ISSN 0725 - 3141

Communicable Diseases Intelligence

Bulletin number Vol 15/No. 4
Issue date: 25 February 1991

Contents:

Editor Dr Robert Hall

OVERSEAS BRIEFS

1. CHOLERA IN PERU

The Ministry of Health has reported an outbreak of cholera which began on 31 January 1991 on the north coast of the country (Chimbote, Ancash Department and Chancay, Lima Department). As of 9 February a total of 7089 cases with 49 fatalities and 1425 hospitalisations had been reported. Preliminary results of tests on four isolates indicate *Vibrio cholerae* 01 Eltor Inaba as the causative agent. Contaminated shell fish has been reported as a likely source of infection. Unconfirmed outbreaks have also been reported in Moquegua, Piura and Tacna Departments. Travellers are reminded that cholera vaccination is not recommended as a measure for prevention or control of the disease and precautions regarding food and drinking water are the most effective measures which can be taken. Pakistan and Pitcairn are the only country and territory still officially requiring a cholera vaccination certificate from travellers arriving from infected areas.

2. DENGUE IN TRINIDAD AND TOBAGO

Dengue continues to occur in Trinidad and Tobago and at the end of October 1990 a total of 3475 cases had been diagnosed (471 of which had been laboratory confirmed). No fatalities have been reported. In addtion to dengue type 2 which predominates and type 1 which has reappeared for the first time since 1985, dengue type 4 has now also been detected for the first time since 1984. These 3 serotypes were also isolated during the outbreak in Venezuela in 1989 when deaths from dengue haemorrhagic fever occurred.

- The Bulletin is compiled and distributed by the Communicable Diseases Section, Communicable Diseases and Social Health Branch, Telephone: (062) 89 1555, Department of Community Services and Health.
- Contributions are solicited, and do not preclude later publication elsewhere.

- Figures given may be subject to revision.

3. YELLOW FEVER IN NIGER

Six cases of presumptive yellow fever have been reported by district health centres in the southern part of the country. These cases occurred in February and April 1990 and have not been laboratory investigated.

Travellers to Niger are reminded that yellow fever vaccination is obligatory for entry into the country.

PREVALENCE OF N MENINGITIDIS CARRIAGE IN THE KATANNING AREA

(M Stevens, J Gill, C Watson, Disease Control Branch, Health Department of Western Australia)

A survey to detect the prevalence of nasopharyngeal carriage of meningococci in the population of the Katanning region was instigated following an increase in the rate of invasive group C meningococcal disease during the period November 1989 to August 1990. In this time there were 7 cases from Katanning and the surrounding area (rate 47/100,000), two of which were fatal.

There were no reported cases of invasive group C meningococcal disease during the preceding year in this locality.

Background

The first four of these cases occurred between November 1989 and February 1990, and were reported in CDI 90/5 in March. In February, vaccination was provided for all children aged from 2 to 13 who were resident in the Katanning, Kent and Woodanilling shires and attending a school, preschool or playgroup.

A second cluster of three cases in the area was reported in CDI 90/20 in August.

Following this second cluster, vaccination was offered to all children between 18 months and 2 years of age, as two of the cases were children younger than the vaccination age.

Aim of the survey

The aim of the survey was to assess the prevalence of serogroups of *Neisseria meningitidis* in the population of Katanning and surrounding districts, and to identify any geographic or demographic pattern to this carriage.

Survey design

School children in upper primary school (aged 10-12) and in secondary school (aged 14-18) were screened by having a single throat swab taken by the community nurse attending their school.

Eight towns with a primary and/or secondary school were selected on the basis of their direct road link to Katanning. Due to the larger population of Katanning itself, three schools in Katanning were selected for sampling.

It was proposed to collect samples from two classes in each school, with random selection from this group to result in the culturing of swabs from approximately 1% of the town's population. However, parental consent was not given in all cases and this reduced the number of children sampled. The sample size of 1-2% of the area's population was still achieved, although fewer members of minority racial groups were sampled than anticipated.

Sampling was conducted on three consecutive Mondays, starting on Monday 3rd September. Throat swabs were collected by community nurses from three schools on each day of sampling, and placed into Transbact transport medium. Swabs were taken immediately to the microbiology laboratory at Katanning District Hospital for plating out and incubation. The longest time delay in transporting specimens to the laboratory was four hours.

Positive plates were transported to Perth for colony identification and subculture.

Children sampled

The total number of swabs cultured was 282. The towns in which the children were sampled and the percentage of the town's population they represent are presented in Table 1.

Table 1. Sample sizes of school children selected for *N meningitidis* survey at Katanning and surrounding towns.

TOWN	POPULATION* OF STATISTICAL AREA	NUMBER SAMPLED	PERCENTAGE
Wagin	2206	20	0.9%
Katanning	4885	118	2.4%
Kojonup	2479	20	0.8%
Gnowangerup	2179	18	0.8%
Broomehill	608	18	3.0%
Tambellup	849	20	2.3%
Dumbleyung	1021	38	3.7%
Nyabing	972	30	3.1%

* Estimated resident population by age and sex in statistical local area; Australian Bureau of Statistics, 30 June 1988.

Results

Of the 282 samples, there was one isolation of Group C *N meningitidis*. There were 9 isolates of ungroupable *N meningitidis* and 25 isolates of *Neisseria lactamica*.

The overall prevalence of carriage of *N meningitidis* was 3.5%, with group C accounting for only 0.3%. A further 8.9% of children carried *N lactamica*.

Group C meningococcus: Was isolated from a high school child living in Katanning who had not been previously vaccinated. The prevalence of carriers of group C meningococcus is too low to be able to infer associations between invasive group C disease and any geographic or demographic factors.

Meningococcus-ungroupable: There were 9 of these isolates from five different towns in the region. The low numbers of isolates again preclude any inferences of demographic or geographic occurrence being drawn.

The 9 isolates were distributed throughout the region. Details are provided in Table 2.

Neisseria lactamica: The 25 isolates of *N lactamica* indicate that the laboratory technique was sufficiently sensitive to detect any Neisseria should they have been present on the swab. The isolates of *N lactamica* were widely scattered throughout the region.

