Additional reports

Australian encephalitis: Sentinel Chicken Surveillance Programme

Sentinel chicken flocks are used to monitor flaivirus activity in Australia. The main viruses of concern are Murray Valley encephalitis (MVE) and Kunjin. MVE virus causes the disease Murray Valley encephalitis (formerly known as Australian encephalitis), a potentially fatal disease in humans. Encephalitis is less frequent in cases of Kunjin virus infection and these encephalitis cases have a lower rate of severe sequelae. Currently, 30 flocks are maintained in the north of Western Australia, 9 in the Northern Territory, 10 in New South Wales and 10 in Victoria. Two additional flocks will be set up in northern Queensland (at Mt Isa and Normanton) early in 2002. The flocks in Western Australia and the Northern Territory are tested all year round but those in New South Wales, Victoria and Queensland are tested only in the summer months, during the main MVE risk season.

Results are coordinated by the Arbovirus Laboratory in Perth and reported bimonthly. For more information see Commun Dis Intell 2002;26:57.

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November/December 2001

Sentinel chicken serology was carried out for 28 of the 29 flocks in Western Australia in November and December 2001. There were 2 confirmed seroconversions (1 MVE and 1 flavivirus) from Kununurra in the north-east Kimberley. There were also 2 seroconversions (1 MVE and 1 MVE/Kunjin) from Fitzroy Crossing, one MVE from Derby and one MVE from Broome (all sites in the West Kimberley) in December but these have yet to be confirmed.

Serum samples from six of the nine Northern Territory sentinel chicken flocks were tested at the University of Western Australia in November and December 2001. There was one seroconversion to MVE virus in the Katherine chickens in November.

The sentinel chicken programs in New South Wales and Victoria commenced in November 2001. There have been no flavivirus seroconversions reported in November or December 2001.

The State and Territory Health Departments provide funding for the sentinel chicken surveillance programs in Western Australia, the Northern Territory, New South Wales and Victoria.

Editor's note: This is the last Sentinel Chicken Surveillance Programme bi-monthly report to be published in Communicable Diseases Intelligence. From 2002 a Sentinel Chicken Surveillance Programme annual report will be published in Communicable Diseases Intelligence and future bimonthly reports will be published on the Communicable Diseases Australia Website at: http://www.health.gov.au.

Gonococcal surveillance

John Tapsall, The Prince of Wales Hospital, Randwick, NSW, 2031 for the Australian Gonococcal Surveillance Programme.

The Australian Gonococcal Surveillance Programme (AGSP) reference laboratories in the various States and Territories report data on sensitivity to an agreed 'core' group of antimicrobial agents quarterly. The antibiotics currently routinely surveyed are penicillin, ceftriaxone, ciprofloxacin and spectinomycin, all of which are administered as single dose regimens and currently used in Australia to treat gonorrhoea. When in vitro resistance to a recommended agent is demonstrated in 5 per cent or more of isolates from a general population, it is usual to remove that agent from the list of recommended treatment.[1] Additional data are also provided on other antibiotics from time to time. At present all laboratories also test isolates for the presence of high level (plasmid-mediated) resistance to the tetracyclines, known as TRNG. Tetracyclines are however, not a recommended therapy for gonorrhoea in Australia. Comparability of data is achieved by means of a standardised system of testing and a program-specific quality assurance process. Because of the substantial geographic differences in susceptibility patterns in Australia, regional as well as aggregated data are presented.

Reporting period 1 July to 30 September 2001

The AGSP laboratories examined a total of 913 isolates in this quarter. Another 16 strains were

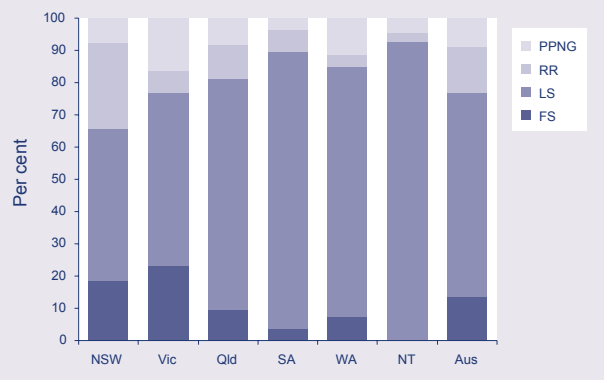
non-viable. This number is a considerable increase over the 794 examined in the same period in 2000. About 40 per cent of this total were from New South Wales, 22 per cent from Victoria, 15 per cent from Queensland, 13 per cent from the Northern Territory, 6 per cent from Western Australia and 2.5 per cent from South Australia. There were few isolates from other centres.

