pollen season tended to be older, 79% being aged 15 years or over, compared with 50% on other peak asthma count days and 54% on all other days. The proportion of males on peak asthma count days was slightly greater during the pollen season (52%) than at other times of the year (47%) and on all other days (49%). Ambulance arrivals were less common on peak asthma count days during the rye grass season (only 6% arriving by ambulance compared with 13% on both peak asthma count days at other times of the year and on all other days). Lower urgency triage categories were assigned to a greater proportion of presentations on peak asthma count days during the pollen season (44%) than on other peak asthma count days (36%) and all other days (38%). The proportion of patients admitted was markedly lower on rye grass season peak asthma count days (16%) than on peak asthma count days at other times of the year (32%) and other days (27%).

Discussion

We found a strong seasonal relationship between sudden asthma epidemics and the rye grass pollen season in regional inland NSW (Tamworth, Bathurst, Orange, Albury, Griffith, Wagga Wagga, Dubbo, Goulburn and

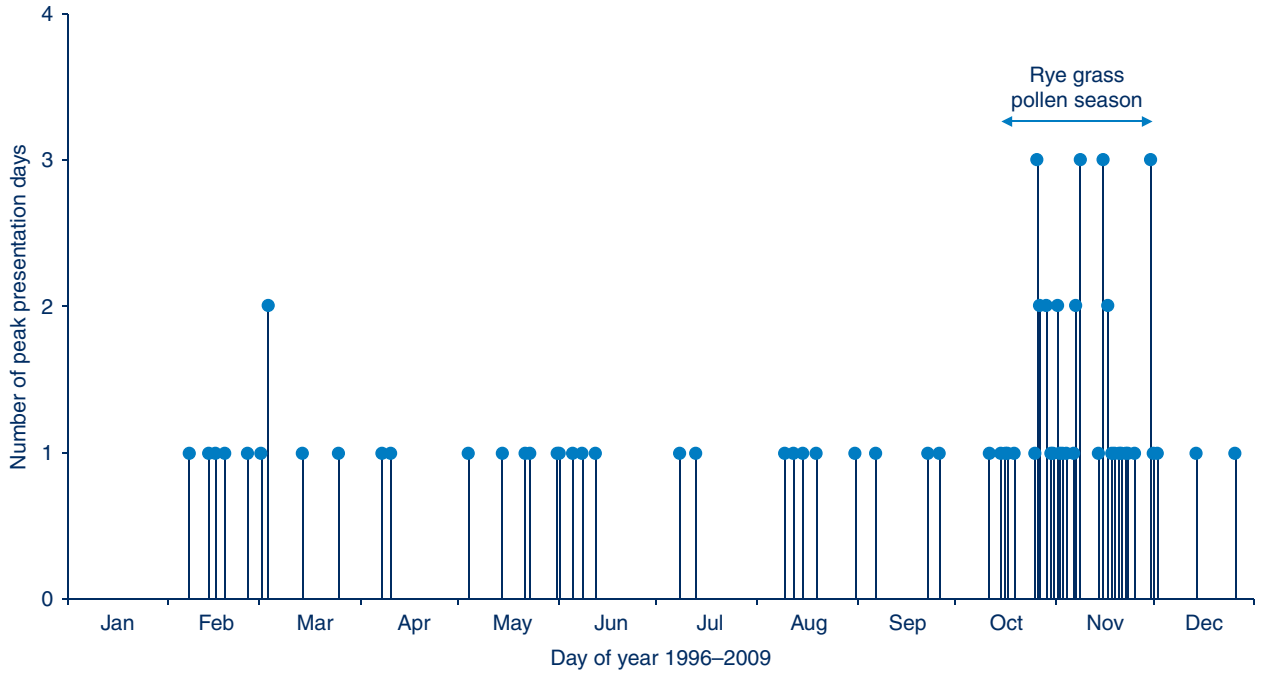

Figure 1. Peak asthma presentation days occurring on any day of the year at nine inland NSW emergency departments for the period 1996–2009.

Peak asthma count days were defined as daily counts of asthma visits which were in the top 0.1 percentile of asthma visit counts at each hospital.

Table 2. Characteristics of patients presenting on peak asthma count days during rye grass pollen season, peak count days at other times of the year, and all other days, for nine inland NSW emergency departments, 30 June 1996–31 December 2009