Discussion

Multiple factors are involved in the development of invasive meningococcal disease. These factors are related to prevalence and transmission of the infective agent, adequacy of host defences, and characteristics of the organism itself.

Only one potential risk factor (prevalence of the infective agent) for the continuation of the outbreak has been explored by this survey. As it is the rate of acquisition of the organism in the population that seems to be important in the development of invasive disease, the interpretation of point prevalence is limited.

The prevalence of group C meningococcal carriage in the population was 0.3%, with an overall prevalence of meningococcal carriage of 3.5%. This is substantially

Table 2. Distribution of ungroupable meningococcus isolates.

TOWN	NUMBER OF ISOLATES	CHILD'S AGE	PREVIOUS VACCINATION
Wagin	1	15	N
Katanning	1	12	Y
	1	15	N
	1	17	N
Tambellup	1	12	N
Gnowangerup	nil		
Nyabing	1	10	Y
	1	11	Y
Broomehill	nil		
Dumbleyung	1	14	N
	1	11	UNKNOWN
Kojonup	nil		

lower than that seen in England during an outbreak of serogroup B15 meningococcus (12.6% of the population of schoolchildren carried meningococcus, and 1.5% carried the outbreak strain).

It is also lower than the prevalence of carriage detected during an outbreak of group A meningococcus in 1987 in an aboriginal community in the NW of WA. The prevalence of group A meningococcus, assessed by single throat swab was 27%-30%.

Prevalence of the outbreak serogroup in the community is not reliably related to the incidence of invasive disease. It may, however, indicate if subgroups of the community have higher carriage and should be specifically targeted in a vaccination programme.

Ungroupable meningococci are regarded as potential pathogens, retaining the ability to develop a capsule and increase their pathogenicity in response to unknown stimuli (upper respiratory tract infections have been proposed).

Along with *N lactamica,* meningococci in the nasopharynx have a role in the development of immunity by exposing the host to the outer membrane protein and so stimulating the development of IgA, IgG and IgM antibodies. The 8.8% prevalence of *N lactamica* in the population is similar to that reported from previous overseas studies.

Conclusion

The aim of the study was to assess prevalence of carriers of group C meningococcus, as well as any demographic and geographic characteristics. The prevalence of group C meningococcus was unexpectedly low and a much larger sample would be required to explore other variables.

AUSTRALIAN SALMONELLA REFERENCE LABORATORY, MONTHLY REPORTS; OCTOBER, NOVEMBER 1990

(Produced by the ASRL, Institute of Medical and Veterinary Science, South Australia)

OCTOBER

1,091 cultures were typed at the Salmonella Reference Laboratory during October.

Origin of the cultures was as follows:

NSW	NT	QLD	SA	TAS	VIC	WA	ACT	Malaysia	Singapore
406	41	319	185	10	104	8	1	1	16

Salmonella enteritidis - Phage Typing

The Australian Salmonella Reference Laboratory now routinely phage types isolates of Salmonella enteritidis using the international phage set.

This typing has been set up in response to the international concern with egg-borne Salmonella enteritidis infections. These egg-borne infections have not been found in Australia. This may be related to our strict quarantine controlling the import of animal products. A summary of the first phage typing results appears below.

Phage Type	Source	NSW	NT	QLD	SA	ACT
4	Human Food (in flight meal prepared in France)	2		3	3	
13a	Human (from India)			1		
14	Human			3	1	
Untypable	Human Avian Horse meat	1		12 3 1	1	1

Three isolates from overseas sources were:

Phage Type	Source	Country
8	Chicken	Singapore
22	Chicken	Singapore
RDNC	Human	Malaysia

The high proportion of untypable phage types is of note and indicates that strains in the human population in Australia are different from the major strains seen in the UK, Europe and USA, which type with this phage typing scheme.

Phage type 4 is the type causing concern in the UK, however low numbers have occurred in Australia in past years. (For further information on Salmonella enteritidis in Australia, refer to our August 1988, May 1989 and May 1990 reports).

Serotypes of interest in October's report:

Salmonella putten - FIRST RECORDED ISOLATE IN AUSTRALIA

An isolate of this serotype was received from New South Wales. The isolate was from a snow leopard, which had recently arrived at an Australian zoo after shipment from a zoo in the USA.

Salmonella arechavaleta

There has been a further isolate of this rare serotype from a marine sewage outfall in New South Wales - the third recorded this year. In addition, there were 9 isolates from raw meat mix in South Australia, all from the same source. This is the first time we have recorded Salmonella arechavaleta from raw meats. We have not recorded a human isolate since 1978.

Salmonella bardo

There was one isolate from faeces of an infant boy in South Australia. This is the first time we have seen this serotype from a human source in Australia. We have recorded only three previous isolates of Salmonella bardo, all from reptiles. These were one in each of 1978, 1984 and 1986.

Salmonella brunei

There was one isolate from a 27 year old man in New South Wales. This serotype is rare in Australia. The last human isolate was in 1986. An isolate from imported scallops in Western Australia was mentioned in our August 1990 report.

Salmonella kalamu

The first recording of this serotype in Australia was noted in our March 1990 report. In this month's report we record an isolate from New South Wales. This was from an environmental source, as were the March isolates.

Salmonella typhi (j:z$_{66}$phase)

Two isolates are recorded in this month's report, one from blood culture of a 60 year old man in Victoria, who had recently returned from Indonesia, the other one from blood culture of a 43 year old man in New South Wales, also acquired overseas.

Salmonella virginia

There were two isolates of this rare serotype, one from a 29 year old man in Queensland and one from macadamia nuts in New South Wales. This is the first time we have recorded this serotype in Australia from a source other than human.

South Australian Notifications

Thirty eight human cases of salmonellosis were notified in South Australia during October. This represents a monthly case rate of 2.73 per 100,000 population.

NOVEMBER

1,112 cultures were typed during November.

Origin of the cultures was as follows:

NSW	NT	QLD	SA	TAS	VIC	WA	ACT	Malaysia	Singapore
433	42	288	139	12	44	45	3	11	95

Serotypes of interest in November's report:

Salmonella amsterdam

Three isolates were received from hommous in New South Wales. This serotype is rare in Australia. We have recorded only 4 human isolates, 1 in 1969 and 3 in 1988. Other previous isolates have all been from sewage effluent, 2 in 1973 and 2 in 1989.

