



This edition of the CDC bulletin focuses on the work done by the South Australian Immunisation Co-ordination Unit (SAICU), one of the five units of the Communicable Disease Control Branch (CDCB).

Meningococcal C Vaccination Program

Vaccination is the best means of protection against Meningococcal C disease. The mass vaccination campaign in the UK demonstrated that not only was there an 81% reduction in the number of confirmed cases of disease in the vaccinated cohort, there was also evidence of herd immunity with a 67% reduction of cases in the unvaccinated group (for further information refer to the following articles: Vaccine, 2002, 20:558-567; Lancet, 2002, 359:1829-1830).

This year, Meningococcal C Conjugate vaccine is free for children turning 1-5 and adolescents turning 15-19 in 2003. Although the free vaccine has been included on the recommended schedule for all children at 12 months of age, **it must be remembered that free vaccine for the other age groups is available for a limited time.**

From January to July, approximately 105,000 doses of vaccine have been distributed to immunisation providers across South Australia. Uptake of the vaccine in South Australia has not been as high as expected. As at 31st August, only about 44% of 1-5 year olds had received the vaccine.

Identified barriers in the 1-5 age group include:

- provider attitude to 3 injections at the 12 month encounter
- ambivalence with some providers, given the low number of cases per year
- vaccination not yet linked to any incentive payments
- many parents are still unaware their child is eligible for the free vaccine.

Identified barriers in the 15-19 age group include:

- many parents are still unaware their child is eligible for the free vaccine.
- belief that C strain is not as prevalent as B, therefore it is not as serious
- accessibility issues for those who have left school
- many still unaware of the program and their eligibility for free vaccine

GPs can assist through fully supporting this program. Please remind parents of this free vaccine which is available for a limited time only. Implement recalls where possible.

Adverse Events Following Meningococcal C Conjugate Immunisation

Between November 1999 and February 2001 more than 18 million doses of three Meningococcal C vaccines were distributed in the UK. The rate of reporting of adverse events was higher than for other childhood vaccines and this was expected. Common reports were of a mild nature, pain, redness and swelling at the injection site, fever, irritability, decreased appetite and headaches. Prior to the mass vaccination campaign in the UK, incidence of confirmed Meningococcal C disease had been increasing annually; by 1999 there were approximately 1500 cases and 150 deaths annually. Post campaign showed an 81% reduction in the number of confirmed cases.

The balance of risks and benefits of Meningococcal C vaccines was considered to be overwhelmingly favourable.

In South Australia from January to May 2003, 273 AEFI reports were received by SAICU. In 71 (26 %) the AEFI was associated with the administration of a Meningococcal C conjugate (MCC) vaccine. Of these, 58 (82%) children received *Menjugate*^R, 10 (14%) *Neisavac*^R, 2 (3%) *Meningitec*^R and in 1 child the MCC vaccine was unspecified. No current accurate data are available on the administered doses of MCC according to vaccine brand in SA. The median age of those vaccinees who reported an AEFI was 50 months (range 13 – 484 months) and the age distribution is shown in the table below.

Age (yrs)	< 7	7-14	15 to 24	>25	All
Count	55	4	11	1	71

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Reported symptoms following MCC vaccines

There were 132 reported symptoms in these 71 vaccinees and the reported symptoms are listed in the table below together with how often the specific symptom was reported. Symptoms reported on less than 4 occasions have not been included in the table. These include malaise (3), seizure (2), vasovagal event (2), abdominal pain (2), photophobia (2), neck stiffness (1), anorexia (1), refusal to weight-bear (1), screaming (1), and anaphylaxis (1). Of these other events, anaphylaxis and seizures were the most serious. No analysis is possible according to the brand of MCC vaccine.

Symptom	N (%)
Injection site reaction	33 (25)
Nausea, vomiting, abdominal pain, diarrhoea	22 (17)
Skin rash	20 (15)
Fever	19 (14)
Headache	10 (8)
Irritability	7 (5)
Myalgia	5 (4)
Other	16 (12)
Total	132 (100)

Injection site reactions were the most commonly reported AEFI. Perhaps unexpected were the frequency of gastrointestinal symptoms and skin rash reported.

The episode of anaphylaxis occurred in a girl aged 4 years 9 months. She had been previously well and received MCC vaccine together with DTPa and MMR vaccines. All previous vaccines had been well tolerated. Ninety minutes following vaccination she developed generalised urticaria and facial angioedema. She returned to her GP who administered adrenaline. Six hours post-vaccination and whilst in hospital she developed wheeze with Ventolin being administered. She recovered completely and has been subsequently reviewed in the Special Immunisation Clinic. Further investigations are planned to identify the specific cause for her vaccine-induced anaphylaxis. One child (4yrs 9months) had a febrile seizure 2 hours post-vaccination with MCC only, and the other child (4yrs 11months) had an afebrile seizure 3 days following MCC vaccination.

