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VIRUSES, CHLAMYDIAS, COXIELLAS, RICKETTSIAS AND MYCOPLASMAS REPORTING SCHEME

In this period (10 May to 23 May 1990), 943 reports were processed.

There were 5 reports of rubella. One was in a 26-year-old woman who was 16 weeks pregnant and another was in a pregnant 24-year-old woman.

There were 7 reports of influenza A and 3 reports of influenza B. Both viruses were identified in a 75-year-old woman and in a 76-year-old woman. Influenza A was also identified in 2 further women, aged 75 and 69.

Enterovirus type 70 was isolated from 2 patients with meningitis. One was a three-month-old girl and the other was 1-month-old (sex not stated). These are only the third and fourth reports of this virus which is rare in Australia and has more usually caused acute haemorrhagic conjunctivitis elsewhere.

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Meningitis was an unusual syndrome reported for a 1-year-old boy from whose urine cytomegalo virus was isolated and in a 12-year-old girl in whom Epstein-Barr virus was identified. Epstein-Barr virus was also identified in a 44-year-old (sex not stated) who had severe hepatitis, another unusual manifestation of this infection.

Exposure details were provided for sex of the 9 cases of Q Fever reported. Three of the patients were described as abattoir workers, 2 were described as meat workers and 1 was described as a person who 'visits abattoirs'.

Locations were provided for three of the 5 Ross River virus reports. There was one each from Broome, Kalamunda and Halls Creek in Western Australia.

OVERSEAS BRIEFS

1. CHOLERA IN MOZAMBIQUE

The Mozambique authorities have reported an outbreak of cholera in the Tete Province which started at the end of April. No further details are available as yet.

2. DENGUE IN FIJI

The epidemic of dengue in Fiji continued through March. In the three weeks ending 31 March 1990, 265 cases were reported.

3. GASTROINTESTINAL DISEASE IN NAMIBIA

A State of Emergency has been declared in northern Namibia following a disease outbreak which has killed 30 persons and hospitalised over 3,000. The gastrointestinal infection is not cholera but appears in some way to be related to malaria. Visits to northern Namibia should be postponed while this situation persists.

4. YELLOW FEVER IN BOLIVIA

Yellow fever cases have been reported recently from three Provinces of Bolivia. In the period 3 to 5 March, there were 2 fatal cases in the Ichilo Province of the Santa Cruz Department. From 3 to 19 March there were 9 cases with 6 deaths in the Carrasco Province of the Cochabamba Department and from 22 March to 2 April there were 2 cases with 1 death in the Chapare Province, also in the Cochabamba Department.

Areas of Angola, Gambia, Ghana, Guinea, Mali, Nigeria, Sudan, Zaire, Brazil, Columbia and Peru are also currently

5. HAJJ REQUIREMENTS

The Saudi Arabian authorities have advised the following vaccination requirements for the forthcoming Hajj (Pilgrimage to Mecca) season:

1. All travellers arriving from a country, any part of which is endemic for yellow fever, are required to produce a valid yellow fever vaccination certificate, in accordance with the country's normal requirements. Travellers arriving in Saudi Arabia without the required certificate will be vaccinated on arrival and placed under strict surveillance for 6 days from the day of vaccination, but freedom of movement will be permitted.

2. In addition to the above, pilgrims and 'Umra' performers are required to produce a certificate of vaccination against meningococcal meningitis issued not more than 2 years and not less than 10 days before arrival in Saudi Arabia.

6. TYPHOID VACCINE RECALL

The Commonwealth Serum Laboratories have recalled two batches of Typh-vax oral typhoid vaccine after inspection showed some packs had faulty blister foils. Thirty thousand vaccines, batches 107 640 306 and 107 640 307, available by prescription only since July 1989 have been recalled.

SALMONELLA SURVEILLANCE - HUMAN ISOLATES, JULY - SEPTEMBER 1989

(Extracted from Quarterly Report Issue No. 2/90 of the National Salmonella Surveillance Scheme, Mircobiological Diagnositic Unit, University of Melbourne)

This is the Human Third Quarter Report 1989 (Issue No. 2/90, April 1990), of the National Salmonella Surveillance Scheme (NSSS). It covers the period 1 July to 30 September 1989.

Table 1 details the total notifications received in the reporting period, by State or Territory, for Salmonella, Shigella and E. coli (EPEC).

Table 1: Total Number of Notifications Received

	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	TOTAL
Salmonella	23	202	231	222	60	109	11	85	943
Shigella	-	17	27	6	16	102	2	25	195
E. coli (EPEC)	-	2	-	-	-	-	-	-	2
Total	23	221	258	228	76	211	13	110	1140

The number of Australian acquired cases of salmonella (800) is only slightly less (1%) than that for the same period last year (812). There were 55 follow-ups, 17 cases from migrants and refugees and 71 cases acquired overseas. The number of cases of Australian acquired shigellas increased by 61% from 105 to 169.

There were 73 serovars of salmonella isolated from the 777 cases (102 serovars, in Quarter 2, 1989) . Of these 66 were from subgenus I (7 phage types of S. bovismorbificans and 31 of S. typhimurium), 3 from subgenus II, 3 from subgenus III (S. arizonae) and none from subgenus IV.

New and unusual salmonella serovars encountered during the quarter included S. djugu (F/58, Vic, -ex Indonesia);

S. isangi (F/23, Vic, - ex Thailand); S. lindenburg (M/2, Qld); S. liverpool (F/ns, NSW, - ex India); S. manhattan (M/ 34, ACT); S. newlands (F/64, Vic); S. rissen (M/25, Qld, - ex Thailand); S. sunnycove (F/8, Vic); S. taksony (F/33, Tas); S. virginia (F/ns, NSW - ex overseas, a mixed infection with S. haardt and S. haifa and S. westhampton (F/23, Vic - ex Thailand).

S. liverpool is appearing with increasing frequency in Sydney. The first record for 1989 was in August from a returned traveller from India. It has been isolated subsequently from several samples of treated effluent from a wastewater purification plant in the western suburbs of Sydney and from two further patients, one a returned traveller from Africa.

S. idikan, another new serovar for the NSSS, has been notified also from Sydney; two cases in November - December 1989 (M/1,F/8) and two cases in January 1990 (F/66, M/3). Enquiries to date have not revealed any overseas travel by any of these patients, nor any common cause of this infection.

S. berta is becoming more frequent and it has been notified almost without exception from travellers returning from Indonesia, including Bali. It has also been isolated from crustaceans (prawns and lobster) imported from Indonesia.

Salmonella Infections - Case Rates

Table 2 lists the case rates per 100,000 for Salmonella infections. The salmonella case rate per 100,000 population increased, by comparison to the same period last year, in the ACT (56%), the Northern Territory (54%) and Victoria (48%), and decreased in all other states. The biggest percentage decrease in case rate was in Tasmania (43%).

Table 2: Case Rates per 100,000 for Salmonella Infections

	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	TOTAL
3rd Quarter 1989	5.6	3.2	4.0	7.4	4.2	7.5	2.1	52.3	800
2nd Quarter 1989	9.2	5.9	9.5	15.9	7.9	13.6	8.7	69.1	1586
3rd Quarter 1988	3.6	3.6	2.7	8.7	5.3	9.9	3.7	34.0	812

Top Ten Salmonellas

Of the 800 Australian acquired cases of salmonella infection, 285 (36%) were isolates from the top ten salmonellas which are listed in Table 3. Their positions in the previous quarter (Q2/'89) are also given.

S. typhimurium 9 heads the list of the top ten salmonellas for the third successive quarterly period with 63 cases, 45 of which were from Victoria. This is roughly half the number of cases reported from the second quarter of 1988 and, while there was an increased incidence of S. typhimurium 9 in several metropolitan and country areas of Victoria, there were no specific outbreaks recorded.