Salmonella london

There was one isolate in South Australia, from a 19 year old woman who had just returned from Bali. This is the fourth human isolated we have recorded this year. The last human isolate before that was in 1986.

Salmonella london var 15+ (formerly Salmonella Portsmouth)

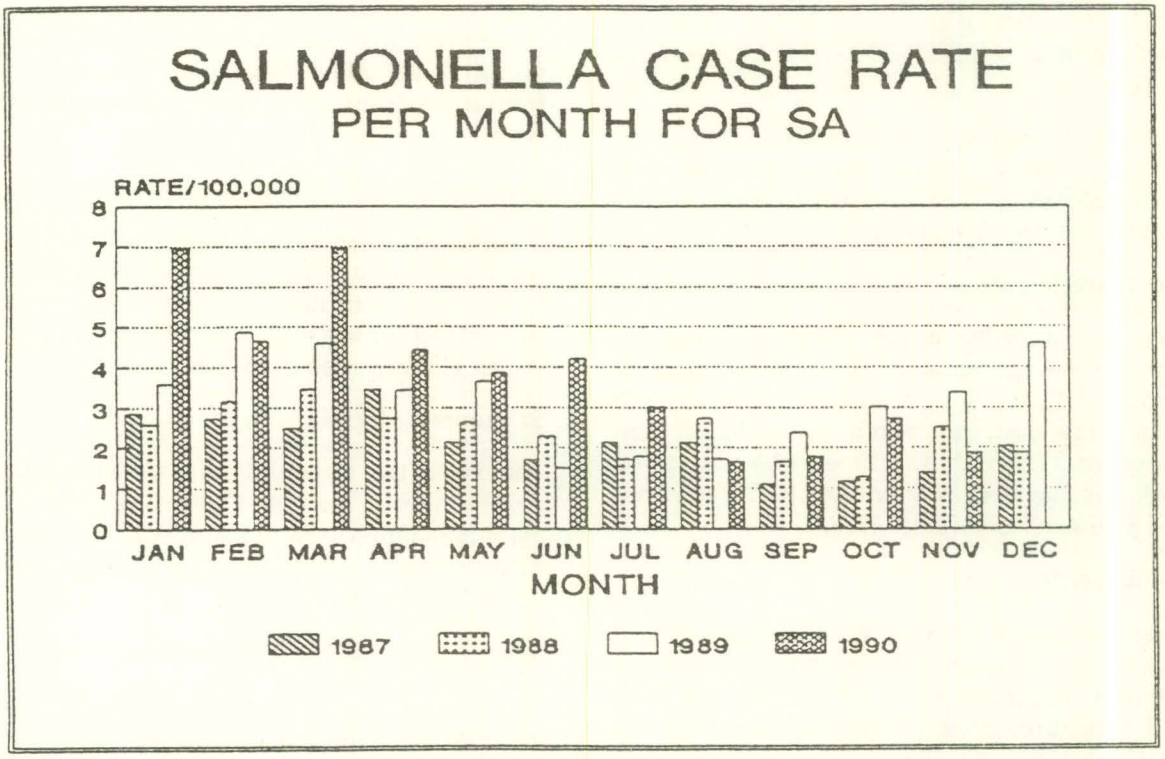
This phage-converted form of S london is rare in Australia. In this month's report we record one isolate from a 71 year old man in New South Wales. This is the second human isolate we have recorded this year. Before that, we have seen only 2 previous isolates, 1 from a human source in 1981 and 1 from sewage effluent in 1985.

Salmonella typhi (j:z66phase)

Isolates were received from blood and faeces of a 37 year old man in South Australia, who had recently arrived from England.

South Australian Notifications:

Twenty six human cases of salmonellosis were notified in South Australia during November. This represents a monthly case rate of 1.87 per 100,000 population.



POULTRY AND EGG SALMONELLOSIS

(Based on WER 1990;38:293-294)

A number of countries have recently experienced a new situation with the emergence of Salmonella enteritidis as a major salmonella serotype involved in food-borne disease in man. These cases are unique in that the food vehicle frequently implicated is eggs.

From the epidemiological point of view it is important to stress that this egg association may be due to the fact that S enteritidis (together with S typhimurium) being more invasive than other serotypes, may enter eggs before the shell is formed. The most likely mechanism for this is either ovarian infection or ascending oviduct contamination.

Evidence to date indicates that the incidence of this mode of transmission is rare and very difficult to detect.

However, the enormous number of eggs produced for human consumption and the way eggs are used make even this low incidence significant.

In breeding flocks, this aspect of infection increases the possibility of transmission from generation to generation over and above the common route found with other Salmonella serotypes, via shell contamination and penetration. This vertical transmission is amplified within the hatcheries and rearing farms where other chickens become infected with the salmonella organism.

It appears that poultry may become contaminated with S enteritidis via other routes of infection such as feed, water, vermin, birds, insects and the environment, although this happens less than with other serotypes (eg S typhimurium).

There are at present 33 recognised phage types (PT) of S enteritidis. Almost all of the increase in England and Wales is due to PT4. In the United States of America, PT4 is not present as yet. To date, PT7, 8, 9, 9b, 13a and 23 have been identified in that country. The domestic cases of salmonellosis in Sweden are due to PT1 or 8, while infections acquired abroad are due to PT4.

The latest research results with S enteritidis reveal that this serovar has a relatively high, but not unusual, resistance to heat. The time needed to kill 90% of the bacteria at 55°C in homogenised whole egg (D-value) is about 6 minutes, ie more than for S typhimurium, but less than for S senftenberg.

S enteritidis could survive in eggs boiled for 4 minutes (under experimental conditions). When inocula of only 1000 cells of S enteritidis PT4 per egg yolk were tested, survival after 7 minutes of boiling could be observed. In addition, when eggs were inoculated with only 10 S enteritidis PT4 cells per egg yolk, within 2 days at room temperature they had multiplied to over 1000 million per egg yolk (10^9).