Group	Subgroup	Asthma presentations					
		Peak count days, pollen season		Peak count days, non-pollen season		Other days	
		n	% (95% CI)	*n*	% (95% CI)	*n*	% (95% CI)
Sex	Male	366	52.3 (48.6–66.0)	91	47.4 (40.3–54.5)	21 896	49.4 (48.9–49.9)
	Female	334	47.7 (44.0–51.4)	101	52.6 (45.5–55.7)	22 418	50.6 (50.1–51.0)
Age group (years)	0–4	36	5.1 (3.5–6.8)	44	22.9 (13.2–24.3)	10 085	22.8 (22.4–23.1)
	5–14	112	16.0 (13.3–18.7)	52	27.1 (20.8–33.4)	10 104	22.8 (22.4–23.2)
	15–24	176	25.1 (21.9–28.4)	30	15.6 (10.5–20.8)	7046	15.9 (15.6–16.2)
	25–34	154	22.0 (18.9–25.1)	19	9.9 (5.7–14.1)	4652	10.5 (10.2–10.8)
	35–64	185	26.4 (23.2–29.7)	31	16.2 (10.9–21.4)	9476	21.4 (21.0–21.8)
	65+	37	5.3 (3.6–6.9)	16	8.3 (4.4–12.2)	2959	6.7 (6.3–6.9)
Arrival mode	Ambulance	39	5.6 (3.9–7.3)	24	12.5 (7.8–17.2)	5768	13.0 (12.7–13.3)
	Private vehicle	661	94.4 (92.7–96.1)	168	87.5 (82.8–92.2)	38 555	87.0 (86.7–87.3)
Triage category	High (category 1–2)	63	9.0 (6.9–11.1)	15	7.8 (4.0–11.6)	4767	10.8 (10.5–11.0)
	Medium (category 3)	330	47.1 (43.4–50.8)	109	56.8 (49.8–63.8)	22 491	50.7 (50.3–51.2)
	Low (category 4–5)	307	43.9 (40.2–47.5)	68	35.4 (28.7–42.2)	17 056	38.5 (38.0–38.9)
Departure status	Admitted	113	16.1 (13.4–18.9)	62	32.3 (25.7–38.9)	11 761	26.5 (26.1–26.9)
	Departed from the emergency department	587	83.9 (81.1–86.6)	130	67.7 (61.1–74.3)	32 562	73.5 (73.1–73.9)

Total count: 45 215. Less than 0.001% of records were missing any of these characteristics.
Pollen season: rye grass pollen season 15 October–30 November.
CI: confidence interval.

Broken Hill). Increases in emergency department visits were more marked among adults than children during these events, and the severity appeared to be lower than usual, as indicated by lower triage urgency and less frequent admissions. This may, however, reflect lower clinical acuity in adults with acute asthma than in children or saturation of resources in regional hospitals.

A limitation of this study was that we had access only to emergency department visit information. Some people with asthma may have sought general practice care, while others may have managed their illness at home, and ambulance services may not have been able to respond to the unusually large number of presentations, affecting the arrival mode. The systematically recorded, extensive emergency department data do, however, provide a snapshot of trends in asthma occurrence. Addition of information on presentations other than to emergency departments is likely to have increased the numbers.

While thunderstorm activity has been emphasised in some studies as a cause of sudden asthma epidemics,[6,8,9] environmental factors associated with thunderstorms cannot be considered in isolation. There is evidence that the conditions generated by a thunderstorm facilitate the hydration of pollen grains, leading to fragmentation and generating inhalable allergenic aerosols.[9] This hypothesis suggests that thunderstorm activity is not a direct cause but a mechanism for dispersing the allergens within the pollen.

The Australian Bureau of Meteorology collects information on thunderstorms by recording whether thunder is heard at the relevant site. The Bureau also publishes monthly 'significant weather summaries', which describe storm activity at certain locations and dates.[14] Although we intended to investigate the correlation between thunderstorm activity and asthma, data on thunderstorms at specific locations were lacking, and the available data were insufficient for a correlational analysis. While we were unable to include direct measures of rye grass pollen and thunderstorms in our study, we nevertheless found that the greatest occurrence of high count asthma events occurred during the rye grass pollen season. Our findings suggest the need for better understanding of the potential synergy between rye grass pollination and thunderstorm activity in asthma epidemics.

In NSW, rye grass is found mainly in crops and pastures and is especially well adapted to most soil types in the southern Australian wheat belt.[15] In our study, we found peak asthma presentations during the rye grass pollen season at all emergency departments studied except for Broken Hill, where there is limited rainfall and soil types that are not conducive to annual rye grass growth.[15]

Seasonal aeroallergens vary by region and geography, and rye grass pollen counts can vary widely from one season to the next, however the pollen season usually occurs during late spring and early summer.[8] Schappi et al found that the amount of seasonal grass pollen directly correlated with the rainfall during the preceding 12 months.[16] Seasonal changes may also be affected by climate change, increasing allergen release through earlier seasonal bud bursts.[4] Davis and Walsh identified significant increases in thunderstorm activity in south-eastern Australia in the period 1941–2004, which may also be linked to the effects of climate change.[17] Taylor et al highlighted a fall in the prevalence of asthma that coincided with a reduction in atmospheric pollen caused by the low average rainfall experienced since the mid-1990s across south-eastern Australia.[18]

Conclusion

Using data for 13 years covering a wide geographical area, we found evidence that rye grass pollination may be responsible for a greater burden of acute asthma presentations to hospitals in inland NSW, particularly in adults, than previously recognised. Sudden asthma epidemics have the potential to overload primary health care facilities and may have a social impact on the community. This study provides support for the development of an early warning system to alert residents of inland NSW to the risk of asthma during the rye grass pollen season. Further research is required to determine whether thunderstorms are a necessary condition for epidemic asthma of this kind or whether they are a catalyst for stronger than usual, sudden epidemics, and whether other specific weather conditions could be responsible on other days when these events occur. Collaboration is needed in the fields of public health, health care, climate and agriculture to ensure good quality, complete meteorological, pollen, grass distribution and health care information. This will allow a clearer understanding of the role of each of these factors in generating asthma events and in determining which individuals and communities are at risk.

