NEW SOUTH WALES
Public Health Bulletin

Volume 7
Number 4
April, 1996

NSW HEALTH DEPARTMENT

ISSN 1034 7674
State Health Publication No. (PH) 96-0049

BOVINE SPONGIFORM ENCEPHALOPATHY – THE AUSTRALIAN RESPONSE

Ed Kraa
Environmental Health, Food and Nutrition Branch
NSW Health Department

BACKGROUND

Bovine spongiform encephalopathy (BSE) is a progressive degenerative disease of the central nervous system of cattle first identified in 1985-86 in the United Kingdom (UK)[1]. Affected animals may display behavioural changes such as aggression or nervousness, abnormal posture, poor coordination, reduced milk output, fine muscle twitching and weight loss. Death is inevitable, generally within six months of diagnosis. The incubation period is from two to eight years. In the UK the incidence of BSE increased rapidly and by December 1995 there were 158,271 confirmed cases[2] in an epidemic which appears to have peaked in 1993. BSE has occurred in a number of countries including Switzerland and France, but the UK is the only country with a high incidence.

BSE is one of a group of related diseases described as transmissible spongiform encephalopathies (TSE). These occur in a number of species including sheep and goats (scrapie), mink (transmissible mink encephalopathy), cats (feline spongiform encephalopathy) and also humans (Creutzfeldt-Jakob disease, kuru, Gerstmann-Straussler syndrome and fatal familial insomnia). Scrapie has been endemic in sheep in the UK for at least 200 years and no link between eating sheep meat or offal, including brains, and Creutzfeldt-Jakob disease (CJD) has been established. CJD occurs at the same rate in Australia which is free of scrapie, as in countries where scrapie is endemic, such as the UK, France and the Middle East.

Although the transmissible agent for TSE has not been isolated, the predominant theory holds that the infective agent, classified as a prion, consists principally of a modified form of a host encoded glycoprotein, the prion protein. The agent causes the accumulation of an abnormal proteinase-resistant form of host protein in the brain. The agent is extremely resistant to heat, normal sterilisation processes and chemicals such as formaldehyde and glutaraldehyde[1]. Brain and spinal cord are the primary infected tissue, but pituitary gland, nerves, spleen, adrenal gland, lymph node, thymus, lung, liver and kidney may also be infected[3].

A 1987 epidemiological study concluded that the only viable hypothesis for the cause of the BSE epidemic was animal food supplements containing ruminant derived meat and bone meal from rendering plants in the UK[4].

Continued on page 36 ►

Contents

Correspondence

Please address all correspondence and potential contributions to:

The Editor,
NSW Public Health Bulletin,
Public Health Division,
NSW Health Department
Locked Bag No 961,
North Sydney NSW 2059
Telephone: (02) 391 9191
Facsimile: (02) 391 9029

Bovine spongiform encephalopathy

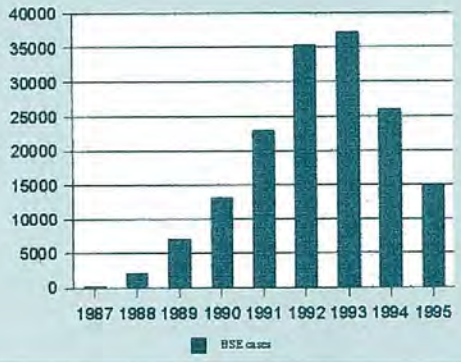
► *Continued from page 35*

The practice of using processed animal products as a source of protein for cattle had been common for several decades. However, in the late 1970s and early 1980s changes in rendering processes, including lower sterilisation temperatures and the omission of a solvent extraction, occurred in the UK. This practice may have allowed the disease – which may have been present at a low level in cattle in the UK before 1986 – to infect a large number of cattle. Alternatively, the inclusion of inadequately inactivated protein derived from scrapie-infected sheep meat, offal and bonemeal, into animal food supplements resulted in cattle being exposed to high doses of the scrapie agent and the agent was then able to break the species barrier[1].

Cattle products contaminated with BSE continued to be processed through the rendering plants until at least 1988[4]. Control measures implemented in 1988 included a ban on the feeding of ruminant-derived proteins to ruminants including cattle. The decline in incidence of BSE in the UK since 1993 is believed to be related to these measures. Figure 1 depicts the incidence of BSE in the UK.