To control the problem of salmonella at the poultry farm, it is necessary to recognise clearly all the feasible epidemiological pathways and possibilities to remove reservoirs and sources of infection.

UPDATE: ST. LOUIS ENCEPHALITIS - FLORIDA AND TEXAS, 1990

(Based on MMWR 1990;39[42]756-759)

In July 1990, active surveillance of national arboviral transmission patterns indicated that outbreaks of St. Louis encephalitis (SLE) might occur in Florida and Houston and Harris County, Texas [1]. Subsequently, a cluster of cases was reported from central Florida, and sporadic cases were recognised in Harris County[1,2]. This report updates surveillance for SLE in these locations.

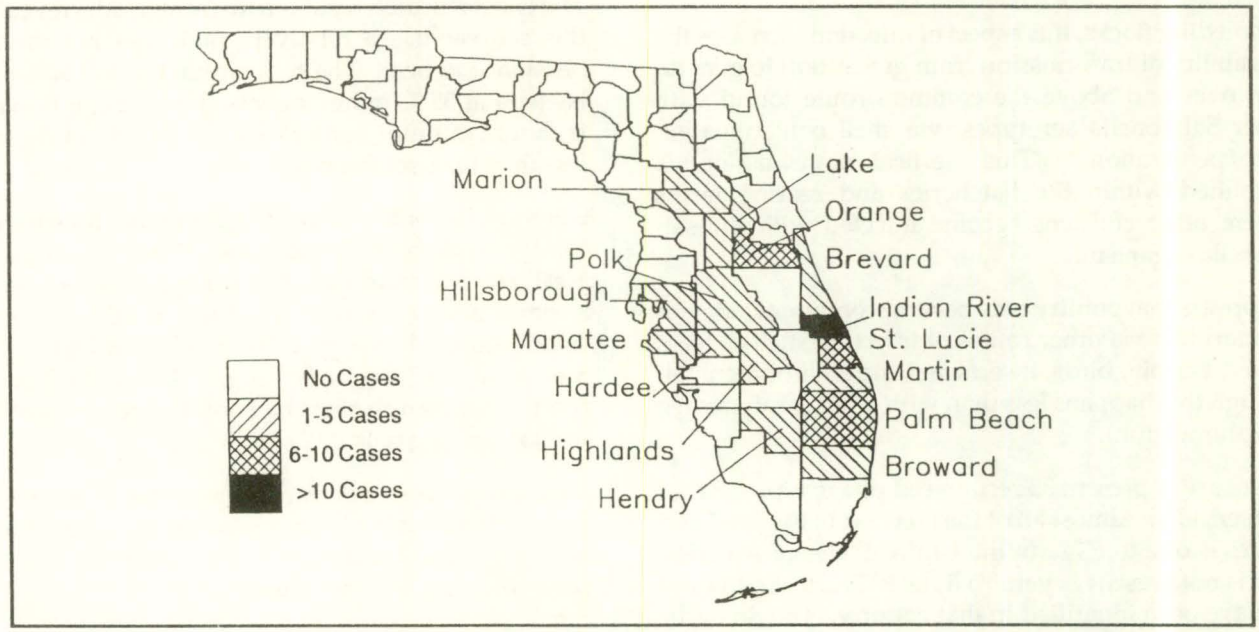
Florida

As of October 17, 1990, 38 confirmed and 26 presumptive cases of SLE had been reported to the Florida Department of Health and Rehabilitative Services. Onset of illness occurred from July 28 to October 3, 1990. Two patients have died, one with confirmed and one with presumptive SLE. All persons with confirmed and presumptive cases resided in 15 central and south Florida counties (Figure 1); Indian River County reported 17 confirmed and presumptive cases (27% of all reported cases). Patients ranged in age from 14 to 91 years (mean: 53 years); of the 61 patients for whom sex was known, 33 (54%) were male. The affected counties have maintained programs of larviciding and aerial and ground-based adulticiding for control of *Culex nigripalpus*, the principal mosquito vector of SLE in Florida. Residents of and visitors to affected counties have been cautioned to continue use of personal protective measures against mosquitoes. In some affected counties, evening recreational activities have been rescheduled to daylight hours.

Texas

In 1990, mosquitoes infected with SLE virus were detected in Houston and surrounding Harris County on June 19, almost 1 month earlier than in previous epidemic years and at higher levels than usual[1]. In non-epidemic years, surveillance of mosquito vectors and intermediate avian hosts has shown that viral transmission occurs at lower levels or is absent. Active surveillance for possible SLE cases was initiated through weekly contacts with infection-control personnel at all county hospitals. Surveillance was also facilitated by increasing public awareness through mailings and announcements to the local medical community and through the mass media. On September 7, two cases of SLE were reported; since then, 10 additional cases have been confirmed serologically[1]. The onset dates of illness of confirmed or presumptive cases ranged from July 20 through to September 10.

Figure 1. Confirmed and presumptive cases of St. Louis encephalitis, by county - Florida, as of October 17, 1990



All 12 patients were residents of Harris County: six cases occurred in residents of Houston; five cases, Baytown; and one, Humble. Patients ranged in age from 17 to 86 years (median; 39 years); 11 patients were hospitalised. Two infected patients died, but the causes of death have not yet been established.

Mosquito surveillance and control activities have been intensified throughout Harris County, especially in areas reporting human cases and in areas where infected mosquitoes were found. No infected mosquitoes have been detected since September 26.

MMWR Editorial Note: The possibility that SLE outbreaks might occur in central Florida and Harris County, Texas, was predicted in July[1] when rising seroconversion rates were detected in vector mosquitoes in Harris County. Although the sensitivity and specificity of these approaches to predicting outbreaks have not been proven rigorously, observations in 1990 and previous experience suggest that measures of viral activity in nature can be used to indicate risk for human disease[1].

In Florida, arboviral surveillance has relied chiefly on monitoring of viral transmission to sentinel chickens[3,4]. Seroconversions in chickens in central Florida in June and July 1990 were unprecedented in their early appearance and their proportions, approaching 100% at some sites[1]. In previous years, seroconversions in chickens in central Florida did not peak until September and October, and the proportion of infected sentinels never exceeded 25%[3,4].