Rates of reports for MCC compared with other vaccines

The reported rates of AEFI for MCC vaccine compared with all other vaccines were calculated according to distributed doses of vaccines in SA from January 2003 to May 2003. Currently no accurate data on the administered doses of vaccines for this time period are available from the Australian Childhood Immunisation Register (ACIR). Crude rates have been calculated comparing all MCC vaccines with all other vaccines distributed from SAICU (both childhood and adult). The results are shown in the table below, with rates per 100,000 vaccinees shown in brackets.

	MCC	All other
Distributed doses	80,963	473,969
All AEFI reports	71 (88)	202 (42)
Injection site reaction	33 (41)	132 (29)
Nausea, vomiting, abdominal pain, diarrhoea	22 (27)	19 (4)
Skin rash	20 (24)	25 (5)
Fever	19 (23)	34 (7)
Headache	10 (12)	5 (1)

Conclusion

The following preliminary conclusions can be made:

- the rate in South Australia of AEFI reports per 100,000 distributed doses of MCC vaccines (88) is similar to that reported from the United Kingdom (72);
- this rate is double that of reports for other vaccines distributed in South Australia. This may relate to a number of factors which include the reactogenicity of MCC vaccines, enhanced passive reporting following the introduction of a new vaccine, and the age groups currently receiving the vaccine;
- the reported pattern of specific adverse events is interesting, given the increased reports of gastrointestinal symptoms and skin rashes in South Australia, compared with UK data.

GPs are reminded to please submit any information relating to any uncommon reactions following immunisation to SAICU.

School immunisation programs

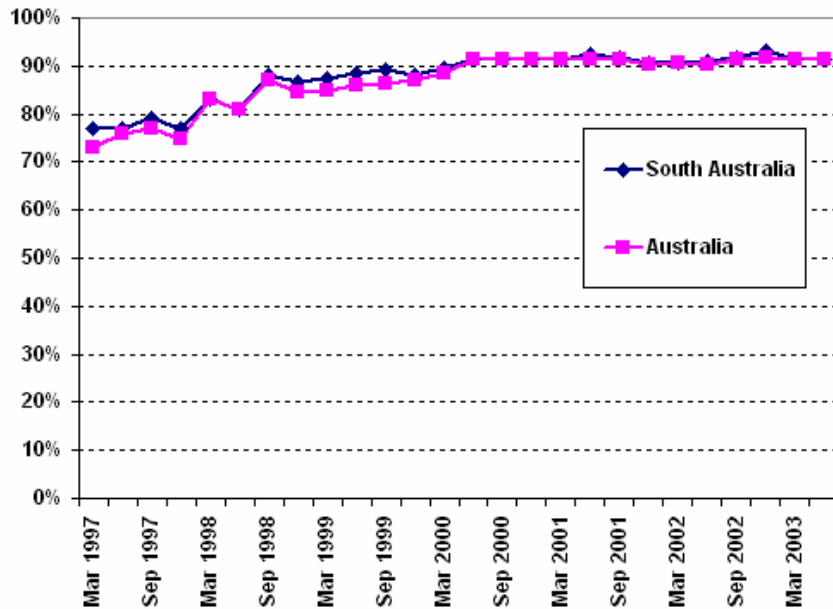
The South Australian schools immunisation program provides free hepatitis B vaccines to year 8 students and free ADT vaccine to year 9 students via school visits, mostly arranged by local councils. The statewide immunisation coverage for 2002 for year 8 hepatitis B was approximately 83%, for year 9 ADT approximately 77%, and for year 10 ADT approximately 73%. This was a fantastic outcome that resulted from the collaborative efforts of providers, schools and parents. In states where no school program exists, coverage is much lower. The reporting system captures data from school visits and data from medical practitioners for those students not immunised at school, in order to estimate coverage as accurately as possible.

The Meningococcal C vaccine is also being offered via the school program and this will extend into primary schools in 2004/2005. SAICU recognises the enormous contribution by local council which underpins the success of the South Australian school-based program.

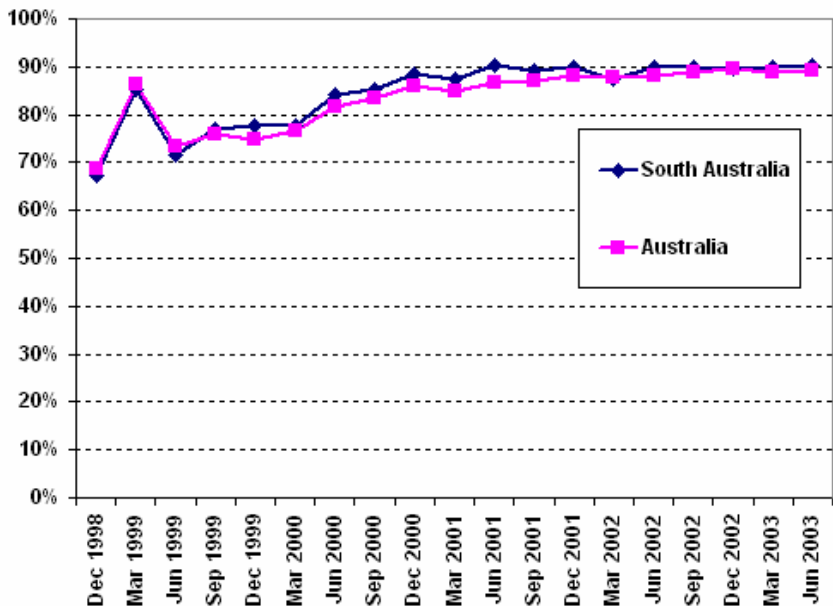
Vaccination levels in South Australia compared with Australia