FIGURE 1

NOTIFICATIONS OF BSE IN THE UNITED KINGDOM[2]



BSE has been most prevalent in Holstein-Friesian dairy cattle, the predominant breed of dairy cattle in the UK. Dairy cattle have a longer life – of seven to ten years – than beef cattle, which are generally slaughtered before three years of age. Given the long incubation period of the disease, it is not surprising that dairy cattle are more likely to exhibit the disease. The meat from these cattle, slaughtered at the end of their milk production, tends to be used in pies, sausages, minces, manufactured meat products and for the production of food additives rather than sold as steak[4]. These are the very products which are more likely to contain offal (such as brain tissue) as an ingredient.

In 1990 a CJD surveillance unit was set up in the UK. The CJD Surveillance Unit recently identified 10 cases of CJD with onsets between February 1994 and October 1995 which displayed a new and specific neuropathological profile. The neuropathological samples from each of the 10 infected people were virtually indistinguishable. They were also significantly younger than is typical, with an average age of 27.6 years. Sporadic CJD in the UK has a mean onset of 65 years. The 10 infected people also displayed a prolonged duration of illness, averaging 13.1 months with a range of 7.5 to 23 months, whereas normally CJD is fatal within six months. Electroencephalogram features typical for CJD were absent in these cases. A causal link to BSE has been suggested for this cluster of a previously unrecognised variant of CJD. However, a link with BSE cannot be confirmed on present evidence[5].

The response in Australia to BSE

Australia has not allowed the importation of live cattle, cattle semen or embryos from the United Kingdom or other BSE-affected countries since 1988. There are 31 cattle of UK origin remaining in Australia, eight of them in NSW. These animals are 12 years of age or more, are free of BSE symptoms and have been under quarantine surveillance. The cattle will not enter the food chain.

NSW Agriculture has undertaken surveillance for BSE in NSW cattle since 1991. About 1,500 brains from cattle showing neurological signs have been examined and all have been negative for BSE.

Scrapie is not present in Australian sheep and BSE is not present in Australian cattle herds. Very little ruminant-derived protein is used in Australian cattle feed, and readily available vegetable proteins have been the main source of protein supplements[6]. However, NSW Agriculture proposes implementation of the April 1996 recommendation of the *WHO Consultation on public health issues relating to bovine spongiform encephalopathies*,[2] that all countries ban the use of ruminant tissues in ruminant feed.

There have been no commercial imports of fresh or frozen beef from the UK in recent years. The Federal Government has stopped the importation of a small range of food products such as beef soup and meat-based flavourings, which may contain beef from the UK. The National Food Authority and NSW Health have overseen a recall of these products from retail outlets.

No medical devices of bovine origin have been imported into Australia from the UK. Medical devices supplied in Australia, such as haemostats, coated vascular grafts, coated heart valves, collagen implants and bone are manufactured from materials obtained from herds in such countries as Australia, New Zealand, the US, the Netherlands and Brazil. Therefore people who have received implants of therapeutic devices made from bovine material have almost certainly not been exposed to BSE-infected material.

A CJD case register was established in 1994 at Melbourne University to monitor the incidence of the disease in Australia.

Discussion

Australian consumers of imported foods containing beef from the UK, and travellers to the UK, may have been exposed to some risk, but the risk would appear to be very low.

The predicted and apparent decline in incidence of BSE in the UK suggests that control measures implemented in 1988 have been effective and that the greatest risk probably occurred between 1985 and 1991.

The association between BSE and CJD has attracted widespread media interest and international controversy. The implications for the British beef industry have been devastating, with serious consequences for the British economy.

NEWS AND COMMENT

THREE WORLD HEALTH ORGANISATION COLLABORATING CENTRES OPEN IN NSW

In April 1996 the Regional Director of the World Health Organisation's Western Pacific Region, Dr Sang Tae Han, officially inaugurated three WHO collaborating centres:

- the WHO Collaborating Centre in Environmental Health at the University of Western Sydney;
- the multi-site WHO Collaborating Centre in Mental Health and Substance Abuse; and
- the National Centre for Health Promotion in the Department of Public Health, University of Sydney.

Collaborating centres are organisations with specialist research and development expertise invited by the WHO to contribute on a continuing basis to its support for member countries. The WHO draws on staff and contacts from collaborating centres to recruit experts for missions to developing countries.

WHO Collaborating Centre in Environmental Health

This centre is based in the School of Applied and Environmental Sciences, within the Faculty of Science and Technology on the Hawkesbury campus of the University of Western Sydney (UWS), at Richmond. Its designation as a WHO Collaborating Centre recognises the UWS Environmental Health Group's pioneering work in integrating health and environmental studies, and links the group's community focus with the WHO's initiatives in the Asia Pacific Region. The staff of the centre have already contributed to the development of national environmental health strategies in Fiji and Vietnam.