SLE is transmitted in Florida principally by *Cx nigripalpus*, a predominantly exophilic (outdoor biting) mosquito found throughout central and south Florida. Feeding activity is most intense at night, especially at dusk and dawn. Although vector control is an important means of decreasing transmission of SLE to humans, personal protective measures are also important. These practices include avoiding night-time outdoor activity in affected counties, especially at dusk and dawn; for persons who cannot avoid outdoor activity during these periods, wearing long-sleeved shirts and long pants of tightly woven material and applying mosquito repellents are recommended.

In Harris County, where a program of mosquito surveillance has been maintained for 24 years, elevated SLE viral infection rates in *Cx quinquefasciatus* have been associated geographically and temporally with the occurrence of human cases. In 1986, when 24 cases were reported from Baytown and four cases were reported from Houston, increased mosquito infection rates were observed in both areas in the 2-week period preceding the onset of the first case in the respective areas. Cases occurred only in areas where infected mosquitoes were captured[5] (D. Sprenger, Houston-Harris County Mosquito Control District, personal communication, 1990).

The geographic specificity of vector surveillance was shown again in 1989 when infected mosquitoes were detected within 1 mile of the residences of each of the four patients (D. Sprenger, personal communication, 1990). In systematic collections elsewhere in the county

in both 1986 and 1989, infection rates were either lower or zero (D. Sprenger, personal communication, 1990). Through to October 17, 1990, the widespread distribution of infected mosquitoes has correlated with the distribution of human cases in extended areas of the city and county.

In Harris County and throughout the southeastern United States, *Cx quinquefastciatus*, the southern house mosquito, is the principal vector of SLE. In contrast to *Cx nigripalpus*, which feeds in various outdoor locations, *Cx quinquefasciatus* is a highly domesticated species and may feed indoors and outdoors. The risk of acquiring the disease has been epidemiologically associated with inadequately screened residences; conversely, air-conditioned residences, especially residences with central air-conditioning units, were protective in two studies[2,6].

In both central Florida and Harris County, the risk for further epidemic transmission should decline as the activity of vector mosquitoes diminishes with cooling temperatures.

References

1. CDC. Arboviral surveillance - United States, 1990. *MMWR* 1990;39:593-8.

2. CDC. Update: arboviral surveillance - Florida, 1990. *MMWR* 1990;39:650-1.

3. Day JF. The use of sentinel chickens for arbovirus surveillance in Florida. *Journal of the Florida Anti-Mosquito Association* 1989;60:56-61.

4. Monath TP, Tsai TF. St. Louis encephalitis: lessons from the past decade. *Am J Trop Med Hyg* 1987;37:S40-59.

5. Tsai TF, Canfield MA, Reed CM, et al. Epidemiologic aspects of a St. Louis encephalitis outbreak in Harris County, Texas, 1986. *J Infect Dis* 1988;157:351-6.

6. Henderson BE, Pigford CA, Work T, Wende RD. Serologic survey for St. Louis encephalitis and other group B arbovirus antibodies in residents of Houston, Texas. *Am J Epidemiol* 1970;91:87-98.

CDI REPORTING SCHEME

VIRUSES, CHLAMYDIAS, COXIELLAS, RICKETTSIAS AND MYCOPLASMAS REPORTS

Herpes Simplex virus type II was detected by culture and immunofluorescence in a deceased 10 day old neonate. The neonate was delivered at 37 weeks gestation and developed lethargy, jaundice and poor feeding at 6 days of age. The child subsequently developed bronchopneumonia, seizures and progressive liver failure. Virus was detected in post mortem specimens of lung, liver and kidney. Acyclovir had been administered to the child at age 7 days.

CDI Editorial Comment

Studies of neonatal HSV estimate occurence between 1 in 2,500 and 1 in 10,000. Incidence at the Royal Womens' Hospital Melbourne over the period 1982-1988 was 1/8,400. The risk of transmission is higher with primary HSV infection than recurrent disease. The virus may be acquired by retrograde spread of genital infection, intrapartum or postpartum. Rarely disease is transplacental with primary infection. Congenital infection may present with skin vesicles, jaundice, microcephaly, seizures and hepatosplenomegaly. Neonatal infection appears days to weeks after birth and may mimic other causes of neonatal sepsis. The absence of vesicles makes diagnosis difficult.

Q fever was reported on 6 occasions (1 female, 1 male, 2 unstated). Ages ranged from 26 to 79 and no exposure details were provided.

An outbreak of **measles** has been reported from Darwin. A follow-up of two recent serologically confirmed cases has pointed to an outbreak in a Darwin high school. To date 27 cases have been detected and all were in the age range of 10½ to 16 years. Preliminary infectigations have revealed that the majority of cases were not vaccinated. Secondary cases have been found in siblings of some original cases the outbreak appears to have begun with the start of the 1991 school year.

NON-VIRAL PATHOGEN REPORTS

Dr Peter Collignon (Infectious Diseases Unit, Royal Canberra Hospital South) has provided the following details of a recent **tetanus** case.

A 72 year old independent and active lady, who had been taking intermittent low dose prochlorperazine maleate, was diagnosed at Bega Hospital as having tetanus after developing trismus and then multiple extensor spasms over 12 hours. She was transferred paralysed and sedated to Royal Canberra Hospital South where she has been treated with continuing sedation (morphine plus midazolam), ongoing muscle

paralysis and ventilation. She also received penicillin therapy and human anti-tetanus globulin.

Initially (when only trismus was present) a possible reaction to prochlorperazine was considered as the cause of her illness. With the subsequent development of extensor spasms and labile autonomic dysfunction, tetanus was firmly established as the diagnosis.

The origin of her illness was not clear. She had a number of mildly inflammed venous ulcers on each leg. There was no history of trauma. Her immunisation status to tetanus was vague, it is unlikely that she had received tetanus toxoid for at least ten years.

***Neisseria meningitidis* serogroup C** isolated in blood cultures from a child (age group 5-14 yrs) in Hobart.

***Haemophilus influenzae*:**

isolated in the cerebrospinal fluid of a 3 month old child in Toowomba.

isolated in the blood culture of a child (age group 1-12 mths) in Rockhampton.