Acknowledgments

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Respiratory syncytial virus

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Respiratory syncytial virus (RSV) is the major viral respiratory pathogen of childhood, with approximately 95% of all children infected before 2 years of age. A United States study estimated RSV to be the most common cause of viral mortality in children aged under 5 years, but it was associated with substantially more deaths in the elderly (29.6 deaths per 100 000 person-years).[1] Infection is most common in winter in temperate climates and follows a distinctly seasonal pattern in New South Wales (NSW) with occasional epidemic years. The least RSV activity occurs in late January or early February while the peak occurs in early to mid-July each year. RSV is not notifiable in NSW and there is no specific public health response for sporadic infections.

Acute viral bronchiolitis

The most common presentation of RSV infection is acute viral bronchiolitis. While most infants with RSV-related bronchiolitis fully recover within 10–14 days, it is also the most frequent reason for hospitalisation of infants in developed countries.[2]

Bronchiolitis involves obstruction of the small, peripheral airways (bronchioles) due to the intense inflammation, mucosal oedema and sloughing or necrosis of the airway epithelium resulting from damage by the virus. Severely affected infants can present with symptoms including flared nostrils, rapid shallow breathing and retractions of the chest wall and muscles beneath the ribs as they struggle to inhale enough air. As well as cough, there is an audible 'wheezing' sound on expiration, and there are widespread inspiratory 'crackles' detectable by stethoscope.[2]

Infection with RSV provides only temporary immunity to disease upon reinfection, thus there is currently no vaccine available for RSV. Treatment is supportive and includes the provision of oxygen, fluids and close monitoring.

RSV is highly contagious and is transmitted by direct contact with nasal secretions or by fomite spread on hands, cots and fluffy toys. Preventing spread is possible by promoting cough etiquette, hand washing and cohorting hospitalised RSV patients.[3] Palivizumab, a costly and controversial prophylaxis, has been shown to reduce hospitalisation if given monthly during RSV season.[4]

Laboratory testing for RSV

Rapid detection of RSV is useful to limit nosocomial spread and to implement timely treatment in severe cases. RSV antigen can be detected in a number of ways, including: viral culture; immunofluorescence; point of care tests (POCT); and nucleic acid tests. The presence of RSV antibody in blood can also be tested by serology. Optimal test selection depends on proper timing of specimen collection, type and quality of sample, patient age and specific assay. Specimens from the posterior nasopharynx are particularly desirable because they are likely to contain high titres of virus and large quantities of infected cells. Nasopharyngeal aspiration is more frequently performed on paediatric patients who are more tolerant of this procedure than older patients who prefer less invasive nasopharyngeal swabs.

Viral culture is slow and RSV can be difficult to grow; it can be useful when an isolate is needed for further characterisation. POCT are rapid and specific ($>90\%$) but sensitivity varies widely (60–90% for RSV). Immunofluorescence has comparable sensitivity (80–95%) and is often preferred over POCT because many viruses, including RSV, can be identified in approximately 1 hour.[5]

Nucleic acid tests permit the widest array of respiratory viruses to be identified. They are also effective when specimen quality is compromised or when specimens were collected late in the illness. Sensitivity and specificity are equivalent or better than for other methods, but tests are slower and more expensive than other assays. Serology plays little role in the diagnosis of RSV, but it can be helpful for epidemiological purposes or to establish a retrospective diagnosis.[5]

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Hendra virus

What is Hendra virus?

- Hendra virus is a virus that infects large fruit bats (Flying-foxes).
- Occasionally the virus can spread from Flying-foxes to horses and horses can then pass the infection on to humans. A small number of people who had very close contact with infected horses have developed Hendra virus infection.

What are the symptoms?

Hendra virus symptoms in people

Symptoms typically develop between 5 and 16 (possibly up to 21) days after contact with an infectious horse. Fever, cough, sore throat, headache and tiredness are common initial symptoms. Meningitis or encephalitis (inflammation of the brain) can then develop, causing headache, high fever, drowsiness, convulsions and coma.

Hendra virus infection can be fatal.

Hendra virus symptoms in horses

Hendra virus can cause a range of symptoms in horses. Usually there is a sudden fever and either respiratory or neurological illness and rapid death. In some cases the onset of illness is gradual. For more information on Hendra virus infection in horses, refer to the NSW Department of Primary Industries website at: www.dpi.nsw.gov.au.

How is it spread?

- The exact way horses become infected by bats is unknown but may be through horses coming into contact with the body fluids of Flying-foxes (e.g. from contaminated feed).
- Hendra virus spreads between horses when a horse inhales the respiratory secretions of an infected horse.
- People are at risk if they have had close contact with a horse that has Hendra virus infection, either through inhaling respiratory secretions or if they get the virus in their eyes, nose or mouth or on their skin, especially if they have cuts or abrasions. People who have contact with body fluids or tissues of an infected horse are at risk (e.g. veterinary staff performing post-mortems without using adequate personal protective equipment).

Who is at risk?

People who have cared for an infected horse or veterinary staff who have treated or performed a post-mortem on an infected horse without wearing appropriate personal protective equipment are most at risk.

How is it prevented?

General measures to take with horses that are well

Horses can shed Hendra virus for 3 days before they show any sign of illness so it is always important to use good hygiene practices when around horses.

- Cover any cuts or abrasions on exposed skin before handling horses and wash your hands well with soap and water, especially after handling a horse's mouth or nose (e.g. after fitting or removing a bridle) and before eating, smoking or touching your eyes, nose or mouth.
- Don't kiss horses on the muzzle (especially if the horse is sick).
- Use personal protective equipment to protect yourself from the body fluids of horses.