Table 3: Top Ten Salmonellas

Salmonella serotypes	Pos'n Q2/'89	No. of cases	% of top ten(287)	Origin/ No. of cases
S. typhimurium 9	1	63	22	VIC 45
S. bovismorbificans 7*	-	34	12	QLD 22
S. cerro	-	29	10	NSW 13
S. typhimurium 135	6	27	9	NSW 20
S. typhimurium 141*	-	26	9	VIC 11
S. anatum	-	23	8	NT 9; WA 6
S. infantis	3	23	8	NSW 7; VIC 6
S. bovismorbificans 24*	-	21	7.5	NT 17
S. muenchen	7	21	7.5	SA 6; QLD 5
S. saintpaul	4	20	7	QLD 6

** *associated with an outbreak*
In: S. bovismorbificans 7; S. cerro; S. typhimurium 141; S. anatum; S. bovismorbificans 24
Out: S. virchow; S. singapore; S. typhimurium 201a; S. typhimurium 12a; S heidelberg; S. chester.

Outbreaks

Five salmonella serotypes, three of which were from the top ten, and one serotype of shigella were involved in outbreaks. In only one of these incidents was the cause positively determined when a group of people eating turtle in Arnhem Land became infected with S. chester in September. The S. bovismorbificans 24 outbreak, which occurred simultaneously in Darwin and Katherine in late August-early September, also affected a group of Army personnel from New South Wales who were on a training exercise in the area. Table 4 provides details of these outbreaks.

Table 4: Outbreaks

Serotype				
Sh. flexneri 2b	Cairns, QLD	3	Jun/Jul	outward bound camp*
S. typhimurium 141	Hamilton, VIC	4	Jul	15 cases in June
S. bovismorbificans 7	Brisbane, QLD	16	Jul/Aug	no details
S. bovismorbificans 24	Darwin/Katherine	20	late Aug	incl. Army Exercise
S. reading	Darwin, NT	10	Jul/Aug	
S. chester	Nhulunbuy, NT	3	Sep	turtle meat

* *9 cases reported previously from Townsville were in the same incident, a camp at Ingham.*

Infections Acquired Overseas (excluding enteric fever)

ASIA:- S. derby, S. enteritidis. **Indonesia:** S. berta (2), S. djugu, S. hadar (2), S. typhimurium 21, Sh. flexneri 1b. **Bali:** S. berta, S. hadar, S. java, S. typhimurium 4, S. typhimurium RDNC. **Borneo:** S. untypable 9,12:1v:-. **Java:** S. kentucky, Sh. sonnei biotype a. **India:** S. enteritidis, S. liverpool, S. oslo, Sh. boydii 8, Sh. flexneri 2a, Sh.flexneri 3a, Sh. sonnei biotype g. **Pakistan:** Sh. boydii 18. **Malaysia:** S. haardt, S. stanley, S. typhimurium untypable, Sh. sonnei biotype a. **Singapore:** S. blockley, S. enteritidis (2), Sh. sonnei biotype a (2). **Thialand:** S. agona, S. berta, S. blockley, S. derby (3), S. isangi, S. rissen, S. stanley, S. westhampton. **Philippines:** S. cerro, S. derby, S emek, S. stanley, Sh. dysenteriae, Sh. sonnei biotype a. **Vietnam:** S. derby (2), S. stanley, S. tennessee. **Hong Kong:** Sh. flexneri 2a. **MIDDLE EAST:- Egypt:** S. enteritidis. **Israel:** S. virchow. **PACIFIC:- Fiji:** S. untypable 3, 10:r:-.

From unspecified countries: S. agona, S. cerro, S. enteritidis (2), S. haardt, S. haifa, S. infantis (2), S. saintpaul, S. senftenberg, S. virginia, Sh. flexneri 2a, Sh. flexneri 3a, Sh. sonnei biotype g (2).

Mixed Infections

Table 5 details mixed infections reported in the third quarter of 1989.

Table 5: Mixed Infections

Organisms	Sex/Age	Site
S. blockley, S. krefeld	F/20	NSW
S. derby, S. untypable 4, 12:-:-	F/81	NSW
S. typhimurium 26, Sh. flexneri 2a	F/21	VIC
S. haardt, S. haifa, S. virginia	F/ns*	NSW
S. johannesburg, rotavirus	M/<1**	VIC
S. java, Shigella, Aeromonas sp.	M/<1	NSW
S. typhimurium 4, rotavirus	M/<1	VIC
S. typhimurium 135, Campylobacter spp.	M/22	NSW
S. typhimurium 9, Campylobacter spp.	M/8	VIC
S. blockley, Giardia lamblia	M/51	VIC
S. typhimurium 21, Plesiomonas	M/28	VIC

* acquired overseas, country not specified, age not specified.
** see bacteraemias.

Isolations from Blood, Urine and Unusual Sites

There were 14 isolations from blood (excluding enteric fever), 12 isolations from urine and 7 isolations from unusual sites. They are detailed in Table 6.

Table 6: Isolations from Blood, Urine and Unusual Sites*

Organism	Sex/Age	State	Site
S. adelaide	F/<1	NT	blood
S. adelaide	F/<1	NT	blood
S. birkenhead	F/4	QLD	blood
S. bovismorbificans 13	M/58	NSW	blood
S. bovismorbificans 22	M/<1	QLD	blood
S. bovismorbificans 7	F/55	VIC	blood
S. bovismorbificans RDNC	M/45	SA	blood
S. dublin	M/<1	VIC	blood
S. java	M/<1*	NSW	blood
S. java	M/28*	NSW	blood
S. typhimurium 25	M/26	NSW	blood
S. typhimurium 4	F/77	NSW	blood
S. typhimurium RDNC	F/1	VIC	blood
S. typhimurium RDNC	M/ns	SA	blood
S. 4,12:d:-	F/9	VIC	urine
S. aberdeen	F/73	QLD	urine
S. agona	F/8	NSW	urine
S. anatum	M/67	SA	urine
S. cerro	F/36	NSW	urine
S. derby and S. untypable 4,12:-:-	F/81	NSW	urine
S. enteritidis	M/32	QLD	urine
S. infantis	F/61	TAS	urine
S. livingstone	F/70	SA	urine
S. newlands	F/64	VIC	urine
S. saintpaul	M/50	NSW	urine
S. tennessee	F/16	NSW	urine
S. chester	M/59	NSW	unspecified wound
S. singapore	M/<1	NSW	eyes (after birth), mother also
S. singapore	F/32	NSW	rectal biopsy
S. typhimurium 145	F/54	NSW	aneurysmal abscess
S. typhimurium 35	F/43	VIC	rectal abscess
S. typhimurium 9	ns/74	VIC	elbow
S. virchow	M/15	VIC	distal tibia tissue

** Same family, acquired in Bali, Shigella also isolated from baby (see also mixed infections*
ns = not stated

Typhoid and Paratyphoid Cases

The 10 cases of typhoid, 6 cases of S. paratyphi A and the 1 case of S. paratyphi B reported are detailed in Table 7.