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES
BASED ON DATE OF REPORTING

PERIOD 30/01/91 TO 12/02/91

CODE 019 - FAIRFIELD HOSPITAL, MELBOURNE (VIC)
CODE 065 - STATE HEALTH LABORATORY SERVICES, PERTH (WA)
CODE 110 - INSTITUTE OF MEDICAL & VETERINARY SCIENCE, ADELAIDE (SA)
CODE 111 - ROYAL CHIDLDRENS HOSPITAL, MELBOURNE (VIC)
CODE 112 - INSTITUTE OF CLINICAL PATHOLOGY & MEDICAL RESEARCH, WESTMEAD (NSW)
CODE 113 - PRINCE HENRY/PRINCE OF WALES HOSPITALS, SYDNEY (NSW)
CODE 114 - ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, CAMPERDOWN (NSW)
CODE 115 - STATE HEALTH LABORATORY, BRISBANE (QLD)
CODE 116 - WODEN VALLEY HOSPITAL, GARRAN (ACT)

		019	065	110	111	112	113	114	115	116	TOTAL
0100	ADENOVIRUS NOT TYPED	1	4	0	4	3	3	0	7	0	22
0101	ADENOVIRUS TYPE 1	1	0	0	7	0	0	0	0	0	8
0102	ADENOVIRUS TYPE 2	1	0	0	10	0	0	0	0	0	11
0103	ADENOVIRUS TYPE 3	1	0	0	0	1	0	0	0	0	2
0104	ADENOVIRUS TYPE 4	3	0	0	0	1	0	0	0	0	4
0105	ADENOVIRUS TYPE 5	0	0	0	0	1	0	0	0	0	1
0106	ADENOVIRUS TYPE 6	0	0	0	2	0	0	0	0	0	2
0126	ADENOVIRUS TYPE 26	2	0	0	0	0	0	0	0	0	2
0144	ADENOVIRUS TYPE 44	1	0	0	0	0	0	0	0	0	1
0147	ADENOVIRUS TYPE 47	1	0	0	0	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	0	0	4	0	1	0	0	0	5
0201	INFLUENZA A VIRUS	1	0	0	0	0	0	1	0	0	2
0203	INFLUENZA B VIRUS	0	0	0	0	1	0	0	0	0	1
0301	PARAINFLUENZA VIRUS TYPE 1	0	0	0	1	1	0	0	0	0	2
0303	PARAINFLUENZA VIRUS TYPE 3	1	3	0	3	1	0	1	0	0	9
0400	RESPIRATORY SYNCYTIAL VIRUS (R	1	1	0	1	0	1	1	1	0	6
0500	RHINOVIRUS (ALL TYPES)	6	0	0	3	0	0	0	0	0	9
0600	MYCOPLASMA PNEUMONIAE	5	1	0	4	4	0	0	0	0	14
0700	ORNITHOSIS-PSITTACOSIS	3	0	0	0	0	0	0	0	0	3
0809	COXSACKIEVIRUS A9	0	0	0	0	5	0	0	0	0	5
0902	COXSACKIEVIRUS B2	0	0	0	1	0	0	0	0	0	1
0903	COXSACKIEVIRUS B3	0	0	0	1	1	0	0	0	0	2
0904	COXSACKIEVIRUS B4	2	0	0	18	0	0	0	0	0	20
1011	ECHOVIRUS TYPE 11	0	0	0	1	0	0	1	0	0	2
1022	ECHOVIRUS TYPE 22	0	0	0	0	2	0	0	0	0	2
1100	POLIOVIRUS NOT TYPED	0	0	0	3	0	4	0	0	0	7
1101	POLIOVIRUS TYPE 1	0	0	0	0	1	0	0	0	0	1
1102	POLIOVIRUS TYPE 2	2	0	0	0	0	0	0	0	0	2
1200	MUMPS VIRUS	0	0	0	0	1	0	0	0	0	1
1300	HERPES VIRUS GROUP - NOT TYPED	0	0	0	0	0	0	0	0	19	19
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	1	0	0	16	0	3	0	0	20
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	7	12	0	3	17	0	0	0	0	39
1303	VARICELLA-ZOSTER VIRUS	10	9	0	0	3	0	0	2	0	24
1306	HERPES SIMPLEX TYPE 1	53	46	1	37	5	9	0	42	0	193
1307	HERPES SIMPLEX TYPE 2	40	55	3	1	12	10	0	24	1	146
1399	HERPES VIRUS TYPING PENDING	5	0	0	1	0	0	0	0	0	6
1401	COXIELLA BURNETII	2	0	0	0	4	0	0	0	0	6
1502	PICORNIA VIRUS - NOT TYPED = E	1	10	0	0	1	11	0	3	0	26
1521	MEASLES VIRUS	10	0	0	1	2	0	0	0	1	14
1522	RUBELLA VIRUS	4	0	0	0	3	0	0	0	0	7
1532	HEPATITIS B ANTIGEN	11	42	2	1	35	3	0	54	1	149
1535	HEPATITIS A ANTIBODY	1	11	1	0	1	0	0	2	0	16
1536	HEPATITIS C VIRUS	0	12	0	0	0	0	0	0	0	12
1537	HEPATITIS, DELTA	0	1	0	0	0	0	0	0	0	1
1541	CHLAMYDIA A - C. TRACHOMATIS	0	50	2	0	17	0	1	4	9	83
1556	CMV - CYTOMEGALOVIRUS	27	3	0	6	10	0	1	21	1	69
1562	REOVIRUS (ALL TYPES)	0	0	0	0	1	0	0	0	0	1
1564	ROTAVIRUS	1	0	0	4	0	2	1	0	0	8
1599	ENTEROVIRUS TYPING PENDING	0	0	0	2	0	12	3	0	0	17
9992	ROSS RIVER VIRUS	38	1	0	0	4	1	0	0	0	44
9994	SMALL VIRUS (LIKE) PARTICLE	1	0	0	0	0	0	0	0	0	1
TOTAL		243	262	9	119	154	57	13	160	32	1049