Penicillins

Figure 1 shows the proportions of gonococci fully sensitive (MIC ≤ 0.03 mg/L), less sensitive (MIC 0.06 – 1 mg/L), relatively resistant (MIC ≥ 1 mg/L) or else penicillinase producing (PPNG) aggregated for Australia and by State and Territory. A high proportion those strains classified as PPNG or else resistant by chromosomal mechanisms fail to respond to treatment with penicillins (penicillin, amoxycillin, ampicillin) and early generation cephalosporins.

In this quarter about 26 per cent of all isolates were penicillin resistant by one or more mechanisms – 7 per cent PPNG and 19 per cent by chromosomal mechanisms (CMRNG). The proportion of penicillin resistant strains ranged from 3 per cent in the Northern Territory to 36 per cent in Queensland.

Figure 1. Categorisation of gonococci isolated in Australia by penicillin susceptibility and by region, 1 July to 30 September 2001



FS fully sensitive to penicillin, MIC ≤ 0.03 mg/L
LS less sensitive to penicillin, MIC 0.06 – 0.5 mg/L
RR relatively resistant to penicillin, MIC ≥ 1 mg/L
PPNG penicillinase producing *Neisseria gonorrhoeae*

The number of PPNG isolated across Australia (n=66) was slightly less in this quarter than in the corresponding period in 2000 (n=70). The highest proportion of PPNG was found in isolates from South Australia (14%), Western Australia (13%) and Victoria (12%). PPNG were present in most jurisdictions including 1 (0.8%) in the Northern Territory. South and south-east Asian countries were the main source of external acquisition, but included an isolate acquired in Ireland. Local acquisition was prominent in Victoria.

More isolates were resistant to the penicillins by separate chromosomal mechanisms (n=173). These CMRNG were concentrated in Queensland (30% of isolates there), New South Wales (22%) and Victoria (21%). Three CMRNG were detected in the Northern Territory.

Ceftriaxone

Low numbers of isolates with decreased susceptibility to ceftriaxone were present in Victoria, New South Wales, Queensland and the Northern Territory. The persistence of these isolates in Australia and their presence in nearby countries[2,3] suggests that continued monitoring of this phenomenon is warranted. There is no evidence thus far that these strains with higher ceftriaxone MICs have been associated with treatment failure when third generation cephalosporins are used.

Spectinomycin

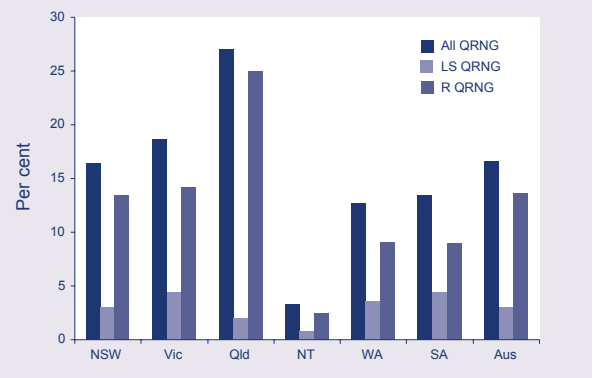
All isolates were susceptible to this injectable agent.

Quinolone antibiotics

Quinolone resistant *N. gonorrhoeae* (QRNG) are defined as those isolates with an MIC to ciprofloxacin equal to or greater than 0.06 mg/L. QRNG are further subdivided into less sensitive (ciprofloxacin MICs 0.06 – 0.5 mg/L) or resistant (MIC ≥ 1 mg/L) groups.

The total number of all QRNG (n=151) was again high and little changed from the previous quarter (n=165) and the September quarter in 2000 (n=142). QRNG were 16.6 per cent of all strains examined and this percentage was slightly lower than preceding periods in 2001 and the corresponding quarter in 2000. QRNG were again widely distributed. High rates were maintained in Queensland (27%), Victoria (18%), New South Wales (16%), South Australia (13%) and Western Australia (13%). Four QRNG were detected in the Northern Territory.