The ACIR, managed by the Health Insurance Commission, publishes national, state and local council vaccination levels for 3 age groups: children aged 12 to 14 months, children aged 24 to 26 months, and children aged 72 to 74 months.

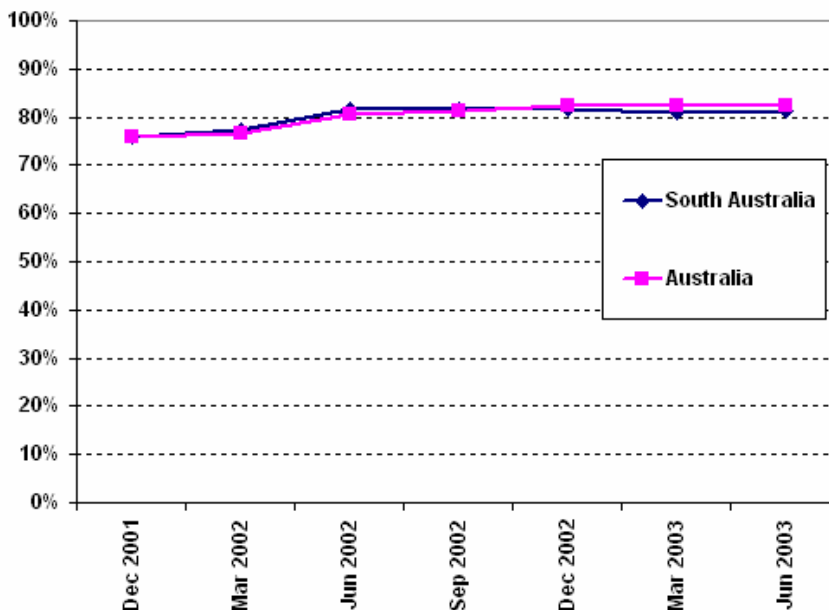
The coverage report calculated in June 2003 shows 91.5% of South Australian children aged 12 to 14 months were fully immunised, 0.5% higher than figures calculated in March 2003. The Australian level for the same age group was 91.2% (see chart alongside covering period March 1997 to June 2003).



In the same period, 90.4% of South Australian children aged 24 to 26 months were fully immunised, 0.4% higher than the 3 months prior. The Australian level for the same age group was 89.3% (see chart alongside covering period December 1998 to June 2003).



Also in the same period, 81.3% of South Australian children aged 72 to 74 months were fully immunised. The Australian level for the same age group was 82.3% (see chart alongside covering period December 2001 to June 2003).



Q fever vaccination program

Q fever is primarily an occupational disease of workers from the meat processing industry and the livestock industry. Vaccination is the only prevention against Q fever. Australia has approximately 600 cases of Q fever each year.

Since the commencement of the national Q fever management program in 2001, the South Australian program has pre-screened 3995 people under phase 1 of the program, comprising meat processors, sheep shearers and those involved in the operation of a shearing shed. 3084 people were pre-screened under phase 2 of the program, including sheep, cattle and dairy farmers and others working on those farms. In South Australia we have vaccinated 3103 people under phase 1 and 2799 people under phase 2. Of the 7079 people who have accessed the South Australian program, 797 have been found to be immune, thus not requiring vaccination.

Phase 1 funding ceased in South Australia in August 2003. Limited funding is available under phase 2 of the program for a further 12 months. Those people previously categorised under phase 1 are automatically included under phase 2.

Invasive pneumococcal disease

Invasive pneumococcal disease (IPD) is defined as a clinical condition in which *Streptococcus pneumoniae* is isolated from a normally sterile site, for example blood, cerebrospinal fluid or pleural fluid. In South Australia there are IPD records dating back to 2001; the disease has been notifiable Australia-wide since 2002.

There is a higher risk of IPD in those who are immunocompromised and have a chronic illness. IPD predominantly occurs in children under 2, and in adults over 65. Whilst children commonly present with bacteraemia, adults are more likely to present with pneumonia.

Of the 172 cases of IPD reported in South Australia between July 2002 and June 2003, 74 (43%) were female, and 98 (57%) were male. A breakdown by age group is shown in the table below.