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES BY STATE OF CONTRIBUTING LABORATORY

PERIOD 30/01/91 TO 12/02/91

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; DR TB LYNCH, PATHOLOGIST, ROCKHAMPTON.
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	ACT	TOTAL
0100	ADENOVIRUS NOT TYPED	6	5	7	4	0	0	22
0101	ADENOVIRUS TYPE 1	0	8	0	0	0	0	8
0102	ADENOVIRUS TYPE 2	0	11	0	0	0	0	11
0103	ADENOVIRUS TYPE 3	1	1	0	0	0	0	2
0104	ADENOVIRUS TYPE 4	1	3	0	0	0	0	4
0105	ADENOVIRUS TYPE 5	1	0	0	0	0	0	1
0106	ADENOVIRUS TYPE 6	0	2	0	0	0	0	2
0126	ADENOVIRUS TYPE 26	0	2	0	0	0	0	2
0144	ADENOVIRUS TYPE 44	0	1	0	0	0	0	1
0147	ADENOVIRUS TYPE 47	0	1	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	1	4	0	0	0	0	5
0201	INFLUENZA A VIRUS	1	1	0	0	0	0	2
0203	INFLUENZA B VIRUS	1	0	0	0	0	0	1
0301	PARAINFLUENZA VIRUS TYPE 1	1	1	0	0	0	0	2
0303	PARAINFLUENZA VIRUS TYPE 3	2	4	0	3	0	0	9
0400	RESPIRATORY SYNCYTIAL VIRUS (R	2	2	1	1	0	0	6
0500	RHINOVIRUS (ALL TYPES)	0	9	0	0	0	0	9
0600	MYCOPLASMA PNEUMONIAE	4	9	0	1	0	0	14
0700	ORNITHOSIS-PSITTACOSIS	0	3	0	0	0	0	3
0809	COXSACKIEVIRUS A9	5	0	0	0	0	0	5
0902	COXSACKIEVIRUS B2	0	1	0	0	0	0	1
0903	COXSACKIEVIRUS B3	1	1	0	0	0	0	2
0904	COXSACKIEVIRUS B4	0	20	0	0	0	0	20
1011	ECHOVIRUS TYPE 11	1	1	0	0	0	0	2
1022	ECHOVIRUS TYPE 22	2	0	0	0	0	0	2
1100	POLIOVIRUS NOT TYPED	4	3	0	0	0	0	7
1101	POLIOVIRUS TYPE 1	1	0	0	0	0	0	1
1102	POLIOVIRUS TYPE 2	0	2	0	0	0	0	2
1200	MUMPS VIRUS	1	0	0	0	0	0	1
1300	HERPES VIRUS GROUP - NOT TYPED	0	0	0	0	0	19	19
1301	HERPES SIMPLEX VIRUS - NOT TYP	19	0	0	1	0	0	20
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	17	10	0	12	0	0	39
1303	VARICELLA-ZOSTER VIRUS	3	10	2	9	0	0	24
1306	HERPES SIMPLEX TYPE 1	14	90	42	46	1	0	193
1307	HERPES SIMPLEX TYPE 2	22	41	24	55	3	1	146
1399	HERPES VIRUS TYPING PENDING	0	6	0	0	0	0	6
1401	COXIELLA BURNETII	4	2	0	0	0	0	6
1502	PICORNIA VIRUS - NOT TYPED = E	12	1	3	10	0	0	26
1521	MEASLES VIRUS	2	11	0	0	0	1	14
1522	RUBELLA VIRUS	3	4	0	0	0	0	7
1532	HEPATITIS B ANTIGEN	38	12	54	42	2	1	149
1535	HEPATITIS A ANTIBODY	1	1	2	11	1	0	16
1536	HEPATITIS C VIRUS	0	0	0	12	0	0	12
1537	HEPATITIS, DELTA	0	0	0	1	0	0	1
1541	CHLAMYDIA A - C. TRACHOMATIS	18	0	4	50	2	9	83
1556	CMV - CYTOMEGALOVIRUS	11	33	21	3	0	1	69
1562	REOVIRUS (ALL TYPES)	1	0	0	0	0	0	1
1564	ROTAVIRUS	3	5	0	0	0	0	8
1599	ENTEROVIRUS TYPING PENDING	15	2	0	0	0	0	17
9992	ROSS RIVER VIRUS	5	38	0	1	0	0	44
9994	SMALL VIRUS (LIKE) PARTICLE	0	1	0	0	0	0	1
TOTAL		224	362	160	262	9	32	1049