Figure 2. Distribution in Australia of *N. gonorrhoeae* showing quinolone resistance, 1 July to 30 September 2001



LS QRNG = Ciprofloxacin MICs 0.06 – 0.5 mg/L

R QRNG = Ciprofloxacin MICs ≥ 1 mg/L

In this quarter most of the QRNG exhibited higher levels of resistance as measured by MICs (Figure 11) and this is a continuation of a significant shift in the distribution of QRNG on the basis of MICs. In both New South Wales and Victoria in particular there has been a significant decrease in the number of 'less sensitive' QRNG in recent quarters.

Local acquisition was again prominent and MICs ranged up to 16mg/L.

High level tetracycline resistance

The number (n=89) and proportion (9%) of high level tetracycline resistance (TRNG) detected rose in this quarter from 56 (6.5%) in the June quarter. TRNG represented 12 per cent of isolates from Queensland and Victoria, 11 per cent from Western Australia, 9 per cent from New South Wales, and 2 per cent from the Northern Territory.

References

1. World Health Organization. Guidelines for the management of sexually transmitted infections. WHO/HIV_AIDS/(2001).01;WHO/RHR/o1.10:pp 1-5 World Health Organization, Geneva 2001.

2. WHO Western Pacific Region Gonococcal Antimicrobial Surveillance Programme. Surveillance of antibiotic susceptibility of *Neisseria gonorrhoeae* in the WHO Western Pacific Region 2000. *Commun Dis Intell* 2001;25:274-276.

3. Muratani T, Akasaka S, Kobayashi T, et al. Outbreak of cefozopran (penicillin, oral cephems and aztreonam) -- resistant *Neisseria gonorrhoeae* in Japan. *Antimicrob Agent Chemother* 2001:45:3603-3606.

HIV and AIDS surveillance

National surveillance for HIV disease is coordinated by the National Centre in HIV Epidemiology and Clinical Research (NCHECR), in collaboration with State and Territory health authorities and the Commonwealth of Australia. Cases of HIV infection are notified to the National HIV Database on the first occasion of diagnosis in Australia, by either the diagnosing laboratory (Australian Capital Territory, New South Wales, Tasmania, Victoria) or by a combination of laboratory and doctor sources (Northern Territory, Queensland, South Australia, Western Australia). Cases of AIDS are notified through the State and Territory health authorities to the National AIDS Registry. Diagnoses of both HIV infection and AIDS are notified with the person's date of birth and name code, to minimise duplicate notifications while maintaining confidentiality.

Tabulations of diagnoses of HIV infection and AIDS are based on data available three months after the end of the reporting interval indicated, to allow for reporting delay and to incorporate newly available information. More detailed information on diagnoses of HIV infection and AIDS is published in the quarterly Australian HIV Surveillance Report, and annually in HIV/AIDS and related Diseases in Australia Annual Surveillance Report. The reports are available from the National Centre in HIV Epidemiology and Clinical Research, 376 Victoria Street, Darlinghurst NSW 2010. Internet: http://www.med.unsw.edu.au/nchecr. Telephone: +61 2 9332 4648.
Facsimile: +61 2 9332 1837.

HIV and AIDS diagnoses and deaths following AIDS reported for 1 July to 30 September 2001, as reported to 31 December 2001, are included in this issue of Communicable Diseases Intelligence (Tables 7 and 8).

Table 7. Number of cases of newly diagnosed HIV infection and AIDS and number of deaths following AIDS occurring in the interval 1 July to 30 September 2001, and reported by 31 December 2001 by sex and State/Territory

	Sex	ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Totals for Australia			
										This period 2001	This period 2000	Year to date 2001	Year to date 2000
HIV diagnoses	Female	0	7	0	2	3	0	7	3	22	22	67	**65**
	Male	3	99	1	7	9	0	28	7	154	159	467	**524**
	Not reported	0	0	0	0	0	0	0	0	0	0	2	**0**
	Total[1]	3	106	1	9	12	0	35	10	176	181	537	**591**
AIDS diagnoses	Female	0	2	0	1	1	0	3	0	7	7	12	**20**
	Male	0	14	0	6	4	0	9	0	33	34	89	**15**
	Total[1]	0	16	0	7	5	0	12	0	40	41	102	**174**
AIDS deaths	Female	0	2	0	1	0	0	2	0	5	1	8	**7**
	Male	2	10	0	3	5	0	4	0	24	27	52	**92**
	Total[1]	2	12	0	4	5	0	6	0	29	28	60	**99**