Age group	N (%)
0..1y.o.	48 (28)
2..4y.o.	17 (10)
5..14y.o.	10 (6)
15..49y.o.	28 (17)
50..64y.o.	24 (14)
>64y.o.	45 (25)
TOTAL	172 (100)

There were 5 (3%) cases in people identifying as Aboriginal and Torres Strait Islander (ATSI). Of these, 1 case was aged over 65 and had been vaccinated, but the isolate was not able to be serogrouped.

In South Australia for the 2002-03 financial year there were 13 deaths reported from IPD. Of these, 1 was aged < 2, 3 were aged 15-49, 3 were aged 50-64 and 6 were aged 65 or over. There were no reported deaths in indigenous cases,

and there were no meningitis-related deaths. In the 3 deaths aged 65 or over, 2 cases had been vaccinated, and the serotypes in these cases were 6B and 19F.

Of the 48 cases aged <2, 28 (58%) presented with a clinical bacteraemia, 9 (19%) presented with pneumonia and 4 (8%) presented with meningitis. In the 45 cases aged 65 or over, 36 (80%) presented with pneumonia.

There were 9 cases of IPD in vaccinated individuals who had received pneumococcal vaccine containing the same serotype as their diseases. Of these, 4 were serotype 14, 2 were serotype 6B, 1 was serotype 19F, 1 was serotype 19A, and 1 was serotype 23F. Vaccine efficacy is reduced in persons who are immunocompromised, aged or have chronic illness. All 9 cases had one or more of these known risk factors.

There were 12 isolates with resistance to antibiotics, 11 with intermediate resistance to penicillin, 3 of which were serotype 9V, 2 were serotype 6B, 2 were serotype 19F and 1 was serotype 22F. One of the serotype 19F isolates that showed intermediate resistance to penicillin also showed intermediate resistance to ceftriaxone. One serotype 6B isolate was resistant to ceftriaxone.

There are 2 vaccines available for IPD, the 7-valent conjugate vaccine containing serotypes 4, 6B, 9V, 14, 18C, 19F, 23F, and the 23-valent polysaccharide vaccine containing the same serotypes plus serotypes 1, 2, 3, 5, 7F, 8, 9N, 10A, 11A, 12F, 15B, 17F, 19A, 20, 22F, 33F. The 23-valent vaccine was introduced in Australia in 1998 and is recommended to people over the age of 65, indigenous people over the age of 50 and people who are immunocompromised or have a chronic illness. It should not be given to children aged less than 2 years. The 7-valent vaccine has been available in Australia since July 2001, and can be given from 6 weeks of age.

For further information, refer to the Australian Immunisation Handbook and/or the following journal article:

Roche P, Krause V, 'Invasive pneumococcal disease in Australia, 2001', *Communicable Diseases Intelligence*, 2002, 26(4): 505-519

Influenza and pneumococcal vaccination program

65+ program

As at July 2003, the total number of doses of influenza vaccine distributed for the 2003 65+ program in South Australia was 214,795. SAICU closely monitors all influenza vaccine orders in an attempt to reduce wastage and leakage. Data on wastage and leakage will be available later in 2003. A survey will be undertaken to estimate the level of vaccine uptake; questions for this survey are currently being considered.

National Indigenous Influenza and Pneumococcal program

In South Australia no separate data exist for influenza vaccine distributed for ATSI people. For the period January 2003 to June 2003, 899 doses of pneumococcal polysaccharide vaccine were distributed.

Childhood Pneumococcal Program

For the period January 2003 to June 2003, 610 doses of the 7-valent pneumococcal conjugate vaccine were distributed for the Childhood Pneumococcal Program. Under this program the vaccine is free for ATSI children aged less than 5 living in Central Australia, all ATSI children aged less than 2, and non-ATSI children aged less than 5 with a specific chronic illness.

Since the commencement of the program in South Australia in January 2002, 930 ATSI children and 40 eligible non-ATSI children have received pneumococcal conjugate vaccine. Children living in Central Australia are not included in these data.

Department of Human Services (DHS) staff program

In 2003 the DHS is providing support for a staff influenza immunisation program. So far 15,148 doses of Influenza vaccine have been distributed for the staff program. A survey has been undertaken to estimate vaccine uptake and is currently being analysed.

A summary of cold chain events, July 2002 to June 2003

SAICU collects data on reported vaccine cold chain events (CCE) occurring in transport or storage. SAICU relies on a passive reporting system for monitoring vaccine cold chain events and subsequent vaccine wastage. We also rely on immunisation service providers to contact SAICU or their Local Immunisation Coordinator (LIC) in the Division of General Practice in order to correct refrigerator problems and to order replacement vaccine stock. Cold chain problems are well reported in SA, although it is considered there may still be some under-reporting.