Table 7: Typhoid and paratyphoid cases

Species	Phage type**	Sex/Age	State	Notes
S. typhi	51	M/12	ACT	visited Pakistan
	B1	F/26	ACT	visited Thailand
	B1	M/25	VIC	acquired in Thailand
	D2	M/63	WA	visited Asia
	E1	F/8***	VIC	visited Lebanon
	E1	M/7***	VIC	visited Lebanon
	E1	M/4***	VIC	visited Lebanon
	E1	M/42	VIC	suspected food poisoning
	J1	F/5	VIC	visited India
	N	M/1	NSW	acquired in India
S. paratyphi A	1	F/2	ACT	hospital in-patient
	1	M/ns	NSW	no travel history
	1	M/1	NSW	no details supplied
	2	ns/25	VIC	Vietnamese immigrant
	RDNC	F/43	QLD	
	RDNC	F/25	NSW	visited Bangladesh
S. paratyphi B	untypable	M/1	NT	

ns = not stated
*** Vi-phage type for S. typhi*
**** Same family*

Shigella Infections

195 shigella notifications were received for this quarter. Of these, 4 were from follow-up specimens, 5 from migrants and refugees and 17 from overseas travellers, leaving a total of 169 acquired in Australia. This is a decrease of 12% from the number for the previous quarter (Q2/'89) and an increase of 61% from the same period last year (Q3/'88). This big increase is due to the high incidence of Sh. flexneri 2a in Western Australia, beginning in the second quarter of 1989. The shigella case rate in WA was 7.2 per 100,000 for this quarter which is only slightly less than that for salmonella (7.5). It was 5.5 in Q2/'89 and 2.3 in Q3/'88. Of the 91 cases, 33 were notified from Perth and suburbs.

Shigella infections acquired overseas include Sh. boydii 18 (Pakistan), Sh. boydii 8 (India), Sh. dysenteriae (Philippines), Sh. flexneri 1b (Indonesia), Sh. flexneri 2a (India, Hong Kong), Sh. flexneri 3a (India), Sh. sonnei biotype a (Indonesia, Singapore, Malaysia, Philippines), Sh. sonnei biotype g (India).

Table 8 details the Shigella notifications by serotype and State or Territory of notification.

Table 8: Shigella Cases Acquired in Australia

Serotype	ACT	NSW	VIC	QLD	SA	WA	TAS	NT	TOTAL
Sh. flexneri 1b	-	-	-	-	-	-	-	1	1
Sh. flexneri 2a	-	3	3	-	2	91	-	11	110
Sh. flexneri 2b	-	1	-	3	-	-	-	-	4
Sh. flexneri 3a	-	-	5	-	-	-	-	-	5
Sh. flexneri 4a mann ve	-	-	-	-	1	-	-	-	1
Sh. flexneri 5a	-	-	-	-	-	1	-	-	1
Sh. flexneri 6	-	-	-	-	4	3	-	1	8
Sh. flexneri var.y	-	-	1	-	-	1	-	1	3
Sh. sonnei biotype a	-	8	2	1	4	5	-	11	31
Sh. sonnei biotype g	-	-	1	-	3	-	1	-	5
Total	-	12	12	4	14	101	1	25	169

NATIONAL CAMPAIGN AGAINST MEASLES - PRELIMINARY REPORT

(Contributed by G. Whalan, Health Promotion and Development Branch, Department of Community Services and Health, Canberra.)

This is a preliminary report on the activities of the National Campaign Against Measles (NCAM). More detailed reports of its activities and achievements will be published as available.

Background

The NCAM was established by the Federal Government in conjunction with State and Territory governments in 1987, as a major bicentennial health initiative.

The initial aims of the Campaign were, to increase community awareness of the potential seriousness of the disease, to encourage measles vaccination, and to control measles in Australia by 1988 with eradication as soon as possible thereafter. The primary target audience of this Campaign was the parents of young children.

States and Territories ran individual programs to promote measles vaccination, with each program and level of funding being approved by the Commonwealth Minister for Community Services and Health.

The Commonwealth Government retained some NCAM funds centrally for national co-ordination activities including a Childhood Immunisation and Infectious Diseases Survey, Measles publicity material and co-sponsorship of the production of an immunisation video - "Goodbye to the Plague".

Childhood Immunisation and Infectious Diseases Survey

The Survey is being conducted in two parts by Professor Bridges-Webb of the University of Sydney. The initial survey using a sentinel general practice network in 1986 (published 1988) established baseline information on the immunisation status of children attending GPs. The follow-up survey (1989) has been completed with data analysis and report writing underway. A comprehensive report scheduled for publication in June will be used nationally to evaluate the outcomes of NCAM.

State/Territory NCAM programs

The following is a summary of various activities and achievements of the States and Territories.

New South Wales

A T-shirt based awareness campaign launched by the health Minister, Measles-Mumps-Rubella (MMR) vaccination publicity and immunisation reminders were effective promotional activities. The establisment of teams of nurses immunising and promoting immunisation in schools, in-service training for health care personnel and improved vaccine distribution achieved considerable success.

Surveys conducted in some NSW regions showed an increase in the number of children presenting for school enrolment with evidence of measles immunisation.

> 'Pre-school entry screening in the North Coast Health Region and New England health Region suggests approximately 95% compliance within the kindergarten population" - Interim Evaluation August 1988.

Victoria

Major promotional activities included the distribution of birthday reminder cards to 80% of 12-month-old children and booklets to health professionals, multilingual immunisation record cards and telephone surveys of all Victorian municipal councils for feedback and evaluation. A measles "catch up" program was provided in 89% of primary schools in order to record the status of individual children, and offer vaccination to those who still needed it.

A significant step in Victoria's immunisation effort was the implementation of legislation requiring proof of immunisation to be produced upon school enrolment from January 1990.

Queensland

In addition to wide coverage of the National "Just One Shot" advertisements on TV and radio, T-shirt distribution, educations through booklets to health professionals, newssheets (Measles Update') and surveys to evaluate strategies were major components of Queensland's campaign. To coincide with the launch of the MMR vaccine, information packages were distributed to all relevant organisations and professionals including medical practitioners.

South Australia

A detailed report of the SA program is included in this issue.

Western Australia

The distribution of "No Spots on Me" T-shirts were a feature of WA's media promotion, which also included television advertisements, publications and posters on measles and rubella.

A five year sentinel schools surveillance program which commenced in 1985 has monitored the immunisation status and vaccine-preventable disease histories of Year One primary school children in Western Australia through a series of annual surveys. Results of this survey have shown that the percentage of Year One primary children immunised against measles increased from 77% in 1985 to 90% in 1989.

Tasmania

The "Just One Shot" media campaign was supported by promotional displays through "Feeling Good" shop fronts, caravans and at shopping centres and school fairs. The Campaign received a high public profile through the use of a press campaign in 1988 and 1989 featuring the Tasmanian Sheffield Shield Cricket Team.

An immunisation survey carried out through Child Health Clinics showed that of 6636 children attending, 4836 (72.8%) were immunised against measles.

Northern Territory

Local regions in the NT organised their own campaigns aimed at the particular needs of their areas. Television, radio and newspaper coverage featured interviews and articles on measles immunisation. School competitions, stickers and T-shirts were also popular with campaign activities specifically targeted at children from different cultural backgrounds.

An approved variation of their NCAM program enabled a special sero-conversion study of 200 Aboriginal children. The report on this study is unavailable as yet.

Australian Capital Territory

The "No Spots on Me" Campaign, T-shirts and measles immunisation were features of a major public awareness program which included the popular Teddy Bears' Immunisation Clinics. Mailed reminders from community nurses also proved effective.

Ongoing evaluation of Campaign activities was carried out through clinic statistics, questionnaires and health surveys. In November 1988, the NCAM co-ordinator reported an average measles immunisation rate of 97% in the 15 months to six years age group.

MEASLES IMMUNISATION CAMPAIGN - SOUTH AUSTRALIA - 1980 - 1989

(Contributed by John Carrangis, Public and Environmental Health Division, South Australian Health Commission).

Measles immunisation levels of children in South Australia over the past ten years have steadily increased from an estimated 50% in 1980 to 89% in 1989 (Table 1). This is the highest level of measles immunisation ever achieved in this state. The incidence of measles is also at its lowest level according to sentinel reports from general practices.