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 30/01/91 TO 12/02/91

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	10	11	TOTAL
0100	ADENOVIRUS NOT TYPED	0	6	0	0	0	10	0	0	0	16
0101	ADENOVIRUS TYPE 1	0	5	0	0	0	0	0	0	0	5
0102	ADENOVIRUS TYPE 2	1	7	0	0	0	1	0	0	0	9
0103	ADENOVIRUS TYPE 3	0	1	0	0	0	0	0	0	0	1
0104	ADENOVIRUS TYPE 4	0	3	0	0	0	0	0	0	0	3
0105	ADENOVIRUS TYPE 5	0	0	0	0	0	1	0	0	0	1
0106	ADENOVIRUS TYPE 6	0	1	0	0	0	0	0	0	0	1
0126	ADENOVIRUS TYPE 26	0	0	0	0	0	1	0	0	1	2
0144	ADENOVIRUS TYPE 44	0	0	0	0	0	1	0	0	0	1
0147	ADENOVIRUS TYPE 47	0	0	0	0	0	1	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	0	5	0	0	0	0	0	0	0	5
0201	INFLUENZA A VIRUS	0	1	1	0	0	0	0	0	0	2
0203	INFLUENZA B VIRUS	0	1	0	0	0	0	0	0	0	1
0301	PARAINFLUENZA VIRUS TYPE 1	0	2	0	0	0	0	0	0	0	2
0303	PARAINFLUENZA VIRUS TYPE 3	0	8	0	0	0	0	0	0	0	8
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	6	0	0	0	0	0	0	0	6
0500	RHINOVIRUS (ALL TYPES)	0	8	0	0	0	0	0	0	0	8
0600	MYCOPLASMA PNEUMONIAE	3	9	0	0	0	0	0	0	0	12
0700	ORNITHOSIS-PSITTACOSIS	2	1	0	0	0	0	0	0	0	3
0809	COXSACKIEVIRUS A9	0	0	0	2	0	1	0	0	0	3
0903	COXSACKIEVIRUS B3	0	0	0	0	0	1	0	0	1	2
0904	COXSACKIEVIRUS B4	0	9	0	2	0	0	0	0	0	11
1011	ECHOVIRUS TYPE 11	0	1	0	1	0	0	0	0	0	2
1022	ECHOVIRUS TYPE 22	1	1	0	0	0	0	0	0	0	2
1100	POLIOVIRUS NOT TYPED	0	2	0	0	0	4	0	0	0	6
1101	POLIOVIRUS TYPE 1	1	0	0	0	0	0	0	0	0	1
1102	POLIOVIRUS TYPE 2	0	1	0	1	0	0	0	0	0	2
1200	MUMPS VIRUS	0	1	0	0	0	0	0	0	0	1
1300	HERPES VIRUS GROUP - NOT TYPED	0	1	0	0	0	0	0	0	10	11
1301	HERPES SIMPLEX VIRUS - NOT TYP	4	1	0	0	0	0	0	0	11	16
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	13	5	0	0	0	0	7	0	0	25
1303	VARICELLA-ZOSTER VIRUS	3	0	0	0	1	0	0	1	17	22
1306	HERPES SIMPLEX TYPE 1	5	21	0	0	0	0	2	0	126	154
1307	HERPES SIMPLEX TYPE 2	0	0	0	0	0	0	2	0	68	70
1399	HERPES VIRUS TYPING PENDING	1	0	0	0	0	0	0	0	1	2
1401	COXIELLA BURNETII	2	1	0	0	0	0	0	0	0	3
1502	PICORNIA VIRUS - NOT TYPED = E	0	4	0	1	0	17	0	0	2	24
1521	MEASLES VIRUS	3	0	0	0	0	0	0	0	8	11
1522	RUBELLA VIRUS	1	0	0	0	0	0	0	0	0	1
1532	HEPATITIS B ANTIGEN	63	0	0	0	0	0	83	0	0	146
1535	HEPATITIS A ANTIBODY	1	0	0	0	0	1	14	0	0	16
1536	HEPATITIS C VIRUS	9	0	0	0	0	0	3	0	0	12
1537	HEPATITIS, DELTA	1	0	0	0	0	0	0	0	0	1
1541	CHLAMYDIA A - C. TRACHOMATIS	10	2	0	0	0	0	0	0	0	12
1556	CMV - CYTOMEGALOVIRUS	4	15	1	0	0	1	3	10	0	34
1562	REOVIRUS (ALL TYPES)	0	0	0	0	0	1	0	0	0	1
1564	ROTAVIRUS	0	0	0	0	0	8	0	0	0	8
1599	ENTEROVIRUS TYPING PENDING	0	3	2	0	0	10	0	0	0	15
9992	ROSS RIVER VIRUS	14	1	0	0	0	0	0	0	9	24
9994	SMALL VIRUS (LIKE) PARTICLE	0	0	0	0	0	1	0	0	0	1
TOTAL		142	133	4	7	1	60	114	11	254	726

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2

PERIOD 30/01/91 TO 12/02/91

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	18	19	20	TOTAL
0100	ADENOVIRUS NOT TYPED	4	0	0	0	0	0	1	0	5
0101	ADENOVIRUS TYPE 1	0	0	0	0	0	0	3	0	3
0102	ADENOVIRUS TYPE 2	0	0	0	0	0	2	0	0	2
0103	ADENOVIRUS TYPE 3	1	0	0	0	0	0	0	0	1
0104	ADENOVIRUS TYPE 4	1	0	0	0	0	0	0	0	1
0106	ADENOVIRUS TYPE 6	0	0	0	0	0	1	0	0	1
0303	PARAINFLUENZA VIRUS TYPE 3	0	0	1	0	0	0	0	0	1
0500	RHINOVIRUS (ALL TYPES)	0	0	0	0	0	0	1	0	1
0600	MYCOPLASMA PNEUMONIAE	0	0	0	0	0	0	1	1	2
0809	COXSACKIEVIRUS A9	0	0	0	0	0	1	0	1	2
0902	COXSACKIEVIRUS B2	0	0	0	0	0	0	1	0	1
0904	COXSACKIEVIRUS B4	0	0	0	0	0	4	5	0	9
1100	POLIOVIRUS NOT TYPED	0	0	0	0	0	0	1	0	1
1300	HERPES VIRUS GROUP - NOT TYPED	0	8	0	0	0	0	0	0	8
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	4	0	0	0	0	0	0	4
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	0	4	2	0	3	2	3	14
1303	VARICELLA-ZOSTER VIRUS	0	0	0	0	0	0	0	2	2
1306	HERPES SIMPLEX TYPE 1	5	27	0	0	1	0	3	3	39
1307	HERPES SIMPLEX TYPE 2	0	76	0	0	0	0	0	0	76
1399	HERPES VIRUS TYPING PENDING	0	3	0	0	0	0	0	1	4
1401	COXIELLA BURNETII	0	0	0	0	0	1	2	0	3
1502	PICORNIA VIRUS - NOT TYPED = E	1	0	0	0	0	0	1	0	2
1521	MEASLES VIRUS	0	0	0	0	0	0	2	1	3
1522	RUBELLA VIRUS	0	0	0	1	1	0	0	4	6
1532	HEPATITIS B ANTIGEN	0	0	0	0	0	0	0	3	3
1541	CHLAMYDIA A - C. TRACHOMATIS	4	67	0	0	0	0	0	0	71
1556	CMV - CYTOMEGALOVIRUS	0	5	0	1	0	2	3	23	34
1599	ENTEROVIRUS TYPING PENDING	0	0	0	0	0	0	2	0	2
9992	ROSS RIVER VIRUS	0	0	0	0	18	0	1	1	20
TOTAL		16	190	5	4	20	14	29	43	321