The centre will undertake an approved plan of collaborative work which will:

- build on the WHO's environmental health initiatives in the Pacific;
- transfer environmental health curricula to the Asia Pacific Region and support regional environmental health research;
- provide opportunities for professional development of environmental health personnel in the region; and
- transfer principles of environmental management, integrating health and the environment in planning for sustainable development.

The school's facilities include a water research ecological engineering laboratory, which is focusing on the role of constructed and natural wetlands in the removal of pollutants from water. One of the school's major research initiatives is the Sustainable Futures Research and Development Project, which is designed to explore and support environmentally sustainable development on a local scale.

The director of the centre is Mr Brent Powis, who has headed the school for the past five years. Professor Valerie Brown, from the Centre for Resource and Environmental Studies at the Australian National University, has recently been appointed to the UWS Foundation Research Chair in Environmental Health.

Further information about the centre can be obtained from the School of Applied and Environmental Science, University of Western Sydney, Hawkesbury, Bourke Street, Richmond, NSW 2753; phone (045) 701 333, fax (045) 701 267.

WHO Collaborating Centre in Mental Health and Substance Abuse

The multi-site centre comprises organisations which have been actively involved in WHO programs of mental health and substance abuse for more than a decade, involving research, training and consulting work throughout Australia, the Western Pacific Region and elsewhere in the world.

Participating units in NSW are:

- New South Wales Institute of Psychiatry, Sydney;

Continued on page 38 ▶

The British Government has failed to convince the public and trade partners that BSE in beef from the UK presents an acceptable public health risk. Control measures have sometimes appeared not to be timely, appeared half-hearted and presented contradictory messages. This is illustrated by the 50 per cent subsidy initially offered to farmers to destroy symptomatic stock. At the same time the public was told beef was safe to eat. This appeared to offer little incentive to farmers to destroy stock, which the Government agreed was safe to eat, when the market place would probably offer full value if symptoms were not too obvious. The Government later changed this policy and provided a full subsidy.

Information about the 10 CJD cases was announced in the British Parliament before a full scientific report could be presented[7] and predictably, poorly informed media speculation did not reassure the public. The Government appeared to have no contingency plans to deal with an issue that had been threatening to explode for many years.

---

1. Collee JG, Foodborne illness – Bovine spongiform encephalopathy, *Lancet* 1990; 336:1300-1303.
2. WHO, Report on WHO consultation on public health issues relating to bovine spongiform encephalopathies. WHO 1996; Geneva.
3. Lacey R. *Unfit for Human Consumption, Food in crisis – the consequences of putting profit before safety.* London: Grafton, 1992, 90-116.
4. Ministry of Agriculture, Fisheries and Food, United Kingdom, Appendix 1 of Bovine Spongiform Encephalopathy in Great Britain: a progress report BSE, the Government's perspective. 1996 *MAFF Home page*.
5. Will RG, Ironside JW, Zeidler M et al. A new variant of Creutzfeldt-Jakob disease in the UK. *Lancet* 1996; 347:921-925.
6. Bell I. NSW Agriculture, personal communication.
7. Editorial. Less beef more brain. *Lancet* 1996; 347:915.

WHO centres in NSW

► Continued from page 37

- Clinical Research Unit for Anxiety Disorders, St Vincent's Hospital, Sydney; and
- Centre for Drug & Alcohol Studies, University of Sydney, Sydney.

Participating units are also located in Victoria (the University of Melbourne Department of Psychiatry at St Vincent's Hospital, Melbourne), Queensland (the Department of Psychiatry at the Townsville General Hospital), and Western Australia (the Graylands Hospital/University of Western Australia (UWA) Clinical Research Centre and the UWA Department of Psychiatry, Perth).

Designation as a centre enables the WHO to deal with a single group. The group brings together disciplines ranging from substance abuse control to neuropsychiatry, including research and training.