The first significant increase in children's immunisation levels (about 25%) resulted following an extensive statewide media promotion in 1980. Although the increase to 75% cover was rapid (as a direct result of the campaign), it was not sustained.

By 1984 measles immunisation levels had once again fallen to about 65% in metropolitan Adelaide (population 1 million) and 60% in most rural areas. A working paper on priorities for health promotion (produced late in 1985) listed immunisation below smoking control and hypertension control. The South Australian Health Commission appointed an immunisation promotion co-ordinator in 1985 attached to the Communicable Disease Control Unit of the Epidemiology Branch.

The National Campaign Against Measles (NCAM) in South Australia

In 1987 as part of the National Health Promotion Program the Australian Government established a National Campaign Against Measles, due to the falling compliance rates of immunisation, particularly the low levels of measles vaccine uptake throughout Australia. The aims of the campaign were, to increase community awareness of the seriousness of measles, to encourage measles vaccination and to control measles in Australia by 1988 with eradication as soon as possible thereafter. The Australian Government has contributed almost $3 million over the 3 years of the campaign. South Australia has received approximately $120,000 over the 2 already funded years of the campaign. The South Australian Government has also contributed funding for NCAM and for the continuing promotion of all immunisations.

Since 1986 a number of achievements and developments in promoting immunisations have occurred. These have included:

- The training of immunisation service providers commenced in 1986, using the immunisation manual, 'Conducting Immunisation Programs: Immunisation Information for Local Health Authorities' (SA). At that time 75 of the 124 local councils offered comprehensive, regular, accessible immunisation clinics. By the end of 1989, 107 local councils were offering such services.

- In July 1986 measles was declared a notifiable disease.

- Measles incidence was reported at 3.4 cases/reporting doctor/annum in 1986 - Sentinel medical practice reporting scheme. By 1988 the scheme indicated 0.6 measles cases/annum/reporting doctor.

- The CDC Bulletin (Communicable Disease Control) was recommenced in 1987. At that time there were fewer than 200 subscribers. By February 1989 more than 400 subscribers received the Bulletin. The Bulletin, issued 3 to 4 times per annum, seeks to inform readers of infectious disease control developments, emphasising immunisation promotion and provision.

- In February 1987 the NCAM statewide media promotion commenced targeting parents of school-aged children from 5 years of age to Year 12 through schools and the media (newsprint and radio).

- In November 1987, the first local council self completion study of measles immunisation levels of Year 1 students was undertaken; an estimated 81% cover was calculated.

- Following the statewide media promotion an impact assessment was undertaken by a market research company. The results indicated a 91% measles immunisation cover of children aged between 1 - 6 years in 1988. The local council study indicated 87%. (Table 1).

Table 1: Measles Immunisation levels 1980-1989, Year 1 Students, South Australia

Year	Estimated % Measles Cover	Source
1980	50	SAHC
1981	75	SAHC
1983	77.4%	ABS (Nov)
1984	65	SAHC
1986	70	SAHC
1987	81	Local Councils - SAHC
1988	87	Local councils - SAHC
1988	91	Independent Market Research
1989	89	Local Councils

- Since 1987 there have been no hospital admissions for measles to the Adelaide's Children's hospital (Table 2).

- In 1988, more than 50 doctors' surgeries commenced offering vaccines for the first time. The total number now exceeds 800.

- In November 1988, a policy on immunisation for South Australia was prepared, circulated for comment and then revised according to the submissions received. Compulsory immunisation was suggested prior to school entry.

- In May 1989, the Executive of the South Australian Health Commission endorsed the white paper; 'An Immunisation Policy for SA'. Negotiations commenced for implementation of the policy with the 3 education bodies in SA and the Child Adolescent and Family Health Service.

- Development and release of video feature "Goodbye to the Plague - Immunisation"; 460 copies are presently circulating throughout Australia.

- In November 1989, the immunisation schedule recommended by the NH&MRC was altered slightly to use the existing pre-school student health assessment. Instead of CDT and Polio immunisation suggested at 5 years this has been changed to, "from 4 years (prior to school entry)". Full immunisation is promoted at this time.

- In May 1990, the introduction of the pilot school entry-enrolment measles immunisation record is awaiting state ministerial approval before implementation.
- There has been an increase in the levels of uptake of other childhood vaccines as part of promoting measles vaccination.

Approximately 65% of vaccines offered in SA are provided by

nurses and some doctors at local councils, the balance being carried out by doctors, a few Community Health Centres and the Adelaide Children's Hospital.

To maintain high levels of immunisation uptake continued promotion of immunisation is necessary.

CDI Editorial Comment

In Australia at present there is generally a relatively low incidence of the vaccine preventable diseases of childhood, whooping cough, rubella, diphtheria, tetanus, measles and mumps - and this can lead to a complacency regarding immunisation and a lowering of vaccine uptake rates. Adverse publicity due to possible complications of vaccines has also decreased vaccine uptake. Thus has occurred with pertussis vaccine and may have contributed to the major outbreaks of whooping cough in 1986 and late 1989. It is of the utmost importance to maintain a high priority for immunisations programs, particularly the promotional aspects. The Federal Government has provided a further $800,000 in 1989/90 to the States and Territories for the continuing promotion of childhood immunisation.

There are a number of other strategies which will achieve and maintain high levels of immunisation. These include:

- checking of immunisation status at school entry. A number of States/Territories have established this on a voluntary basis at both pre-schools and primary schools and children not having completed the immunisation schedule are offered vaccinations by immunisation clinics at the schools;

- streamlining the collection of immunisation data on a microcomputer based system (Victoria has developed a system which will be available for use by other States/Territories);

- continuing education programs for nurses and general practitioners involved in immunisations, and covering public health issues (including outbreak control and immunisation data collection) as well as general vaccination procedures;

- immediate follow-up of notifications of cases of vaccine preventable diseases by local health personnel to ensure susceptible children are immunised or excluded from school.

The establishment of the National Communicable Disease Surveillance Network will ensure improved co-ordination and development between Commonwealth and State/Territory health authorities to provide better collection and analysis of data on communicable diseases. The Network also aims to develop an immunisation monitoring scheme.

Table 2: Adelaide Children's Hospital Admissions for Measles, 1982-89

DISEASE	YEAR	TOTAL ADMISSIONS	AVERAGE BED STAY	NUMBERS OF CASES IN 3 AGE GROUPS			CASES ADMITTED WITH OTHER CONDITIONS	TYPES OF OTHER CONDITIONS
				<12 MTHS	12 MTHS-5 YRS	>5 YRS		
Measles	1982	20	4.32	10	7	3	6	Asthma, Myringotomy, Gastro-Enteritis, Febrile Convulsions, Lung Disease, Pnemumonia, Otitis Media
	1983	19	4.37	2	10	7	8	Pnemonia, Diabetes, Otitis Media, Asthma
	1984	14	6.07	1	6	7	8	One case involved Burns and Measles 17 bed days, SSPE, Otitis Media, Pneumonia Mycoplasma, Pneumonia
	1985	2	7.00	1	1	-	2	Croup, Gastro
	1986	1	2.00	1	-	-	-	
	1987	-	-	-	-	-	-	
	1988	-	-	-	-	-	-	
	1989	-	-	-	-	-	-	

A CASE OF INFANT BOTULISM

(Contributed by Dr Beryl Wild, Princess Margaret Hospital for Children and Mrs Val Wymer State Health Laboratory Services, Perth)

A previously normal three month old Caucasian breast-fed baby girl was admitted to Princess Margaret Hospital (PMH) Perth on 12 November 1989 with a three day history of becoming progressively more floppy and lethargic, of increasing difficulty in suckling and in swallowing her secretions. Her face had become expressionless, and she had developed a high-pitched cry. For eight days she had not defaecated.