When horses are unwell and Hendra virus is a possibility

Contact your local veterinarian if you notice unusual disease symptoms, abnormal behaviour or unexpected deaths in your horses. If a horse is suspected to have Hendra virus infection it is important to keep it away from other horses on the property. Only experienced veterinary staff who are using appropriate personal protective equipment should have contact with the animals until the diagnosis is known. All veterinary staff assessing or managing a sick horse should do so in accordance with the *Guidelines for veterinarians handling potential Hendra virus infection in horses* developed by the Queensland Government and available at: www.dpi.qld.gov.au.

When humans are suspected or known to have Hendra virus infection

Although there is no evidence of Hendra virus spreading from an infected person to another, a precautionary approach is used to protect others. The patient is cared for in a single room and health care workers and visitors wear protective equipment.

How is it diagnosed?

Tests for Hendra virus infection include serological tests that are able to measure the body's immune responses to infection. Blood samples are required over 6 weeks to tell if a person has the infection. Polymerase chain reaction tests are able to detect the virus itself by detecting Hendra virus genetic material (RNA) in a blood or tissue sample.

The only people who would normally be tested for Hendra virus infection include: people with symptoms who have had recent contact with an infected horse; well people who have been in contact with the secretions or body fluids of a horse that has confirmed Hendra virus infection; and well

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people who have had contact with a person with Hendra virus infection while they are symptomatic if they have not worn personal protective equipment.

Any well person tested for Hendra virus infection will need to monitor their own health for the next 3 weeks and report fever, respiratory symptoms or neurological symptoms to the public health unit immediately so that urgent medical assessment can be arranged. Three blood tests are required to rule out the infection: one initially, one at 3 weeks and one at 6 weeks.

How is it treated?

There is no specific treatment for Hendra virus infection and cases are treated supportively in hospital or in intensive care. So far, antiviral medications have not been found to be effective in treating Hendra virus infection. Sometimes antibodies against Hendra virus are used to treat people with the infection but this remains experimental.

What is the public health response?

The NSW Department of Primary Industries will take urgent measures to minimise the risk to people and other horses, and to track the likely cause and extent of the infection. It will contact NSW Health whenever Hendra virus is confirmed or strongly suspected in a horse. NSW Health will then work with the horse owner, handlers and attending veterinarians to manage the risk of infection in people. An outbreak team will identify people who may be at risk from infectious horses. These people will be contacted so that a detailed assessment can be made of their exposure and current symptoms. People at risk of infection will be given information about Hendra virus and the risk of infection and will be asked to monitor their health. Arrangements will be made for retesting at 3 weeks and 6 weeks.

Further information

Information for people who are being monitored for Hendra virus infection is available from: http://www.health.nsw.gov.au/factsheets/infectious/hendra_monitor.html

Communicable Diseases Report, NSW, May and June 2011

Communicable Diseases Branch
NSW Department of Health

For updated information, including data and facts on specific diseases, visit www.health.nsw.gov.au and click on **Public Health** and then **Infectious Diseases.** The communicable diseases site is available at: http://www.health.nsw.gov.au/publichealth/infectious/index.asp.

Figure 1 and Tables 1 and 2 show notifications of communicable diseases received in May and June 2011 in New South Wales (NSW).

Enteric infections

Outbreaks of foodborne disease

Twelve outbreaks of suspected foodborne disease were investigated in May and June 2011. These outbreaks were identified through: the surveillance of laboratory notifications, complaints to the NSW Food Authority (NSWFA) or complaints to the local public health unit. In two of these outbreaks the causative organism was identified: one as *Salmonella enterica* serovar Typhimurium and one as norovirus.

The *S.* Typhimurium outbreak was identified through a complaint to the NSWFA. Interviews with the affected people found illness to be associated with the consumption of prawn dumplings from a café. The four affected people who consulted a general practitioner submitted stool specimens, three of which were positive for *S.* Typhimurium. The NSWFA inspected the business and took food samples and environmental swabs, however no pathogen was identified from these specimens. As the business was also serving aioli prepared with raw egg, and given the risk of using raw egg in uncooked foods, they were advised to use an alternative ingredient.[1]

Salmonella infections can occur after eating undercooked food made from eggs, meat or poultry.[2] Thorough cooking of food kills *Salmonella* bacteria and it is therefore advisable to avoid consumption of raw or undercooked meat, poultry, or eggs, especially for young children, elderly people and people with an immunosuppressive condition.

The norovirus outbreak was also identified through a complaint to the NSWFA after several groups of people developed vomiting and diarrhoea approximately 24 hours after eating food at a bowling club over a weekend. The public health unit interviewed 113 people from the 240 who visited the club during the weekend. Of those interviewed, 86 (76%) had developed symptoms of gastroenteritis. Five people were hospitalised and two stool specimens from those hospitalised returned a positive result for norovirus. The club's chef had been working while unwell with gastroenteritis and is likely to have contaminated food whilst preparing it. The NSWFA inspected the kitchen and took numerous environmental swabs, some of which were positive for norovirus. No foods were left over to sample. The NSWFA ordered a thorough disinfection of the venue and issued a prohibition order until staff passed a skills and knowledge test.

Norovirus infection is a viral infection resulting in vomiting and diarrhoea. The virus is easily spread from person to person. Thorough washing of hands with soap and running water helps to prevent its spread. Anyone with vomiting or diarrhoea should stay at home and not attend work, school or child care or visit a residential care facility until their vomiting and diarrhoea have stopped for 48 hours. During this time they should also not prepare food for others, or care for patients, children or the elderly.