The centre's program of work will encompass the following areas:

- development of mental health education and training programs for the Western Pacific Region;
- co-ordination of visits of WHO fellows in Mental Health;
- specialist training in psychiatry for countries that do not have infrastructure to train their own psychiatrists;
- translation and computerisation of Composite International Diagnostic Interview schedules for regional clinical information systems;
- research into early intervention techniques in primary health care for substance abuse;
- research into the relationship between domestic violence and hazardous and harmful alcohol consumption;
- further assessment of the WHO quality of life in health care study;
- development of intervention programs for family care givers caring for the mentally ill;
- mental health outcomes measures;
- development of teaching materials for use in culturally diverse societies;
- development of models of mental health services for multicultural societies;
- research on systems of mental health care services delivery to rural and remote areas;
- assessing technology and standardising procedures of care of persons with mental illness emphasising consumer participation;
- epidemiological studies of mental disorders; and
- training in WHO Schedules for Clinical Assessment in Neuropsychiatry.

Dr Anthony Williams has been appointed administrative head of the centre and head of the board of scientific directors.

The NSW Institute of Psychiatry is the administering body for the collaborating centre, and further information can be obtained from the institute, PO Box 2008, North Parramatta, NSW 2151; phone (02) 840 3833 or 840 3000, fax (02) 840 3838.

National Centre for Health Promotion

The following is an extract from a speech given by the director of the National Centre for Health Promotion, Professor Don Nutbeam, at the inauguration of the national centre as a WHO collaborating centre.

"Australia is one of the wealthiest countries in the world, and in the context of the Western Pacific region, a country which has far more to give than it should expect to receive. The terms of reference for our collaborating centre agreement concentrate on what the centre can give to the region through collaboration with WHO. In particular, our mandate focuses on an appropriate role for a university-based centre, in supporting the development of research, education and training for health promotion in the region.

"In the past 18 months WHO, along with other UN affiliated agencies, has been subjected to intense, critical examination. In general, WHO has come through this examination well, and it is my impression that this region has emerged from this process as exceptional in terms of clarity of purpose and leadership. The publication last year of the document *New Horizons in Health*[1] has provided all countries in this region with an insightful analysis of the major health challenges which have to be faced now and in the future. These include the health consequences of poverty, poor access to health services and education, and the effects of urbanisation, as well as those more familiar challenges associated with injury control, tobacco, alcohol and drug misuse.

"Not surprisingly, the document recognises the need for action by governments on behalf of people to create supportive environments for health, alongside action by people themselves to protect and promote their health. This emphasis on partnership is an important reminder to governments throughout the region of their role and responsibilities for public health – amidst generic pressures to downsize, and in that process reduce their accountability for public health by emphasising individual responsibility.

"*New Horizons for Health* gives special attention to the health status of children and adolescents, and to the important role of education in health promotion among this group. A major part of our agreement with WHO is to support the development of health-promoting schools in this region. Already, The National Centre has successfully hosted a meeting on health-promoting schools focusing on needs and priorities in the Pacific islands. This meeting has led to tangible outcomes in several countries, most notably the development of guidelines and a manual of practical advice on school health promotion which is both relevant and culturally appropriate for use in schools in the Pacific islands.

"This practical link with the Pacific island countries is very important to us and we are working with colleagues at the University of the South Pacific in Fiji to better document progress with school health promotion in the individual Pacific island nations. It is our intention to continue to develop these links, and to extend them beyond the existing emphasis on school health by collaboration with WHO through its innovative *Healthy Islands*[2] initiative.

"Disappointingly, though, my experience in working for WHO in this region has led me to conclude that

Australia's contribution to the promotion of health has not been optimal thus far. Although the Government has been generous in its support for some health programs in the region, particularly through AUSAID, and the support it provides to WHO at a program level, the feedback I receive is that too often Australians approach other countries in ways which are insufficiently sensitive to the economic, social and cultural differences between Australia and the other countries in the region. Policies, programs and methods of funding which appear to work well in an Australian context cannot simply be transferred as ready-made solutions to other countries which have different traditions, and vastly different infrastructures.

"I have been made most acutely aware of these differences by colleagues in the Pacific islands who may fairly accuse some Australian consultants of new forms of health colonialism. I believe we run the risk of greatly reducing our role and contribution to health in this region through such insensitivity, and would like to take this opportunity to emphasise our commitment as a collaborating centre to ensure that the work we undertake in the region both in partnership with WHO and independently will be done in a way that respects differences between our situation in Australia, and that which exists in other countries.

"The centre has already become a focal point for health promotion in the region as the regional office for the largest non-government organisation in health promotion, the International Union for Health Promotion and Education. Its recognition as a WHO collaborating centre brings with it further responsibilities and opportunities. I believe that this intersection of non-government and intergovernmental organisations provides a special opportunity for the centre to make a contribution to the promotion of health in the Western Pacific region."