1. Persons whose sex was reported as transgender are included in the totals.

Table 8. Number of cases of newly diagnosed HIV infection and AIDS, and number of deaths following AIDS, cumulative to 30 September 2001 and reported by 31 December 2001 by sex and State/Territory

	Sex	State or Territory								
		ACT	NSW	NT	QLD	SA	TAS	VIC	WA	Australia
HIV diagnoses	Female	27	664	10	175	69	5	243	130	**1,323**
	Male	230	11,486	111	2,114	715	80	4,140	967	**19,843**
	Not reported	0	244	0	0	0	0	24	0	**268**
	Total[1]	257	12,415	121	2,296	784	85	4,423	1,103	**21,484**
AIDS diagnoses	Female	9	208	0	51	26	3	76	27	**400**
	Male	88	4,791	37	876	360	45	1,720	363	**8,280**
	Total[1]	97	5,011	37	929	386	48	1,805	392	**8,705**
AIDS deaths	Female	4	118	0	35	16	2	53	17	**245**
	Male	70	3,271	24	587	241	29	1,311	256	**5,789**
	Total[1]	74	3,397	24	624	257	31	1,371	274	**6,052**

1. Persons whose sex was reported as transgender are included in the totals.

Childhood immunisation coverage

Tables 9 and 10 provide the latest quarterly report on childhood immunisation coverage from the Australian Childhood Immunisation Register (ACIR).

The data show the percentage of children fully immunised at age 12 months for the cohort born between 1 July to 30 September 2000 and at 24 months of age for the cohort born between 1 July to 30 September 1999 according to the Australian Standard Vaccination Schedule.

A full description of the methodology used can be found in Commun Dis Intell *1998;22:36-37.*

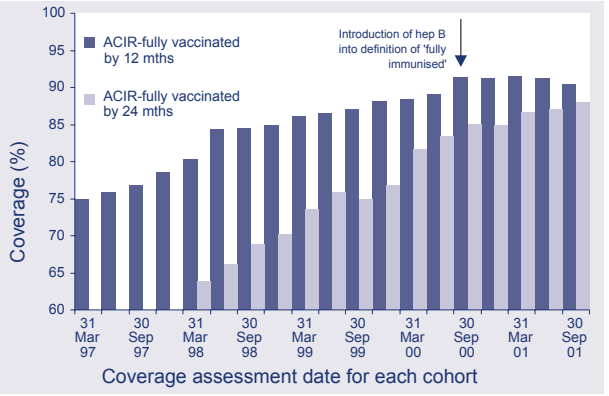
Commentary on the trends in ACIR data are provided by the National Centre for Immunisation Research and Surveillance of Vaccine Preventable Diseases. For further information please contact the ACIR at: telephone: +61 2 9845 1255, E-mail: brynleyh@chw.edu.au.

The new National Health and Medical Research Council Australian Standard Vaccination Schedule, including universal hepatitis B vaccination commencing at birth, began for all children born on or after May 2000. This cohort (children born 1 July to the 30 September 2000) are the first eligible to follow the new schedule, which now requires receipt of 2 or 3 hepatitis B vaccines by 12 months of age to qualify for full immunisation.