Outbreaks of gastroenteritis in institutional settings

During May and June, 133 outbreaks of gastroenteritis in institutions were reported, affecting 1923 people. Sixty-three outbreaks occurred in aged care facilities, 35 in child care centres, 28 in hospitals, two in schools, and five in other settings such as rehabilitation facilities. These outbreaks appear to have been caused by person-to-person spread of a viral illness. In 81 outbreaks (61%) one or more stool specimens were collected from cases. Norovirus was detected in 50 of these outbreaks (62%); in three outbreaks *Clostridium difficile* was also detected alongside norovirus. Rotavirus was detected in six outbreaks (and norovirus was also identified in four of these). Stool specimens for laboratory testing were not available for the remaining 52 outbreaks (39%).

The incidence of viral gastroenteritis increases in winter months. Public health units encourage institutions to submit

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stool specimens from cases for testing during outbreaks to help determine the cause of the outbreaks.

Respiratory and other infections

Influenza

Influenza activity was low during May, but increased to moderate levels during June (as measured by the number of people who presented to 56 of the state's largest emergency departments with influenza-like-illness and the number of patients who tested positive for influenza at diagnostic laboratories). The rate of laboratory-confirmed influenza activity was above the expected level for this time of year. There were 136 emergency department presentations of patients with influenza-like illness in May (0.9 per 1000 emergency department presentations), and 313 presentations of patients with influenza-like illness in June (1.7 per 1000 emergency department presentations).

There were 141 notifications of laboratory-confirmed influenza cases in May and 427 in June. For a more detailed report on respiratory activity in NSW see: http://www.health.nsw.gov.au/PublicHealth/Infectious/influenza_reports.asp

Vaccine-preventable diseases

Meningococcal disease

Ten cases of meningococcal disease were notified in NSW in May and June 2011 (five in May and five in June). The age of these people ranged between 0 and 65 years and included two children aged less than 5 years. No deaths were notified in this period, compared to three deaths for the same period in 2010. Four cases were caused by *Neisseria meningitidis* serogroup B and one by *N. meningitidis* serogroup Y. For the remaining five cases the serogroup was either unable to be determined or the serogroup results are pending.

A free vaccine for serogroup C meningococcal disease is available for infants at 12 months of age.[3] Consequently, serogroup C meningococcal disease is now mainly seen in adults and in unimmunised children. In NSW this year, 75% of cases of meningococcal disease (where the serogroup was known) have been caused by *N. meningitidis* serogroup B, for which there is no vaccine. No cases of serogroup C disease have been reported to date this year.

Sexually transmissible infections

Gonorrhoea

Notifications of gonorrhoea increased during May and decreased during June 2011. The decrease in June may be due to a reporting delay. Notifications have fluctuated each month in the first half of 2011.

In total in this period 411 cases of gonorrhoea were notified to NSW Health (247 in May and 164 in June), compared to 383 (180 in May and 203 in June) in 2010. The majority of notifications continue to occur in men. However, 78 women were notified with gonorrhoea in May and June, compared to 60 cases notified for the same period in 2010.

Gonorrhoea is a bacterial infection spread through unprotected vaginal, oral or anal sex. Infection in men can present as discharge from the penis, irritation or pain on urinating. Infections of the cervix, anus and throat usually cause no symptoms.[2]

Syphilis

Notifications of infectious syphilis cases continued to decrease during May and June 2011. In total, 38 cases of infectious syphilis were notified in this period (30 in May and eight in June). This is substantially less than the 150 cases notified in the corresponding period in 2010. A reporting delay may account for some of this difference. The majority of cases continue to occur in men aged between 20 and 50 years.

Syphilis is a highly infectious sexually transmitted disease that is spread through vaginal, anal or oral sex through skin-to-skin contact. Syphilis is highly contagious during the primary and secondary stages when the sore or rash is present.[2] Those most at risk include men who have sex with men and people with HIV/AIDS. Some people living in remote Aboriginal communities are also at increased risk.

Lymphogranuloma venereum

An outbreak of lymphogranuloma venereum (LGV) was identified in NSW in 2010 with a peak in cases notified between May and August (32 cases). Since then the number of cases notified has dropped, with only six cases notified in May and June 2011 (five in May and one in June).

LGV is a sexually transmitted infection. It is caused by a rare, invasive form of *Chlamydia trachomatis* which generally causes more severe symptoms than chlamydia. LGV is spread through unprotected vaginal, anal or oral sexual contact.[2]

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Introducing a new sexually transmissible infections contact tracing resource for use in NSW General Practice

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In Australia, general practice is the main provider of sexual health care[1] and contact tracing is an important part of a comprehensive control program for sexually transmissible infections (STI). However, many doctors are unaware of their responsibilities regarding contact tracing[2] and identify barriers to undertaking this, for example, lack of written guidelines, and a perceived lack of skills and experience.[3]

A new practical A4 double-sided clinical resource, the *STI Contact Tracing Tool for General Practice*, is now available. This quick reference guide assists providers in understanding their STI contact tracing responsibilities, the steps to be followed in contact tracing to ensure best practice and the key points in the management of STI contacts. It also answers the common questions asked about STI contact tracing, including how far back in time to trace. The Tool and online order form are available from: www.stipu.nsw.gov.au.