She was referred to PMH by her GP with a provisional diagnosis of meningitis. Examination revealed signs of bulbar palsy, with pooling of secretions and absent gag reflex. She was afebrile and was thought to have a chest infection which was treated with IV antibiotics. Lumbar puncture yielded normal cerebrospinal fluid. Over the next few hours she was observed, and because of worsening bulbar palsy and increasing respiratory difficulty she was transferred to the Intensive Care Unit, arriving just in time to be resuscitated and intubated for respiratory arrest.

Further enquiry revealed that she was the third child, the product of a normal pregnancy and spontaneous vertex delivery. Until this illness she had progressed normally. The infant was entirely breast fed, but the mother sometimes gave her a dummy sweetened with honey.

She had been born in Darwin, but one month previously the family had left there to come to Perth, arriving one week before. They had travelled by road, staying in caravan parks on the way.

PROGRESS AND MANAGEMENT

A clinical diagnosis of infant botulism was made, and following her respiratory arrest she was kept intubated and ventilated for 32 days, and required intermittent urinary catheterisation, and nasogastric feeding. During this time she was given several courses of antibiotics for recurring pulmonary infection and for two catheter-associated urinary infections. She slowly regained muscle tone, and by mid December was capable of breathing unassisted and maintaining 95% oxygen saturation in air.

LABORATORY INVESTIGATION

Electromyography on admission showed myopathic changes consistent with botulism.

Microbiologic investigations were made on a faeces specimen sent to the State Health Laboratories. By injection into mice, a filtrate of 72 hour broth culture was shown to contain a substance which was neutralised by antitoxin to Clostridium botulinum type A but not by antitoxin to other C. botulinum

serotypes. Mice treated with antiserum to C. botulinum type A, and with polyvalent antiserum to C. botulinum survived when they were injected with an extract of the child's faeces as did mice given a heat-treated faeces extract, whereas mice given untreated faecal extract died, as did mice given faecal extract and antiserum to C. botulinum type E.

Faeces culture both at PMH and the State Health Laboratories eventually yielded Clostridium botulinum, but it could not be grown from the tiny amount of honey remaining in the family honey jar. C. botulinum toxin could not be demonstrated in the child's serum.

THE ORGANISM AND TOXIN

The most common form of botulism is an intoxication following ingestion of improperly processed food in which the bacteria have multiplied and produced toxin. Rarely, wounds infected with C. botulinum have been the source of toxin. The first description of infants suffering from botulism was in 1976.

Clostridium botulinum is a strictly anaerobic Gram positive rod-shaped bacterium with a terminal spore. It is widely distributed in soil and marine sediments throughout the world. Seven types are recognised - types A, B, C and E affect humans while disease in other mammals and birds is generally due to types C and D (1), and in fish it is due to type E.

Spores of C. botulinum are very heat resistant. This allows them to remain viable in canned and bottled food when the contents have not been subjected to a sufficiently high temperature for long enough to kill the spores. These later germinate whereupon vegetative forms produce the toxin (which can be destroyed by boiling for 10 minutes).

C. botulinum toxins are amongst the most powerful toxins known. They are large protein molecules which, although differing in chemical composition and antigenicity, appear to have an identical effect by binding to the proximal myoneural junction of cholinergic peripheral and autonomic synapses. This impairs spontaneous release of acetyl choline in response to nerve action potentials, thus blocking neuromuscular transmission. The muscle itself is unaffected and will react to direct stimulation. The abnormality persists for a considerable period. Recovery takes place by development of new terminal axons and neuromuscular junctions. (2)

BOTULISM IN INFANTS

This form of botulism occurs when an infant ingests C. botulinum spores which germinate and multiply in the intestine and form toxin which is absorbed from the gut into the bloodstream. (It is now recognised that the same mechanism causes some adult cases.)
The clinical presentation commences with the onset of constipation, which is followed in one to three weeks by the development over one or two days of increasing limb weakness and hypotonia with noticable loss of head control. There is progressively diminishing ability to suck, swallow, cough and

cry, with marked pooling of secretions. The face becomes immobile and lacks expression, and ptosis and opthalmoplegia are usually present. Respiratory arrest is not uncommon, and botulism has now been recognised as one of the less common causes of sudden infant death syndrome. While the above features are more typical, some infants may be only mildly affected.

The differential diagnosis includes failure to thrive, dehydration, sepsis, poliomyelitis, central nervous system infection or tumour, Gillain-Barre syndrome, diphtheritic and other polyneuritis, and myasthenia gravis. (3)

In the absence of complications the prognosis for full recovery is good. Recovery occurs despite the continuing presence of C.botulinum in the faeces, documented for as long as 158 days after the onset of constipation.

The source of the organism probably vaires, but infant botulism has been associated with the ingestion of honey, and the organism has been isolated from vacuum-cleaner dust and house dust from the homes of known cases.

Older children and adults often ingest C. botulinum spores naturally present on fresh fruit and vegetables and in honey without ill effect. Why the infant intestine is more prone to germination of the spores is unknown, but it might be related to an inadequately developed bowel flora lacking some of the elements antagonistic to C. botulinum.

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CHOLERA IN THE WORLD, 1989

(Based on WER 65:141-148, 11 May 1990)

The number of cholera cases that occurred in the world in 1989, according to notifications received by WHO up to 30 April 1990, was 48,403 compared with 4,083 in 1988 (Table 1 and 2). There was an increase in the number of countries that reported the disease - from 30 in 1988 to 35 in 1989. Two countries reported indigenous cases of cholera for the first time during the

present pandemic: Sao Tome & Principe and Yugoslavia. As in previous years, there was strong evidence that cholera occurred in several countries which failed to declare the disease.

Table 1: World Cholera Situation, 1983 to 1989

	1983	1984	1985	1986	1987	1988	1989
No. of countries reporting cholera	33	35	36	36	34	30	35
No. of new countries infected	-	-	-	1	-	-	2
No. of cases	64061	28893	40510	46473	48507	44083	48403

In Africa, 35 606 cases were reported by 16 countries in 1989, compared with 23 186 cases reported by 12 countries in 1988. A particularly large outbreak, with more severe cases than in previous years, began in Malawi in October 1989; the predominant serotype of Vibrio cholerae 01 was found to be Ogawa, whereas the Inaba serotype had been responsible for past epidemics. Cholera was reported for the first time in 1989 by Sao Tome and Principe, where 3 953 cases occurred. The epidemic in Angola continued to rage, despite seasonal fluctuations, and the total number of cases increased over 1988. While substantial reductions in cases were reported by Rwanda and the United Republic of Tanzania, cholera appeared again in Mozambique, Niger, and Zambia, which had not reported cases in the previous year.

In Asia, a total of 12 785 cases was reported by 12 countries, compared with 20 872 cases in 11 countries in 1988. A further large outbreak was reported by China in May-September 1989 in Xinjiang Autonomous Region where an epidemic had occurred in the same season in 1988; once again, the source was traced to a contaminated water supply. In Japan, the majority of the cases occurred as food-borne outbreaks; these were brought rapidly under control and did not give rise to secondary spread. Cases again appeared in Kuwait, Macao, Myanmar, and Nepal, which did not report cases in 1988.

In Europe, 11 cases, mostly imported, were notified by 6 countries in 1989, compared with 14 cases in 4 countries in 1988. The 2 indigenous cases reported by Yugoslavia were associated with a water-borne epidemic in August-September caused primarily by Shigella sonnei; any further spread of cholera was prevented by strict control action.