The address of the National Centre for Health Promotion is Edward Ford Building A27, The University of Sydney, NSW 2006; fax (02) 351 4179.

---

1. World Health Organisation (WPRO), *New Horizons for Health*; 1995; WHO, Manila.
2. World Health Organisation (WPRO); Yanuca Island Declaration; 1995; WHO, Manila.

INFECTIOUS DISEASES

NOTIFICATION TRENDS

In February 1996 notifications were higher than expected for arboviral infection, gastroenteritis and hepatitis A, but lower than expected for foodborne illness, *Haemophilus influenzae* type b infection, HIV infection, measles, pertussis and Salmonella infection (Figure 2).

ARBOVIRAL INFECTION

Marked increases in reports of arboviral infections continued through March 1996 (Figure 3, Tables 1 and 2). Most reports received between January and March came from the North Coast (214), Northern Districts (199) and Western NSW (133), followed by South West, Hunter and Central West NSW. Heavy rains, flooding and king tides in northern NSW and southern Queensland – and consequent flooding in inland NSW river systems – contributed to increased mosquito numbers and arboviral infections in the Northern Districts and Western NSW. Reports continue to arrive from the North Coast and Western NSW, but in the Northern Districts cases of arboviral infection appear to have peaked in February.

CHOLERA

In March the South Eastern Sydney Public Health Unit investigated a case of cholera in a male who had travelled from Asia. The man was treated in hospital for several days before resuming his journey abroad.

GONORRHOEA

Reports of gonorrhoea have slowly increased since November 1994 (Figures 2 and 4, Tables 1 and 2). Many were received from eastern Sydney and most were male. This is consistent with a cyclical trend in cases seen approximately every four years (Basil Donovan, personal communication).

COMMITTEES

Laboratory Surveillance Advisory Committee

The AIDS/Infectious Diseases Branch recently formed the Laboratory Surveillance Advisory Committee (LSAC). Laboratory reporting of infectious diseases was introduced by the Public Health Act 1991 and has proved very successful. Laboratories now provide 75 per cent of all notifications in NSW. However, laboratory surveillance has potential for improvement and expansion.

Continued on page 40 ▶

PUBLIC HEALTH EDITORIAL STAFF

The editor of the *NSW Public Health Bulletin* is Dr Michael Frommer, Director, Research and Development, NSW Health Department. Dr Lynne Madden is production manager.

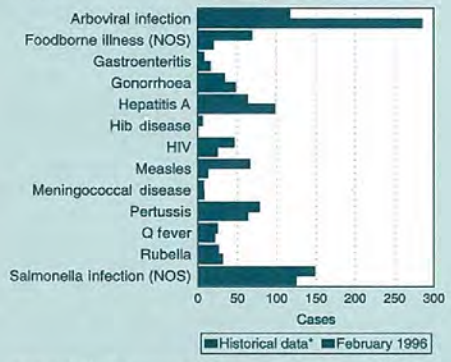
The *Bulletin* aims to provide its readers with population health data and information to motivate effective public health action. Articles, news and comments should be 1,000 words or less in length and include a summary of the key points to be made in the first paragraph. References should be set out using the Vancouver style, the full text of which can be found in *British Medical Journal* 1988; 296:401-5.

Please submit items in hard copy and on diskette, preferably using WordPerfect, to the editor, *NSW Public Health Bulletin*, Locked Mail Bag 961, North Sydney 2059. Facsimile (02) 391 9029.

Please contact your local Public Health Unit to obtain copies of the *NSW Public Health Bulletin*.

FIGURE 2

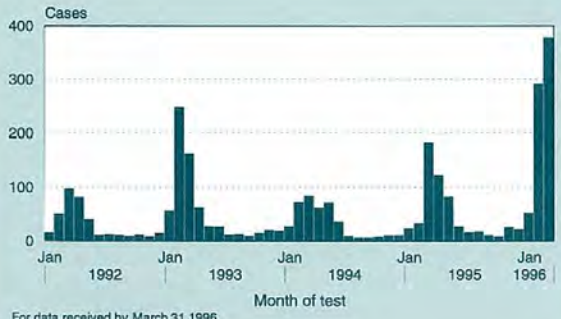
SELECTED INFECTIOUS DISEASES: NSW FEBRUARY NOTIFICATIONS, 1996 COMPARED WITH HISTORICAL DATA



*Historical data: the average number of notifications diagnosed in the same month in the previous three years. Source: IDSS