Helping patients with STI contact tracing

Most people diagnosed with an STI feel that informing their sexual partner/s is the 'right thing to do'; consequently, they are not likely to be surprised when the general practitioner (GP) introduces contact tracing during the consultation.[4] Most people choose to notify their own partner/s and it is useful to let them know that the GP or practice staff will follow up with them about this, either by phone or at the next visit.[5] If they have not been able to inform their partner/s, the practice can offer further assistance. Studies suggest that the expectation of follow up from GP or practice staff increases the rate of partner notification.[6]

There are a number of additional online resources for both patient and provider that can assist with contact tracing (Box 1). These resources allow the patient to inform a partner by letter, email or SMS, which can be anonymous depending on the patient's preferences.

Box 1. Online resources to assist patients and providers with contact tracing for STIs

Patient online resources

- http://www.letthemknow.org.au – Information and practical tips for patients. Offers the option of notifying contacts via email, SMS or letter.
- www.thedramadownunder.info – For men who have sex with men. Offers the option of notifying contacts via email or SMS.

Provider online resources

- Australasian Contact Tracing Manual (http://ctm.ashm.org.au/) – Best practice for contact tracing in Australasia in an easy-to-use online format.
- GP NSW Contact Tracing page (www.gpnsw.com.au/programs/sexually-transmitted-infections-sti/contact-tracing) – Contains contact tracing letters that can be downloaded into general practice software programs.

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Figure 1. Notifications of selected communicable diseases, NSW, January 2004 to June 2011, 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 infection; RRV, Ross River virus infections; lab conf, laboratory confirmed;
Men Gp C and Gp B, meningococcal disease due to serogroup C and serogroup B infection;
other/unk, other or unknown serogroups.
NB: Multiple series in graphs are stacked, except gastroenteritis outbreaks.
NB: Outbreaks are more likely to be reported by nursing homes & hospitals than by other institutions.

NSW Population	
Male	50%
<5 y	7%
5–24 y	27%
25–64 y	53%
65+ y	13%
Rural	46%

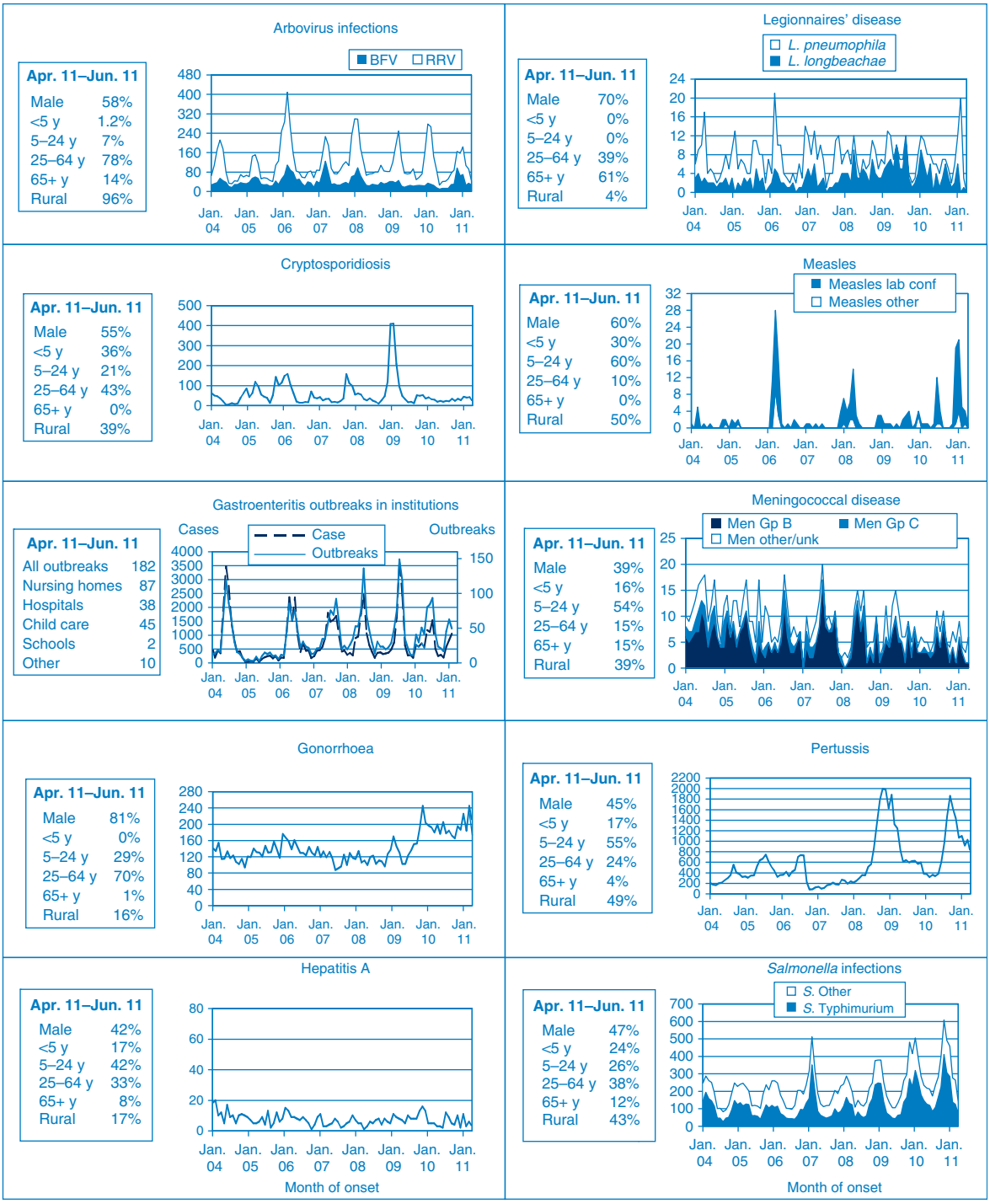

Table 1. Notifications of scheduled medical conditions received in May 2011 by local health district in NSW