Unfortunately, there were several incidents during the year involving hindrances to international traffic and trade, including the unwarranted requirement of a vaccination certificate against cholera.

Table 2: Cases of Cholera Notified to WHO, 1989

Country/Area	Cases
AFRICA	
Algeria	48 *
Angola	17 601
Burundi	94 *
Cameroon	4
Kenya	918 *
Liberia	28
Malawi	8 351
Mauritania	700
Mozambique	371
Niger	166
Nigeria	1 078
Rwanda	1
Sao Tome and Principe	3 953
United Republic of Tanzania	2 150
Zaire	99
Zambia	44
TOTAL	35 606
AMERICAS	
Canada	1 i
TOTAL	1 i
ASIA	
China	6 158
Hong Kong	29 (23i)
India	5 026
Indonesia	67
Japan	99 (37i)
Kuwait	133 i
Macao	3 i
Malaysia	350
Myanmar	597
Nepal	141
Singapore	39
Viet Nam	143
TOTAL	12 785 (196i)
EUROPE	
France	1 i
Germany, Federal Republic of	1 i
Norway	1 i
Spain	3 (2i)
United Kingdom	1 i
Yugoslavia	4 (2i)
TOTAL	11 (8i)
WORLD TOTAL	48 403 (205i)

* *Incomplete figures*

i Imported cases

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE
VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES
BASED ON DATE OF REPORTING

PERIOD 10/05/90 TO 23/05/90

1. CODE 018 - MICROBIOL DIAG UNIT, UNI MELB (VIC)
2. CODE 019 - FAIRFIELD HOSP (VIC)
3. CODE 065 - STATE HEALTH LAB (WA)
4. CODE 066 - PRINCESS MARGARET HOSP (WA)
5. CODE 110 - INST OF MED & VET SCIENCE (SA)
6. CODE 111 - ROYAL CHILDRENS HOSP (VIC)
7. CODE 112 - INST CLINICAL PATH & MED RES (NSW)
8. CODE 113 - PRINCE HENRY/PRINCE OF WALES HOSP (NSW)
9. CODE 114 - ROYAL ALEXAND RA CHILDRENS HOSP (NSW)
10. CODE 115 - STATE HEALTH LAB (QLD)
11. CODE 116 - WODEN VALLEY HOSP (ACT)
12. CODE RHH - ROYAL HOBART HOSP (TAS)

		018	019	065	066	110	111	113	114	115	116	RHH	TOTAL
0100	ADENOVIRUS NOT TYPED	0	1	0	7	2	0	0	1	0	0	0	11
0101	ADENOVIRUS TYPE 1	0	0	0	0	0	3	0	0	0	0	0	3
0102	ADENOVIRUS TYPE 2	0	0	0	0	0	9	0	0	0	0	0	9
0103	ADENOVIRUS TYPE 3	0	2	0	0	1	3	0	0	0	0	0	6
0104	ADENOVIRUS TYPE 4	0	0	0	0	0	4	0	0	0	0	0	4
0105	ADENOVIRUS TYPE 5	0	1	0	0	0	0	0	0	0	0	0	1
0106	ADENOVIRUS TYPE 6	0	0	0	0	0	1	0	0	0	0	0	1
0107	ADENOVIRUS TYPE 7	0	0	0	0	0	1	0	0	0	0	0	1
0108	ADENOVIRUS TYPE 8	0	0	0	0	0	1	1	0	0	0	0	2
0145	ADENOVIRUS TYPE 45	0	1	0	0	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	0	0	0	0	1	0	2	0	0	0	3
0201	INFLUENZA A VIRUS	0	0	0	0	0	0	7	0	0	0	0	7
0203	INFLUENZA B VIRUS	0	0	0	0	1	0	2	0	0	0	0	3
0301	PARAINFLUENZA VIRUS TYPE 1	0	1	0	1	62	16	0	7	0	0	0	87
0302	PARAINFLUENZA VIRUS TYPE 2	0	2	0	0	0	4	0	0	0	0	0	6
0303	PARAINFLUENZA VIRUS TYPE 3	0	1	0	0	0	2	0	0	0	0	0	3
0399	PARAINFLUENZA VIRUS TYPING PEN	0	0	0	0	0	8	0	0	0	0	0	8
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	8	0	5	0	13	8	28	0	0	0	62
0500	RHINOVIRUS (ALL TYPES)	0	9	1	0	0	6	0	0	0	0	0	16
0600	MYCOPLASMA PNEUMONIAE	0	3	3	0	5	2	0	0	0	0	0	13
0700	ORNITHOSIS-PSITTACOSIS	0	2	0	0	1	0	0	0	0	0	0	3
0816	COXSACKIEVIRUS A16	0	0	0	0	0	0	0	0	0	1	0	1
0903	COXSACKIEVIRUS B3	0	0	0	0	0	1	0	0	0	0	0	1
0905	COXSACKIEVIRUS B5	0	0	0	0	0	1	0	0	0	0	0	1
1009	ECHOVIRUS TYPE 9	0	0	0	0	0	1	0	1	0	0	0	2
1011	ECHOVIRUS TYPE 11	0	0	0	0	0	2	0	0	0	0	0	2
1018	ECHOVIRUS TYPE 18	0	0	0	0	0	1	0	0	0	0	0	1
1030	ECHOVIRUS TYPE 30	0	0	0	0	0	1	0	0	0	0	0	1
1100	POLIOVIRUS NOT TYPED	0	0	0	0	0	4	1	0	0	0	0	5
1101	POLIOVIRUS TYPE 1	0	1	0	0	0	0	0	0	0	0	0	1
1102	POLIOVIRUS TYPE 2	0	0	0	0	0	0	0	1	0	0	0	1
1103	POLIOVIRUS TYPE 3	0	0	0	0	0	0	1	0	0	0	0	1
1200	MUMPS VIRUS	0	0	0	0	0	1	3	0	0	0	0	4
1300	HERPES VIRUS GROUP - NOT TYPED	0	1	1	0	0	0	4	0	0	3	0	9
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	0	0	0	0	0	0	0	0	15	0	15
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	2	5	0	4	2	1	0	0	0	0	14
1303	VARICELLA-ZOSTER VIRUS	0	3	8	0	0	0	4	0	0	0	0	15
1306	HERPES SIMPLEX TYPE 1	0	40	11	0	17	0	0	0	1	3	0	72
1307	HERPES SIMPLEX TYPE 2	0	51	28	0	14	0	0	0	1	0	1	95
1399	HERPES VIRUS TYPING PENDING	0	0	0	0	0	3	0	0	0	0	0	3
1401	COXIELLA BURNETII	0	5	0	0	1	1	2	0	0	0	0	9
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	9	0	0	0	6	1	0	0	0	17
1522	RUBELLA VIRUS	0	3	1	0	1	0	0	0	0	0	0	5
1532	HEPATITIS B ANTIGEN	0	19	43	0	29	0	5	1	0	1	3	101
1535	HEPATITIS A ANTIBODY	0	1	2	0	18	0	0	0	0	0	0	21
1541	CHLAMYDIA A - C. TRACHOMATIS	8	0	80	0	58	0	5	0	17	14	8	190
1555	PAPOVAVIRUS GROUP (PAPILLOMA -	0	0	0	0	0	0	2	0	0	0	0	2
1556	CMV - CYTOMEGALOVIRUS	0	30	5	2	3	7	5	4	0	1	1	58
1564	ROTAVIRUS	0	0	2	13	0	0	1	0	0	0	1	17
1570	ENTEROVIRUS TYPE 70	0	0	0	0	0	0	2	0	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	0	0	0	0	0	6	10	4	0	0	0	20
9992	ROSS RIVER VIRUS	0	0	4	0	1	0	0	0	0	0	0	5
9994	SMALL VIRUS (LIKE) PARTICLE	0	1	0	0	0	0	0	1	0	0	0	2
TOTAL		8	188	203	29	218	105	70	51	19	38	14	943

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES BY STATE OF CONTRIBUTING LABORATORY

PERIOD 10/05/90 TO 23/05/90

NSW: ICPMR; PHH POW; RACH; ST GEORGE HOSP, KOGARAH; ROYAL NEWCASTLE HOSP.
VIC: FAIRFIELD; RCH; MDU, UNI MELB
QLD: STATE LAB, BRIS; TOOWOOMBA PATH LAB; ROYAL BRIS HOSP.
WA: STATE LAB, PERTH; PMH.
SA: IMVS.
TAS: ROYAL HOBART HOSP; DIAGNOSTIC SERVICES, LAUNCESTON; LAUNCESTON GEN HOSP; DIAGNOSTIC SERVICES, HOBART; HOBART PATH; MERSEY GEN HOSP, LATROBE.
ACT: WVH.