FIGURE 3

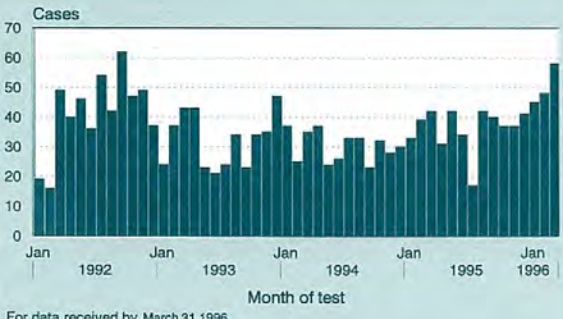
ARBOVIRAL INFECTION NOTIFICATIONS NSW 1994-1996, BY DATE OF TEST



For data received by March 31 1996
Source: IDSS

FIGURE 4

GONORRHOEA NOTIFICATIONS FOR NSW 1994-1996, BY DATE OF TEST



For data received by March 31 1996
Source: IDSS

Infectious diseases

► *Continued from page 39*

LSAC will advise the Chief Health Officer on improving surveillance of nosocomial infection, the public health role of reference laboratories, and achieving consistency with national approaches. Membership includes experts from public and private microbiology and serology laboratories, laboratory management, public health information technology and PHUs.

In its first meeting on March 28, 1996, LSAC discussed nosocomial infection and technology improvements for notification. LSAC decided that several micro-organisms could be used as indicators of nosocomial infection, such as MRSA, extended spectrum ß-lactamase producers, vancomycin-resistant enterococcus and neonatal bloodborne infections. Other mechanisms (such as data collection on risks, and denominators) will be considered before final recommendations are made. LSAC discussed the possibility of laboratories reporting conditions electronically. A working party will recommend on possible implementation in a future version of our Infectious Disease Surveillance System software.

NSW Immunisation Advisory Committee

A new NSW Immunisation Advisory Committee (IAC) has been convened. IAC will meet quarterly with extraordinary meetings as necessary. IAC is to advise the Department on:

- all matters relating to vaccines, vaccine research and development;
- immunisation programs in NSW;
- the implementation and effectiveness of the Australian Childhood Immunisation Register (ACIR) in improving immunisation coverage; and
- an annual review of adverse events following immunisation.

The IAC at its first meeting on February 27, 1996, recommended:

- Area Performance Agreements include that 100 per cent babies are registered with Medicare for ACIR before discharge from hospital, and that children identified by ACIR as 90 days late for vaccination be followed up;
- an urgent review of the operations of the State Vaccine Centre;
- NSW Health support the Australian Centre for Immunisation Research;
- the Aboriginal Immunisation Strategy be widely distributed; and
- the NSW Immunisation Accreditation Program for Registered Nurses be finalised and Guidelines for the Follow-up of Susceptible Children be released.

The next meeting of IAC was scheduled for May 1.

TABLE 1

INFECTIOUS DISEASE NOTIFICATIONS FOR NSW, 1996 BY MONTH OF ONSET FOR NOTIFICATIONS RECEIVED BY MARCH 31, 1996

Condition	Dec	Jan	Feb	Mar	Total
Adverse event after immunisation	2	9	4	3	18
AIDS	24	33	21	11	89
Arboviral infection	19	52	285	364	720
Cholera	–	–	–	1	1
Foodborne illness (NOS)	11	17	20	7	55
Gastroenteritis (instit.)	7	11	16	27	61
Gonorrhoea infection	41	45	48	56	190
H. influenzae infection (NOS)	1	–	–	1	2
H. influenzae meningitis	–	1	–	–	1
H. influenzae septicaemia	1	–	–	–	1
Hepatitis A – acute viral	86	123	98	82	389
Hepatitis B – acute viral	12	7	–	1	20
Hepatitis B – chronic/carrier	38	64	60	46	208
Hepatitis B – unspecified	312	310	320	282	1,224
Hepatitis C – acute viral	2	–	–	1	3
Hepatitis C – unspecified	695	719	709	504	2,627
Hepatitis D – unspecified	5	–	1	1	7
Hepatitis, acute viral (NOS)	–	3	–	–	3
HIV infection	34	39	25	33	131
Hydatid disease	2	1	2	–	5
Legionnaires' disease	8	4	9	6	27
Leptospirosis	1	3	3	5	12
Listeriosis	3	2	–	–	5
Malaria	4	22	22	21	69
Measles	27	21	13	11	72
Meningococcal infection (NOS)	–	1	3	1	5
Meningococcal meningitis	4	6	3	3	16
Meningococcal septicaemia	–	2	2	1	5
Mumps	1	5	6	–	12
Mycobacterial atypical	14	28	15	1	58
Mycobacterial infection (NOS)	10	11	11	4	36
Mycobacterial tuberculosis	29	36	22	10	97
Pertussis	111	96	63	55	325
Q fever	9	22	21	23	75
Rubella	97	40	31	15	183
Salmonella (NOS)	105	131	125	89	450
Syphilis infection	47	59	65	68	239
Typhoid and paratyphoid	5	7	5	5	22
Vibrio infection (non cholera)	–	1	1	–	2