Condition	Local Health District (2011)																Total	
	Murrumbidgee	Southern NSW	Western NSW	Far West	Hunter New England	Northern NSW	Mid North Coast	Central Coast	Northern Sydney	South Eastern Sydney	Illawarra Shoalhaven	Sydney	South Western Sydney	Western Sydney	Nepean Blue Mountains	Justice Health	For May[b]	Year to date[b]
Bloodborne and sexually transmitted																		
Chancroid[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chlamydia (genital)[a]	59	32	65	14	210	74	60	81	161	295	93	148	150	173	71	11	1702	8332
Gonorrhoea[a]	1	1	4	1	12	2	3	3	25	74	3	62	19	32	6	–	249	1027
Hepatitis B – acute viral[a]	–	–	1	–	–	–	–	–	1	–	–	–	–	1	–	–	3	15
Hepatitis B – other[a]	4	3	1	–	9	4	2	2	16	25	7	25	44	42	2	5	191	1090
Hepatitis C – acute viral[a]	–	–	–	–	2	–	–	–	–	–	–	–	1	–	–	–	3	18
Hepatitis C – other[a]	8	13	13	1	21	10	3	13	14	33	25	32	28	19	9	7	250	1387
Hepatitis D – unspecified[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Lymphogranuloma venereum	–	–	–	–	–	–	–	–	–	–	–	2	–	1	–	–	3	21
Syphilis	–	2	2	–	1	–	–	1	–	12	3	5	1	3	–	–	30	246
Vectorborne																		
Barmah Forest virus[a]	2	3	–	2	6	14	10	–	–	–	–	–	–	–	–	–	37	304
Ross River virus[a]	15	2	7	5	11	17	7	–	–	–	1	–	–	1	–	–	66	416
Arboviral infection (other)[a]	–	–	1	–	1	–	–	–	1	3	1	–	1	–	–	–	8	62
Malaria[a]	–	–	–	–	1	1	–	–	–	1	–	–	–	4	–	–	7	35
Zoonoses																		
Anthrax[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Brucellosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	2
Leptospirosis[a]	2	2	1	–	–	–	–	–	–	–	–	–	–	–	–	–	5	18
Lyssavirus[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Psittacosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	5
Q fever[a]	–	2	–	–	2	1	–	–	–	–	–	–	–	–	–	–	5	40
Respiratory and other																		
Blood lead level[a]	4	–	1	–	1	–	–	2	1	–	–	–	–	1	–	–	10	102
Influenza[a]	–	8	5	3	4	5	4	2	8	20	5	11	18	42	6	–	141	981
Invasive pneumococcal infection[a]	2	–	4	1	2	2	1	3	5	12	7	2	5	–	3	–	49	153
Legionella longbeachae infection[a]	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1	13
Legionella pneumophila infection[a]	–	–	–	–	–	–	–	–	1	3	–	2	–	1	–	–	7	34
Legionnaires' disease (other)[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Leprosy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Meningococcal infection (invasive)[a]	–	1	–	–	1	–	–	1	–	–	–	–	–	2	–	–	5	29
Tuberculosis	–	1	–	–	5	–	–	–	4	9	–	3	–	3	–	–	25	146
Vaccine–preventable																		
Adverse event after immunisation	4	2	1	–	4	1	1	–	3	–	1	–	1	2	–	–	20	111
H. *influenzae b* infection (invasive)[a]	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	1	3
Measles	–	–	–	–	1	2	–	1	–	–	–	–	–	–	–	–	4	49
Mumps[a]	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	–	2	20
Pertussis	107	45	56	1	83	73	33	24	119	97	122	56	66	115	95	–	1092	5744
Rubella[a]	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	10
Tetanus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Enteric																		
Botulism	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cholera[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cryptosporidiosis[a]	1	–	–	1	8	1	–	1	12	4	8	3	4	8	6	–	57	185
Giardiasis[a]	9	2	7	–	18	2	5	5	45	35	17	25	16	19	18	–	223	1243
Haemolytic uraemic syndrome	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Hepatitis A[a]	–	–	–	–	1	–	–	1	–	1	1	–	–	4	–	–	8	33
Hepatitis E[a]	–	–	–	–	–	–	–	–	1	–	–	–	–	2	–	–	3	11
Listeriosis[a]	–	–	–	–	–	–	–	–	–	1	1	–	1	–	–	–	3	10
Rotavirus[a]	3	–	2	–	11	8	3	3	8	9	2	5	4	8	2	–	68	329
Salmonellosis[a]	25	6	5	3	31	15	11	16	31	47	9	28	19	24	8	–	278	2232
Shigellosis[a]	–	–	–	–	1	–	–	–	2	2	2	4	2	1	–	–	14	66
Typhoid[a]	–	–	–	–	1	–	–	–	–	1	–	1	–	–	–	–	3	31
Verotoxin-producing *E. coli*[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Miscellaneous																		
Creutzfeldt–Jakob disease	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Meningococcal conjunctivitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1

[a]Laboratory-confirmed cases only. [b]Includes cases with unknown postcode.
NB: Data are current and accurate as at the preparation date. The number of cases reported is, however, subject to change, as cases may be entered at a later date or retracted upon further investigation.
Data is reported as of public health unit office.