		NSW	VIC	QLD	WA	SA	TAS	ACT	TOTAL
0100	ADENOVIRUS NOT TYPED	1	1	0	7	2	0	0	11
0101	ADENOVIRUS TYPE 1	0	3	0	0	0	0	0	3
0102	ADENOVIRUS TYPE 2	0	9	0	0	0	0	0	9
0103	ADENOVIRUS TYPE 3	0	5	0	0	1	0	0	6
0104	ADENOVIRUS TYPE 4	0	4	0	0	0	0	0	4
0105	ADENOVIRUS TYPE 5	0	1	0	0	0	0	0	1
0106	ADENOVIRUS TYPE 6	0	1	0	0	0	0	0	1
0107	ADENOVIRUS TYPE 7	0	1	0	0	0	0	0	1
0108	ADENOVIRUS TYPE 8	1	1	0	0	0	0	0	2
0145	ADENOVIRUS TYPE 45	0	1	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	2	1	0	0	0	0	0	3
0201	INFLUENZA A VIRUS	7	0	0	0	0	0	0	7
0203	INFLUENZA B VIRUS	2	0	0	0	1	0	0	3
0301	PARAINFLUENZA VIRUS TYPE 1	7	17	0	1	62	0	0	87
0302	PARAINFLUENZA VIRUS TYPE 2	0	6	0	0	0	0	0	6
0303	PARAINFLUENZA VIRUS TYPE 3	0	3	0	0	0	0	0	3
0399	PARAINFLUENZA VIRUS TYPING PEN	0	8	0	0	0	0	0	8
0400	RESPIRATORY SYNCYTIAL VIRUS (R	36	21	0	5	0	0	0	62
0500	RHINOVIRUS (ALL TYPES)	0	15	0	1	0	0	0	16
0600	MYCOPLASMA PNEUMONIAE	0	5	0	3	5	0	0	13
0700	ORNITHOSIS-PSITTACOSIS	0	2	0	0	1	0	0	3
0816	COXSACKIEVIRUS A16	0	0	0	0	0	0	1	1
0903	COXSACKIEVIRUS B3	0	1	0	0	0	0	0	1
0905	COXSACKIEVIRUS B5	0	1	0	0	0	0	0	1
1009	ECHOVIRUS TYPE 9	1	1	0	0	0	0	0	2
1011	ECHOVIRUS TYPE 11	0	2	0	0	0	0	0	2
1018	ECHOVIRUS TYPE 18	0	1	0	0	0	0	0	1
1030	ECHOVIRUS TYPE 30	0	1	0	0	0	0	0	1
1100	POLIOVIRUS NOT TYPED	1	4	0	0	0	0	0	5
1101	POLIOVIRUS TYPE 1	0	1	0	0	0	0	0	1
1102	POLIOVIRUS TYPE 2	1	0	0	0	0	0	0	1
1103	POLIOVIRUS TYPE 3	1	0	0	0	0	0	0	1
1200	MUMPS VIRUS	3	1	0	0	0	0	0	4
1300	HERPES VIRUS GROUP - NOT TYPED	4	1	0	1	0	0	3	9
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	0	0	0	0	0	15	15
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	1	4	0	5	4	0	0	14
1303	VARICELLA-ZOSTER VIRUS	4	3	0	8	0	0	0	15
1306	HERPES SIMPLEX TYPE 1	0	40	1	11	17	0	3	72
1307	HERPES SIMPLEX TYPE 2	0	51	1	28	14	1	0	95
1399	HERPES VIRUS TYPING PENDING	0	3	0	0	0	0	0	3
1401	COXIELLA BURNETII	2	6	0	0	1	0	0	9
1502	PICORNIA VIRUS - NOT TYPED = E	7	0	0	10	0	0	0	17
1522	RUBELLA VIRUS	0	3	0	1	1	0	0	5
1532	HEPATITIS B ANTIGEN	6	19	0	43	29	3	1	101
1535	HEPATITIS A ANTIBODY	0	1	0	2	18	0	0	21
1541	CHLAMYDIA A - C. TRACHOMATIS	5	8	17	80	58	8	14	190
1555	PAPOVAVIRUS GROUP (PAPILLOMA -	2	0	0	0	0	0	0	2
1556	CMV - CYTOMEGALOVIRUS	9	37	0	7	3	1	1	58
1564	ROTAVIRUS	1	0	0	15	0	1	0	17
1570	ENTEROVIRUS TYPE 70	2	0	0	0	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	14	6	0	0	0	0	0	20
9992	ROSS RIVER VIRUS	0	0	0	4	1	0	0	5
9994	SMALL VIRUS (LIKE) PARTICLE	1	1	0	0	0	0	0	2
TOTAL		121	301	19	232	218	14	38	943

NOTE: DIRECT COMPARISION BETWEEN STATES IS NOT POSSIBLE SINCE:
- SOME STATES HAVE MORE THAN ONE CONTRIBUTING LABORATORY; AND
- INTERSTATE REFERRRALS OCCUR REGULARLY.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 1

PERIOD 10/05/90 TO 23/05/90

1. CODE 00, 99 ..... - NO ILL OR DATA
2. CODE 01, 02, 11, 12 - RESPIRATORY
3. CODE E3 ..... - ENCEPHALITIS
4. CODE M3 ..... - MENINGITIS
5. CODE 04 ..... - PARALYSIS
6. CODE 05, 13 ..... - CNS OTHER UNSPEC
7. CODE 07, 49 - GASTRO INTESTINAL
8. CODE 17, 47 - HEPATIC
9. CODE 19 ... - CVS
10. CODE 89 ... - URINARY TRACCT
11. CODE 06 ... - SKIN MUCOUS