Approximately 600,000 doses of vaccine were distributed during the 12 month reporting period. Staff at SAICU have been working in collaboration with the LICs within the 14 Divisions of General Practice to inform and update service providers about the requirements of the national and state cold chain guidelines and policies. Not all vaccine CCEs

result in vaccine wastage. Decisions relating to what action to take once a cold chain event has been reported are based on the current edition of the national cold chain guidelines (“*Keep it Cool*”) and in some cases reference is made to information available through the World Health Organisation EPI website and literature.

Results of Cold Chain Events

During the reporting period, SAICU received approximately 800 phone calls in relation to vaccine issues. Of these, 175 (22%) were CCE reports, with 35 (20%) reported by the LIC. Only 19 events did not result in vaccine being destroyed. General practitioners provide the majority of immunisations in South Australia and therefore also have the highest number of CCE reports. The following table shows the categories of immunisation service providers reporting CCE.

Category of service provider	Number of events (%)
General Practitioner	122 (70)
Hospital	21 (12)
Community Health (including Child and Youth Health)	13 (7)
Local Government	11 (6)
Aboriginal Health Service	4 (2)
Nursing Home	3 (2)
Worksite for Q fever	1 (1)
Total	175 (100)

For the purpose of vaccine distribution from the Vaccine Distribution Centre (VDC), South Australia is divided into 19 delivery areas (8 metropolitan and 11 rural). During the reporting period, CCEs were reported from all 19 areas, with 84 (48%) metropolitan and 91 (52%) rural. This result is somewhat unexpected as approximately 70% of immunisation service providers are in the metropolitan area.

The sites where CCEs were reported were as follows:

- Provider site (90%);
- Provider transporting vaccine to clinic/outreach service (1%);
- During transport from VDC to provider site (9%).

Type and probable cause of reported CCEs

The CCEs were categorised according to temperature exposure that could affect vaccine efficacy (see table below). These categories are:

- Freeze (when vaccines were exposed to temperatures at or below 0°C);
- Heat (when vaccine were exposed to temperatures above 10°C);
- Combination of heat and freeze

Type of CCE	Number of CCE (%)	Site or occasion of CCE
Freeze	134 (77)	15 during delivery 118 while stored in refrigerator at provider site 1 while provider transporting vaccine
Heat	37 (21)	1 during delivery 36 while at the provider site including in the refrigerator
Combination heat & freeze	3 (2)	3 while stored in refrigerator at provider site
None	1 (<1)	1 Accidentally disposed of at provider site
Total	175 (100)	

The following table describes the probable causes of the 175 CCEs reported:

Description	Number (%)
Monitoring indicated vaccine exposed to temperature below 0°C	120 (69)
Monitoring indicated vaccine exposed to temperature < 10°C	11 (6)
Power failure	9 (5)
Vaccines left out of refrigerator at provider site	8 (5)
Thermostat adjusted resulting in CCE	7 (4)
Mechanical failure of refrigerator	6 (3)
Refrigerator door left open	4 (2)
Power disconnected	3 (2)
Vaccines in contact with ice or freeze plate in refrigerator	3 (2)
Surgery break-in, vaccine removed from fridge	2 (1)
Monitoring indicates exposure to below 0°C and greater than 10°C	1 (<1)
Vaccine accidentally disposed (irretrievable)	1 (<1)
Total	175 (100)

Detection of reported CCE

Digital thermometers with probes, cold chain monitors (CCM) and electronic temperature data loggers (loggers) are all used in South Australia to monitor the vaccine cold chain. The table below shows the type of instruments used to detect CCEs and the total number reported.

Instrument	Number (%)
CCM	61 (35)
Thermometer	61 (35)
Combination of CCM, thermometer and/or logger	36 (21)
No instruments *	9 (5)
Electronic Data Logger	8 (4)
Total	175 (100)
* Reports of vaccine in contact with ice or vaccine left out of refrigerator	

Total cost of vaccines wasted by CCEs

The cost of individual doses of vaccine for the South Australian Immunisation Program ranged from less than \$1 to \$100 per dose during the reporting period. SAICU distributed over \$9.7M of vaccine during the reporting period. The total number of doses reported as destroyed due to cold chain failure was 9,877 doses (an increase of 177 doses compared to 2001/02) and equates to 1.6% (compared to 1.9% in 2001/02) of all doses distributed over the period. The estimated total cost of vaccines wasted by reported cold chain failure is \$180,500. This can be attributed to the following:

- increase in the total number of vaccines included on the Australian Standard Vaccination Schedule;
- increase in the cost of new vaccine;
- increase in practice and clinic visits by LICs and staff of SAICU and discovery of more CCEs;
- overstocking of seasonal and target group vaccines (e.g. influenza and pneumococcal).

Action taken by SAICU in relation to reported cold chain failures

CCE: Immunisation service provider sites

When a CCE is reported to SAICU or the LIC, the nature of the event is discussed with the notifier. Recommendations are made in accordance with the national cold chain guidelines. SAICU staff or LICs can also offer support by visiting a practice. Electronic temperature data loggers may be offered to service providers to assess temperature fluctuations in their refrigerators that may affect vaccine cold chain. Vaccine replacement is arranged where necessary. At this time, SAICU does not invoice the service provider for the costs of replacing the vaccine stock.