Table 2. Notifications of scheduled medical conditions received in June 2011 by local health district in NSW

Condition	Local Health District (2011)																Total	
	Murrumbidgee	Southern NSW	Western NSW	Far West	Hunter New England	Northern NSW	Mid North Coast	Central Coast	Northern Sydney	South Eastern Sydney	Illawarra Shoalhaven	Sydney	South Western Sydney	Western Sydney	Nepean Blue Mountains	Justice Health	For Jun[b]	Year to date[b]
Bloodborne and sexually transmitted																		
Chancroid[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Chlamydia (genital)[a]	62	37	74	13	291	79	49	83	130	302	104	165	152	148	54	–	1750	10 082
Gonorrhoea[a]	3	2	1	–	21	7	4	5	22	74	3	50	14	20	5	–	232	1259
Hepatitis B – acute viral[a]	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	16
Hepatitis B – other[a]	2	3	–	2	9	1	2	3	–	30	5	33	34	33	6	3	166	1256
Hepatitis C – acute viral[a]	–	–	1	–	1	–	2	–	–	–	–	1	–	–	–	–	5	23
Hepatitis C – other[a]	6	7	15	3	36	13	11	11	–	34	21	26	27	15	17	2	245	1632
Hepatitis D – unspecified[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Lymphogranuloma venereum	–	–	–	–	–	–	–	–	–	3	–	1	–	–	–	–	4	25
Syphilis	–	2	–	–	–	–	–	1	1	7	1	–	–	4	–	2	18	264
Vectorborne																		
Barmah Forest virus[a]	5	1	1	2	4	10	5	1	1	–	4	–	–	–	–	–	34	338
Ross River virus[a]	4	1	6	4	10	7	1	2	–	–	1	1	–	–	–	–	37	453
Arboviral infection (other)[a]	–	–	–	–	2	1	–	–	1	1	2	–	–	–	1	–	8	70
Malaria[a]	–	–	–	–	–	–	1	–	–	–	–	–	–	2	–	–	3	38
Zoonoses																		
Anthrax[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Brucellosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Leptospirosis[a]	3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3	21
Lyssavirus[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Psittacosis[a]	–	–	–	–	–	1	–	–	1	–	–	–	–	1	–	–	3	8
Q fever[a]	1	1	2	–	–	–	1	1	–	–	–	–	–	–	1	–	7	47
Respiratory and other																		
Blood lead level[a]	9	1	–	–	–	–	–	–	–	–	1	–	–	–	1	–	12	114
Influenza[a]	2	17	20	–	91	19	7	5	58	40	10	21	52	67	18	–	427	1408
Invasive pneumococcal infection[a]	1	–	3	1	7	2	–	5	2	7	3	8	6	7	6	–	58	211
Legionella longbeachae infection[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	13
Legionella pneumophila infection[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	34
Legionnaires' disease (other)[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Leprosy	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	1	1
Meningococcal infection (invasive)[a]	–	–	–	–	–	–	–	–	2	–	–	1	1	–	–	–	4	33
Tuberculosis	–	–	–	–	–	–	1	–	–	–	1	–	1	6	–	–	9	155
Vaccine–preventable																		
Adverse event after immunisation	1	1	–	–	2	–	–	–	4	–	–	–	–	2	–	–	10	121
H. *influenzae b* infection (invasive)[a]	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	4
Measles	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	50
Mumps[a]	–	–	–	–	–	–	–	–	1	4	–	–	–	1	–	–	6	26
Pertussis	157	36	45	1	57	51	15	12	81	83	89	18	65	82	111	–	906	6650
Rubella[a]	–	–	–	–	–	–	–	1	1	–	–	–	–	–	–	–	2	12
Tetanus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Enteric																		
Botulism	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cholera[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cryptosporidiosis[a]	1	1	–	–	3	1	–	–	5	4	3	5	1	–	1	–	25	210
Giardiasis[a]	7	3	5	–	24	1	8	4	38	20	9	16	13	16	7	–	171	1414
Haemolytic uraemic syndrome	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	3
Hepatitis A[a]	–	–	–	–	–	–	–	–	1	2	–	–	–	–	–	–	3	36
Hepatitis E[a]	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	–	2	13
Listeriosis[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	1	11
Rotavirus[a]	2	–	1	–	12	4	1	1	13	11	2	3	4	3	2	–	59	388
Salmonellosis[a]	14	10	1	1	24	9	3	3	23	21	10	11	26	24	2	–	182	2414
Shigellosis[a]	–	–	–	–	–	1	–	1	–	3	–	2	1	–	1	–	9	75
Typhoid[a]	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	31
Verotoxin-producing *E. coli*[a]	1	1	–	–	1	–	–	–	–	–	–	–	–	–	–	–	3	5
Miscellaneous																		
Creutzfeldt–Jakob disease	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1	4
Meningococcal conjunctivitis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1

[a]Laboratory-confirmed cases only. [b]Includes cases with unknown postcode.
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NSW GOVERNMENT Health

Contents

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