		1	2	3	4	6	7	8	9	10	11	TOTAL
0100	ADENOVIRUS NOT TYPED	1	2	0	0	0	6	0	0	0	0	9
0101	ADENOVIRUS TYPE 1	0	3	0	0	0	0	0	0	0	0	3
0102	ADENOVIRUS TYPE 2	0	6	0	2	0	0	0	0	0	0	8
0103	ADENOVIRUS TYPE 3	0	4	0	0	0	1	0	0	0	0	5
0104	ADENOVIRUS TYPE 4	0	2	0	0	0	0	0	0	0	0	2
0105	ADENOVIRUS TYPE 5	0	0	0	0	0	0	0	0	0	1	1
0106	ADENOVIRUS TYPE 6	0	1	0	0	0	0	0	0	0	0	1
0107	ADENOVIRUS TYPE 7	0	1	0	0	0	0	0	0	0	0	1
0108	ADENOVIRUS TYPE 8	0	1	0	0	0	0	0	0	0	0	1
0145	ADENOVIRUS TYPE 45	0	0	0	0	0	1	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	2	0	0	0	0	0	0	0	0	2
0201	INFLUENZA A VIRUS	2	4	0	0	0	0	0	0	0	0	6
0203	INFLUENZA B VIRUS	0	3	0	0	0	0	0	0	0	0	3
0301	PARAINFLUENZA VIRUS TYPE 1	3	78	0	0	0	0	0	0	0	0	81
0302	PARAINFLUENZA VIRUS TYPE 2	0	6	0	0	0	0	0	0	0	0	6
0303	PARAINFLUENZA VIRUS TYPE 3	0	3	0	0	0	0	0	0	0	0	3
0399	PARAINFLUENZA VIRUS TYPING PEN	0	8	0	0	0	0	0	0	0	0	8
0400	RESPIRATORY SYNCYTIAL VIRUS (R	1	58	0	0	0	0	0	0	0	0	59
0500	RHINOVIRUS (ALL TYPES)	1	14	0	0	0	0	0	0	0	0	15
0600	MYCOPLASMA PNEUMONIAE	1	10	0	0	0	0	1	0	0	0	12
0700	ORNITHOSIS-PSITTACOSIS	0	3	0	0	0	0	0	0	0	0	3
0816	COXSACKIEVIRUS A16	0	0	0	0	0	0	0	0	0	1	1
0903	COXSACKIEVIRUS B3	0	0	1	0	0	0	0	0	0	0	1
0905	COXSACKIEVIRUS B5	0	0	0	1	0	0	0	0	0	0	1
1011	ECHOVIRUS TYPE 11	0	2	0	0	0	0	0	0	0	0	2
1018	ECHOVIRUS TYPE 18	0	1	0	0	0	0	0	0	0	0	1
1030	ECHOVIRUS TYPE 30	0	1	0	0	0	0	0	0	0	0	1
1100	POLIOVIRUS NOT TYPED	0	1	0	2	0	1	0	0	0	0	4
1101	POLIOVIRUS TYPE 1	0	1	0	0	0	0	0	0	0	0	1
1102	POLIOVIRUS TYPE 2	0	1	0	0	0	0	0	0	0	0	1
1103	POLIOVIRUS TYPE 3	0	0	0	0	0	1	0	0	0	0	1
1200	MUMPS VIRUS	2	0	0	0	0	0	0	0	0	0	2
1300	HERPES VIRUS GROUP - NOT TYPED	1	0	0	0	0	0	0	0	1	3	5
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	1	0	0	0	0	0	0	0	7	8
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	1	0	0	1	0	0	2	0	0	0	4
1303	VARICELLA-ZOSTER VIRUS	3	1	0	0	0	0	0	0	0	9	13
1306	HERPES SIMPLEX TYPE 1	0	7	0	0	0	0	0	0	0	32	39
1307	HERPES SIMPLEX TYPE 2	1	0	0	0	0	0	0	0	0	28	29
1399	HERPES VIRUS TYPING PENDING	0	0	0	0	0	0	0	0	0	3	3
1401	COXIELLA BURNETII	0	1	0	0	0	0	0	0	0	0	1
1502	PICORNIA VIRUS - NOT TYPED = E	2	0	0	1	1	8	0	0	0	4	16
1522	RUBELLA VIRUS	1	0	0	0	0	0	0	0	0	0	1
1532	HEPATITIS B ANTIGEN	49	0	0	0	0	0	14	1	0	0	64
1535	HEPATITIS A ANTIBODY	0	0	0	0	0	0	18	0	0	0	18
1541	CHLAMYDIA A - C. TRACHOMATIS	7	0	0	0	0	0	0	0	0	0	7
1555	PAPOVAVIRUS GROUP (PAPILLOMA -	0	0	0	0	0	0	0	0	1	0	1
1556	CMV - CYTOMEGALOVIRUS	2	13	0	1	0	2	2	0	1	1	22
1564	ROTAVIRUS	0	0	0	0	0	17	0	0	0	0	17
1570	ENTEROVIRUS TYPE 70	0	0	0	2	0	0	0	0	0	0	2
1599	ENTEROVIRUS TYPING PENDING	1	7	0	1	1	9	0	0	0	0	19
9992	ROSS RIVER VIRUS	0	0	0	0	0	0	0	0	0	1	1
9994	SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	2	0	0	0	0	2
TOTAL		79	246	1	11	2	48	37	1	3	90	518

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2

PERIOD 10/05/90 TO 23/05/90

12. CODE 10 - EYE
13. CODE 59 - GENITAL
14. CODE 39 - ENDOCRINE/SALIVARY GL.
15. CODE 38 - RETICULO-ENDOTHELIAL
16. CODE 29 - MUSCLE/JOINT
17. CODE 69 - CONGENTIAL
18. CODE P8 - PUO
19. CODE G8 - FEVER/MALAISE
20. CODE 09 - OTHER
21. CODE A1 - SIDS

		12	13	14	15	16	17	18	19	20	TOTAL
0100	ADENOVIRUS NOT TYPED	1	0	0	0	0	0	0	0	1	2
0102	ADENOVIRUS TYPE 2	0	0	0	0	0	0	0	1	0	1
0103	ADENOVIRUS TYPE 3	1	0	0	0	0	0	0	0	0	1
0104	ADENOVIRUS TYPE 4	0	0	0	0	0	0	0	2	0	2
0108	ADENOVIRUS TYPE 8	1	0	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	0	0	0	0	0	0	1	0	1
0201	INFLUENZA A VIRUS	0	0	0	0	0	0	0	1	0	1
0301	PARAINFLUENZA VIRUS TYPE 1	0	0	0	0	0	0	0	6	0	6
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	0	0	0	0	0	1	0	2	3
0500	RHINOVIRUS (ALL TYPES)	0	0	0	0	0	0	0	0	1	1
0600	MYCOPLASMA PNEUMONIAE	0	0	0	0	0	0	0	1	0	1
1009	ECHOVIRUS TYPE 9	0	0	0	0	0	0	0	1	1	2
1100	POLIOVIRUS NOT TYPED	0	0	0	0	0	0	0	1	0	1
1200	MUMPS VIRUS	0	0	0	0	1	0	0	0	1	2
1300	HERPES VIRUS GROUP - NOT TYPED	0	3	0	0	0	0	0	0	1	4
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	6	0	0	0	0	0	0	1	7
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	0	2	0	0	0	3	1	4	10
1303	VARICELLA-ZOSTER VIRUS	0	0	0	0	0	0	0	0	2	2
1306	HERPES SIMPLEX TYPE 1	4	24	0	0	0	0	1	0	4	33
1307	HERPES SIMPLEX TYPE 2	0	65	0	0	0	0	0	0	1	66
1401	COXIELLA BURNETII	0	0	0	0	0	0	6	0	2	8
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	0	0	0	0	0	0	1	1
1522	RUBELLA VIRUS	0	0	0	0	0	1	0	0	3	4
1532	HEPATITIS B ANTIGEN	0	0	0	0	0	0	0	1	36	37
1535	HEPATITIS A ANTIBODY	0	0	0	0	0	0	0	1	2	3
1541	CHLAMYDIA A - C. TRACHOMATIS	3	177	0	0	0	0	0	0	3	183
1555	PAPOVAVIRUS GROUP (PAPILLOMA -	0	0	0	0	0	0	0	1	0	1
1556	CMV - CYTOMEGALOVIRUS	3	0	1	2	0	5	0	2	23	36
1599	ENTEROVIRUS TYPING PENDING	0	0	0	0	0	0	0	1	0	1
9992	ROSS RIVER VIRUS	0	0	0	0	4	0	0	0	0	4
TOTAL		13	275	3	2	5	6	11	21	89	425