Vaccination coverage for 'fully immunised' by 12 months for Australia has decreased from the last quarter by 0.8 percentage points but is still above 90 per cent (Table 1). Coverage decreased in all states and territories except in Tasmania where coverage increased by 0.3 percentage points to 91.3 per cent. Coverage is now below 90 per cent in 3 States, New South Wales, the Northern Territory and Western Australia. This decrease should not be a consequence of the introduction of hepatitis B vaccination, as hepatitis B is combined with the Diphtheria, Tetanus, Pertussis (DTP) vaccine or the *Haemophilus Influenzae* type B (Hib) vaccine in all jurisdictions. Unpublished analysis of the same 1 year olds by the Health Insurance Commission (HIC), has revealed no differences in 'fully immunised' coverage estimates when calculated with or without hepatitis B. This suggests that the decrease in 'fully immunised' coverage is not directly related to the introduction of hepatitis B vaccination. Nevertheless, as coverage for all individual vaccines for 12-month coverage is above 90 per cent in all jurisdictions, there must either be some parents who are selectively failing to immunise with some vaccines or a data problem with either notifications or data processing to the ACIR or both. In their regular parent surveys, the HIC have found that some parents have an objection to particular vaccines. It must also be remembered that the cohort reported on here is the first full 3-month cohort eligible to follow the new schedule. So, whilst the introduction of hepatitis B vaccination appears to have had little effect on 'fully immunised' coverage estimates, it is possible that changes in the administration and timing of the Hib and DTP vaccines in the new schedule may have had some effect on parents decisions to immunise or providers understanding of the new schedule.

In contrast, estimates of 'fully immunised' by 24 months for Australia (for which the requirements have not changed) has increased from the last quarter by one percentage point and is now 88 per cent (Table 2). Coverage increased in all States and Territories except for Western Australia with the largest increase occurring in the Northern Territory from 79.8 per cent to 83.5 per cent.

Figure 1. Trends in vaccination coverage, Australia, 31 March 1997 to 30 September 2001, by age cohorts



Source: Australian Childhood Immunisation Register

Table 9. Percentage of children immunised at 1 year of age, preliminary results by disease and State for the birth cohort 1 July to 30 September 2000; assessment date 31 December 2001

	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	AUSTRALIA
Number of children	1,049	21,750	792	12,373	4,362	1,477	15,190	6,256	63,249
Vaccine									
Diphtheria, Tetanus and Pertussis (%)	92.4	91.8	88.8	92.7	92.5	92.6	93.1	90.7	92.2
Poliomyelitis (%)	92.2	91.7	89.1	92.6	92.4	92.4	93.1	90.6	92.1
Haemophilus influenzae type b (%)	93.7	93.8	93.1	94.7	94.5	95.5	94.8	93.9	94.3
Hepatitis B (%)	90.9	89.9	87.3	91.5	90.5	91.3	91.0	89.1	90.4
Fully Immunised (%)	93.7	93.8	93.1	94.7	94.5	95.5	94.8	93.9	94.3
Change in fully immunised since last quarter (%)	+1.8	-0.8	-2.1	-0.3	-1.1	+0.3	-1.0	-0.4	-0.8

Table 10. Percentage of children immunised at 2 years of age, preliminary results by disease and State for the birth cohort 1 July to 30 September 1999; assessment date 31 December 2001[1]

	ACT	NSW	NT	Qld	SA	Tas	Vic	WA	AUSTRALIA
Number of children	1,065	22,173	786	12,660	4,578	1,534	15,838	6,245	64,879
Vaccine									
Diphtheria, Tetanus and Pertussis (%)	92.0	89.1	85.8	91.9	91.7	92.6	91.0	88.3	90.3
Poliomyelitis (%)	95.3	93.7	93.9	94.4	95.4	96.0	95.3	93.1	94.3
Haemophilus influenzae type b (%)	96.4	95.0	91.9	95.0	96.2	96.6	96.2	94.0	95.3
Measles, Mumps & Rubella (%)	93.3	92.3	93.2	93.3	95.1	93.9	93.5	92.8	93.1
Fully Immunised (%)[2]	90.1	86.4	83.5	90.2	89.9	90.1	88.8	85.5	88.0
Change in fully immunised since last quarter (%)	+3.5	+0.7	+3.7	+1.6	+0.8	+1.4	+1.3	-0.5	+1.0

1. The 12 months age data for this cohort was published in *Commun Dis Intell* 2001;25:30
2. These data relating to 2 year old children should be considered as preliminary. The proportions shown as 'fully immunised' appear low when compared with the proportions for individual vaccines. This is at least partly due to poor identification of children on immunisation encounter forms.

Acknowledgment: These figures were provided by the Health Insurance Commission (HIC), to specifications provided by the Commonwealth Department of Health and Ageing. For further information on these figures or data on the Australian Childhood Immunisation Register please contact the Immunisation Section of HIC on telephone 02 6124 6607.