CCE: Transportation

Immunisation providers are instructed to destroy vaccine damaged by cold chain failure based on national and international guidelines and replacement vaccine stock is arranged. Vaccine stock that is not damaged by cold or heat is stored and used as per the national cold chain guidelines. The VDC is notified of the type of CCE and the distributor is asked to find a solution to the CCE.

New pamphlet - helping GPs determine those in their Practice who identify as Aboriginal or Torres Strait Islander (ATSI)

It is important for GPs to establish those who identify as ATSI to ensure appropriate care is offered. This pamphlet is aimed at advising the GP of the need for this information and how to sensitively ask the question. Information within the new pamphlet is covered under the following headings:

- are you of Aboriginal or Torres Strait Islander origin?
- why GP's need to ask the question
- how to ask the question
- other organizations that require the information
- the more we know, the better the health for everyone.

This new pamphlet accompanies the existing pamphlet, which aims to explain to indigenous people why they need to be asked the question. SAICU will be distributing this pamphlet to GPs in the near future.

Education sessions for the 8th edition of the immunisation handbook

Following the expected endorsement of the 8th edition of the Immunisation Handbook in late September by the NHMRC, a statewide education rollout will commence. The GP advisors for immunisation and the LICs for each division will be invited to attend an education session planned by South Australian Divisions Incorporated (SADI) on Saturday 1st November 2003 to learn of the proposed changes. It is expected that the GP advisors and the LICs will then provide updates for GPs within their divisions. All changes will be presented and this information will also be available on a CD and in hardcopy. A schedule for South Australia will also be provided.

SAICU have planned several metropolitan education sessions in October and November 2003 which are open to any interested persons, including immunisation providers in community health settings or local government. In collaboration with the rural LICs, SAICU nurse consultants will plan education sessions for community immunisation providers in the rural regions. It is envisaged that these sessions will also occur between October and December 2003.

Date	Time	Venue
Metro: (4 day sessions)		
1. Mon Oct 20th	9am -12noon	Onkaparinga Council
2. Mon Oct 27th	9am -12noon	Wakefield Hospital , Adelaide
3. Mon Nov 3rd	9am -12noon	Lefevre/Port Adelaide
4. Mon Nov 10th	9am -12noon	Tea Tree Gully Council
Metro: (2 evening sessions)		
1. Wed Oct 22nd	630pm -930pm	Wakefield Hospital , Adelaide
2. Wed Nov 19th	630pm -930pm	Wakefield Hospital, Adelaide

UniSA Professional Certificate in Immunisation - Scholarships

SAICU and UniSA, with assistance from Aventis Pasteur, are offering several Immunisation Scholarships to Registered Nurses working more than 15 hours in a General Practice or a local council and who play a major role in providing immunisations. Each scholarship will cover the total fee for the UniSA Professional Certificate in Immunisation. This program is equivalent to 9 units and will run for 16 weeks in 2004. Application forms can be obtained from your LIC or the SA Immunisation Network. Please note closing date for applications is 29th Sept 2003.

**Immunisation coverage levels for Local Government Areas in South Australia,
for ages 12 to 14 months inclusive, and 24 to 26 months inclusive, as at end of June 2003.**