TABLE 2

SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS MARCH 1996

Condition	Number of cases notified			
	Period		Cumulative	
	Mar 1995	Mar 1996	Mar 1995	Mar 1996
Adverse reaction	3	3	7	16
AIDS	38	11	122	65
Arboviral infection	182	364	235	701
Brucellosis	–	–	–	–
Cholera	–	1	–	1
Diphtheria	–	–	–	–
Foodborne illness (NOS)	26	7	234	44
Gastroenteritis (instit.)	10	27	15	54
Gonorrhoea	42	56	114	149
H influenzae epiglottitis	1	1	1	1
H influenzae B – meningitis	1	–	3	1
H influenzae B – septicaemia	1	–	3	–
H influenzae infection (NOS)	–	–	1	–
Hepatitis A	51	82	192	303
Hepatitis B	469	329	1,310	1,090
Hepatitis C	821	505	2,373	1,933
Hepatitis D	–	1	6	2
Hepatitis, acute viral (NOS)	–	–	–	3
HIV infection	45	33	140	100
Hydatid disease	4	–	4	3
Legionnaires' disease	11	6	34	19
Leprosy	–	–	1	–
Leptospirosis	1	5	2	11
Listeriosis	3	–	7	2
Malaria	10	21	48	65
Measles	65	11	223	45
Meningococcal meningitis	4	3	12	12
Meningococcal septicaemia	1	1	7	5
Meningococcal infection (NOS)	2	1	6	5
Mumps	–	–	2	11
Mycobacterial tuberculosis	39	10	130	68
Mycobacterial – atypical	64	1	148	44
Mycobacterial infection (NOS)	5	4	13	26
Pertussis	72	55	227	214
Plague	–	–	–	–
Poliomyelitis	–	–	–	–
Q fever	12	23	54	66
Rubella	46	15	111	86
Salmonella infection (NOS)	120	89	474	346
Syphilis	83	68	246	192
Tetanus	–	–	–	–
Typhoid and paratyphoid	3	5	22	17
Typhus	–	–	–	–
Viral haemorrhagic fevers	–	–	–	–
Yellow fever	–	–	–	–