LGA	Number in LGA aged 12 - 14 months	% Fully immunised (see note 1)	Number in LGA aged 24 - 26 months	% MMR	% Fully immunised (see note 2)
Adelaide	15	80	17	71	59
Adelaide Hills	94	93	120	89	84
Alexandrina	58	90	48	96	94
Barossa	43	91	55	98	96
Barunga West	4	75	5	80	80
Berri and Barmera	44	91	45	93	89
Burnside	114	89	98	90	79
Campbelltown	140	96	138	95	89
Ceduna	20	80	18	94	94
Charles Sturt	273	89	258	96	93
Clare and Gilbert Valleys	24	100	28	100	100
Cleve	5	80	8	100	100
Cooper Pedy	5	80	8	88	75
Copper Coast	30	93	38	97	95
Elliston	6	83	3	100	100
Flinders Ranges	2	100	2	100	100
Franklin Harbor	3	100	0	n/a	n/a
Gawler	44	93	61	98	93
Goyder	12	100	9	89	89
Grant	8	100	12	100	100
Holdfast Bay	84	89	78	96	95
Kangaroo Island	15	93	13	100	100
Karoonda East Murray	1	100	4	100	100
Kimba	8	88	3	100	67
Lacepede	7	100	6	100	100
Le Hunte	2	100	2	100	100
Light	35	100	37	97	95
Lower Eyre Peninsula	10	80	14	100	86
Loxton Waikerie	38	97	38	87	84
Mallala	20	90	21	100	90
Marion	222	91	201	97	93
Mid Murray	21	100	18	94	94
Mitcham	155	88	157	91	87
Mount Barker	93	87	79	97	90
Mount Gambier	102	96	91	98	95
Mount Remarkable	8	88	8	88	88
Murray Bridge	63	87	75	97	95
Naracoorte and Lucindale	26	85	26	92	92
Northern Areas	11	100	14	93	93
Norwood Payneham St Peters	78	87	72	88	83
Onkaparinga	502	92	433	94	91
Orroroo/Carrieton	3	100	1	100	100
Peterborough	7	100	4	100	100
Playford	263	89	268	95	89
Port Adelaide Enfield	308	92	313	96	89
Port Augusta	37	92	37	100	100
Port Lincoln	49	86	52	90	88
Port Pirie City and Dists	45	91	54	94	91
Prospect	70	94	52	90	83
Renmark Paringa	39	90	31	100	94
Robe	3	100	1	100	100
Roxby Downs	23	96	24	83	83
Salisbury	382	94	370	96	92
Southern Mallee	5	100	5	100	80
Streaky Bay	3	100	5	100	100
Tatiara	24	100	28	93	93
Tea Tree Gully	304	93	319	97	95
The Coorong	12	83	15	87	87
Tumby Bay	7	100	9	100	100
Unley	106	95	93	91	85
Victor Harbor	16	88	33	94	94
Wakefield	18	83	16	100	100
Walkerville	16	94	18	89	78
Wattle Range	49	98	45	93	84
West Torrens	140	84	127	91	85
Whyalla	73	95	61	93	90
Yankalilla	4	100	10	100	100
Yorke Peninsula	32	97	32	91	91
Unincorporated SA	24	96	25	92	92

Notes

1. fully-immunised defined as completion of 3 doses of DTP, Hib and OPV.
2. fully-immunised defined as completion of 1 dose of MMR, 4 doses of DTP and Hib, and 3 doses of OPV.

Reports of notifiable diseases

Please note that the counts below are for confirmed cases only, and are based on the date of onset of illness.

	Jan-Jun 2002	Jan-Jun 2003
arboviral infection	43	19
Barmah Forest virus infection	3	1
dengue fever	5	5
Ross River virus infection	35	13
atypical mycobacterial infection	26	20
botulism	0	1
campylobacter infection	1094	1526
cholera	1	1
cryptosporidiosis	78	46
Haemophilus influenzae infection	4	6
hepatitis A infection	8	6
hydatid disease	6	2
Influenza (laboratory confirmed)	140	20
legionella infection	27	20
leptospirosis	1	0
listeria infection	0	1
malaria	8	13
measles	0	3
meningococcal infection	17	10
meningococcal infection (serogroup B)	9	8
meningococcal infection (serogroup C)	4	2
meningococcal infection (non-groupable)	2	0
meningococcal infection (other/unknown)	2	0
mumps	5	5
ornithosis	2	0
paratyphoid fever	2	1
pertussis	313	101
Pneumococcal infection (invasive)	88	78
Q fever	12	8
rubella	2	1
Salmonella infection	295	255
shiga toxin producing E. coli	20	24
shigella infection	21	17
syphilis	25	10
tuberculosis	27	20
typhoid fever (Salmonella typhi)	1	1
Varicella virus	629	452
yersinia infection	3	5

The following paragraphs summarise the confirmed cases (except where noted) of notifiable diseases reported to the CDCB where the date of onset of illness was between January and June, 2003.

Legionella pneumophila infection

There were 5 (3 males, 2 females: age range 27- 68 years) sporadic cases of *Legionella pneumophila* serogroup 1, and 2 (2 males aged 76 and 77 years respectively) cases of *Legionella pneumophila* serogroup 2. Environmental investigations were conducted on the former. A link with a contaminated hospital ice-making machine was established for one of these cases. One case reported recent overseas travel to South East Asia. There was 1 death.

Invasive meningococcal disease

There were 10 (3 males, 7 females: age range 0 - 29 years) cases of invasive meningococcal disease. This compares with 17 cases notified during the same period in 2002. Seven of the 10 cases resided in metropolitan Adelaide, 2 resided in rural South Australia and 1 was from overseas. Of the 10 cases, 8 were serogroup B and 2 were serogroup C. There was 1 death.

Cholera

There was 1 case of *Vibrio cholerae* non-01 non-0139 in a 25 year old female who reported recent travel to Egypt.

Salmonella Typhimurium phage type U302

In March 2003 the CDCB investigated 5 (1 male, 4 females: age range 6 to 7 years) cases of infection with *Salmonella* Typhimurium phage type U302 linked by time and place. Dates of onset ranged from 26th March 2003 to 22nd April 2003. All were residents of a rural town in SA. An epidemiological investigation did not identify a source for the cluster but it is likely that the disease was spread by person-to-person transmission. This is the first time *Salmonella* Typhimurium phage type U302 has been reported in South Australia.

Listeriosis

There was 1 sporadic case of *Listeria monocytogenes* in a 58 year old female with an underlying chronic illness.

Shigellosis

There were 17 (8 males, 9 females: age range 0 - 62 years) cases of shigellosis. There were 7 *Shigella sonnei* biotype a, 7 *Shigella flexneri* biotype 2a, 1 each of *Shigella sonnei* biotype g, *Shigella boydii* 8 and *Shigella sonnei* (not biotyped). Thirteen (76%) of the cases resided in rural and remote South Australia, and 9 (53%) reported to be Aboriginal. The case of *S boydii* 8 reported recent travel to Africa.

Cryptosporidiosis

There were 46 (23 males, 23 females: age range 0 – 89 years) cases of cryptosporidiosis. The cases were geographically dispersed across the state. In May 2003, the CDCB and the Environmental Health Branch investigated a cluster of cases in a remote Aboriginal community. The investigation included the community's water supply and rubbish disposal and collection.

Gastroenteritis

In March 2003 the CDCB investigated an outbreak of gastroenteritis associated with a school camp at which raw milk was provided for drinking. The index case was a 23 year old male who was positive for *Campylobacter*. Sixty male students aged between 10 and 11 years and 53 adults attended the camp. A cohort study was undertaken and of the 85 who responded to the questionnaire, 14 reported being ill with diarrhoea. While the results for this study could not find a positive association with illness and the consumption of raw milk, the importance of providing raw milk in an organised setting was highlighted.

In May 2003 the CDCB investigated a cluster of gastroenteritis cases associated with a work function in metropolitan Adelaide. Of the 82 people who attended the function, 59 responded to the questionnaire. Of these, 31 were ill, giving an attack rate of 53%. Results of the cohort study did not associate any particular food items with the illness. No bacterial pathogen was found in stool specimens.

In May 2003 the CDCB and the local government health officer investigated an outbreak of gastroenteritis among patrons and staff of a hotel in rural South Australia. In total, 40 (20 females, 20 males: age range 2 to 62 years) patrons reported acute gastroenteritis after eating at the hotel. A case-control study was undertaken in an attempt to determine the source of the outbreak; however, no source for this outbreak was found.

Shiga toxin producing *Escherichia coli*

In March 2003, the CDCB and the local government health officer investigated an outbreak of Shiga toxin producing *Escherichia coli* in a southern suburbs aged-care facility. Three females aged 79, 86 and 87 were notified with dates of onset ranging from 13th March to the 16th March. Investigations included food handling practices at the facility and the central kitchen that supplied meals to several other aged-care facilities. Infection control procedures were reinforced amongst staff in the aged-care facility. No apparent source of the outbreak was found.

Severe Acute Respiratory Syndrome (SARS)

The CDCB investigated 47 reports of people in South Australia who may have been suffering SARS. All cases were subsequently rejected as the illnesses were not consistent with the syndrome. The World Health Organisation and the Australian Department of Foreign Affairs and Trade provided detailed information via their websites. This included information on the number of reported cases of SARS worldwide, and symptoms and management of persons infected with SARS. Information was also made available via a SARS hotline.

Typhoid Fever

There was 1 case of typhoid fever in a 9 year old male who reported recent travel to India.

Infant botulism

There was 1 case of infant botulism diagnosed in a 4 month old child from north-western Victoria. No apparent source for this case was identified. In South Australia, notifications of infant botulism are rare. The last recorded case was in 1998.

Q fever

There were 9 (6 males, 3 females: age range 28 to 74 years) cases of Q fever. Six of the cases resided in rural South Australia. Risk factors and immunisation status were elicited for 8 of the 9 cases. All of these reported exposure to livestock, either directly by way of occupation, or indirectly by being in the vicinity of livestock. None had been vaccinated for Q fever.

Measles

In May 2003 the CDCB investigated 2 epidemiologically-linked cases of measles in a 29 year old male and a 23 year old female. The primary case reported an onset of illness on 10th May 2003, 3 days after returning from Africa. The secondary case, the partner of the primary case, reported onset of symptoms on 21st May 2003. Both cases reported visiting healthcare centres and various other locations in metropolitan Adelaide during the infectious period. Health information was sent to medical practitioners and healthcare facilities. The two cases were unable to provide documented history for measles vaccination. People in this age group are susceptible to measles and may not be vaccinated against the disease.

***Haemophilus influenzae* infection**

There were 2 cases of *Haemophilus influenzae* serotype b. One was in a 2 year old partly-immunised female and the other in a 65 year old male. In addition, there were 2 (both female, aged 60 and 91) cases of *Haemophilus influenzae* serogroup f infection and 2 (both male, aged 82 and 96) cases of *Haemophilus influenzae* non-groupable infection.

Invasive Pneumococcal disease

There were 80 (46 males, 34 females; age range 0-88 years) cases of invasive pneumococcal disease. Forty (50%) of the cases were aged between 0-5 years. The cases were geographically scattered across the state.