TABLE 3

INFECTIOUS DISEASE CUMULATIVE NOTIFICATIONS FOR NSW, 1996 BY PUBLIC HEALTH UNIT RECEIVED BY MARCH 31, 1996

Condition	CCA	CSA	CW	ESA	HUN	ILL	NC	ND	NSA	SE	SSA	SW	SWS	WEN	WN	WSA	U/K	Total
AIDS	3	13	–	17	4	–	3	–	14	–	1	1	5	3	–	1	–	65
Arboviral infection	6	2	19	3	26	5	208	199	8	7	2	75	4	–	133	4	–	701
Gastroenteritis (instit)	–	9	–	–	18	–	–	1	–	–	–	–	1	8	1	16	–	54
Gonorrhoea infection	2	16	3	79	1	1	5	2	6	2	6	–	5	3	11	7	–	149
Hepatitis B – acute viral	–	–	–	4	–	–	–	–	–	–	1	–	1	–	1	1	–	8
Hepatitis B – chronic/carrier	12	–	3	62	–	–	7	1	–	–	13	–	7	2	2	61	–	170
Hepatitis B – unspecified	7	106	1	42	24	16	19	4	121	4	147	4	296	7	6	108	–	912
Hepatitis C – acute viral	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Hepatitis C – unspecified	74	192	48	243	133	113	191	46	145	28	119	45	249	85	20	200	–	1,932
Hepatitis D – unspecified	–	–	–	–	–	–	2	–	–	–	–	–	–	–	–	–	–	2
Hepatitis, acute viral (NOS)	–	–	1	1	–	–	–	–	–	–	–	–	–	–	–	1	–	3
HIV infection	1	12	1	22	3	1	1	–	9	–	4	–	7	4	–	6	29	100
Hydatid disease	–	1	–	–	1	–	–	–	–	–	–	1	–	–	–	–	–	3
Legionnaires' disease	–	2	–	–	2	1	1	–	1	2	–	–	4	1	–	5	–	19
Leptospirosis	–	–	1	–	4	–	4	1	–	–	–	–	1	–	–	–	–	11
Malaria	1	6	1	4	7	4	4	4	10	2	5	1	5	3	1	7	–	65
Meningococcal infection (NOS)	2	–	–	–	–	–	1	1	–	–	–	–	–	–	1	–	–	5
Meningococcal meningitis	–	–	–	–	5	2	1	–	–	–	1	–	–	–	2	1	–	12
Meningococcal septicaemia	–	–	2	–	1	–	–	–	–	–	–	1	1	–	–	–	–	5
Mycobacterial atypical	3	3	1	7	1	–	5	1	6	–	3	1	8	1	–	4	–	44
Mycobacterial infection (NOS)	2	4	–	–	6	–	4	1	1	–	2	–	–	1	–	5	–	26
Mycobacterial tuberculosis	3	7	1	5	2	–	–	1	10	–	8	–	16	–	–	15	–	68
Q fever	–	1	6	–	2	–	8	12	–	1	–	4	–	–	32	–	–	66
Syphilis infection	2	20	4	36	6	1	11	15	15	2	9	1	27	2	22	19	–	192
Vibrio infection (non cholera)	–	–	–	1	–	–	–	–	–	–	–	–	1	–	–	–	–	2

TABLE 4

VACCINE PREVENTABLE AND RELATED CONDITIONS, CUMULATIVE NOTIFICATIONS FOR NSW, 1996 BY PUBLIC HEALTH UNIT, RECEIVED BY MARCH 31, 1996

Condition	CCA	CSA	CW	ESA	HUN	ILL	NC	ND	NSA	SE	SSA	SW	SWS	WEN	WN	WSA	Total
Adverse event after immunisation	–	–	2	–	–	–	2	–	–	7	1	–	1	1	–	2	16
H. influenzae epiglottitis	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
H. influenzae meningitis	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Measles	–	2	3	1	–	5	2	1	1	3	5	5	4	2	1	10	45
Mumps	–	1	–	–	2	–	–	–	5	–	1	1	1	–	–	–	11
Pertussis	1	9	3	12	19	18	30	19	29	14	7	17	7	6	4	19	214
Rubella	–	21	1	1	–	7	1	–	–	1	5	–	–	16	–	33	86

TABLE 5

FOODBORNE INFECTIOUS DISEASE CUMULATIVE NOTIFICATIONS FOR NSW, 1996 BY PUBLIC HEALTH UNIT, RECEIVED BY MARCH 31, 1996

Condition	CCA	CSA	CW	ESA	HUN	ILL	NC	ND	NSA	SE	SSA	SW	SWS	WEN	WN	WSA	Total
Cholera	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	1
Foodborne illness (NOS)	7	5	–	–	2	1	–	1	–	–	–	2	18	–	8	–	44
Hepatitis A – acute viral	8	51	3	100	10	26	5	2	26	7	19	3	12	4	3	24	303
Listeriosis	–	–	–	–	–	–	–	–	–	1	–	–	1	–	–	–	2
Salmonella (NOS)	7	12	2	17	31	17	49	26	35	8	37	24	28	12	13	26	345
Typhoid and paratyphoid	–	5	–	1	2	–	–	–	–	–	1	–	6	–	–	2	17

Abbreviations used in this Bulletin:
CSA Central Sydney Health Area, SSA Southern Sydney Health Area, ESA Eastern Sydney Health Area, SWS South Western Sydney Health Area, WSA Western Sydney Health Area, WEN Wentworth Health Area, NSA Northern Sydney Health Area, CCA Central Coast Health Area, ILL Illawarra Health Area, HUN Hunter Health Area, NC North Coast Public Health Unit, ND Northern District Public Health Unit, WN Western New South Wales Public Health Unit, CW Central West Public Health Unit, SW South West Public Health Unit, SE South East Public Health Unit, OTH Interstate/Overseas, U/K Unknown, NOS Not Otherwise Stated.

Please note that the data contained in this Bulletin are provisional and subject to change because of late reports or changes in case classification. Data are tabulated where possible by area of residence and by the disease onset date and not simply the date of notification or receipt of such notification.