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VIRUSES, CHLAMYDIAS, COXIELLAS, RICKETTSIAS AND MYCOPLASMAS REPORTING SCHEME: A total of 1043 reports were processed during this period. No reports were received from the Royal Children's Hospital Melbourne, Woden Valley Hospital or Westmead Hospital during this period.

Five cases of Q fever (all males) were reported. Ages ranged from 21 to 47 years, including a 29 year-old veterinarian.

In CDI 89/4, the echovirus type 30 isolates for 1988 were reported as 203. Since that time an additional 9 reports have been reported bringing the total to 212 in 1988. So for, 95 isolates this year (VIC, 45; WA, 34; NSw, 13; SA, 3).

One hundred and ninety serologically-confirmed cases of Ross River virus infection have been reported during this period. This brings the cumulative total for this year to 807 so far (WA, 419; VIC, 348; SA, 33; QLD, 4; NSW, 3) surpassing the 1988 total of 607 cases.

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- Contributions are solicited, and do not preclude later publication elsewhere.

- Figures given may be subject to revision.

OVERSEAS BRIEF: VACCINATION REQUIREMENTS FOR SAUDI ARABIA

Pilgrims travelling to Saudi Arabia for Umrah or Haj are required to have valid international certificates of vaccination against:

- meningococcal meningitis (vaccination to have been carried out at least 10 days and not more than 2 years before arrival); and
- yellow fever, (if arriving from yellow fever affected areas).

GONOCOCCAL SURVEILLANCE, AUSTRALIA: 1 JULY - 30 SEPTEMBER 1988

(Contributed by the Australian Gonococcal Surveillance Programme - AGSP. Co-ordinator Dr J.W. Tapsall, The Prince of Wales Hospital, Sydney NSW 2031)

This report provides details of penicillin sensitivity of 527 strains of gonococci isolated in participating laboratories over the period 1 July to 30 September 1988 (Table 1). The sensitivity of the isolates to penicillin was determined by a standardised technique and monitored by an external quality assurance programme [1].

Table 1: Penicillin sensitivity of isolates of N. gonorrhoea 1 July - 30 September 1988

	Percentage of isolates		
Centre	Sensitive*	Less Sensitive**	PPNG
Brisbane	26.1 (26.6)	55.4 (35.1)	9.8 (12.8)
Sydney	3.6 (11.2)	45.5 (34.4)	36.5 (36.8)
Melbourne	4.0 (7.3)	45.2 (55.1)	14.3 (16.7)
Adelaide	4.9 (14.8)	75.6 (43.5)	4.9 (11.9)
Perth	17.1 (24.3)	51.2 (37.8)	10.0 (10.8)

* Sensitive MIC = 0.004-0.016 mg/L
** Less sensitive MIC = 0.06-0.24 mg/L
Figures in parenthesis represent data for the same period in 1987.

The penicillin sensitivity of most gonococci falls within a bimodal distribution reported as 'sensitive' or 'non-sensitive'. The AGSP values for these categories are contained in the table footnotes. A small number of isolates do not fall within this distribution and these have not been included in the table. Only a very small proportion of strains now remain fully sensitive to penicillin, although patients whose strains are classified as 'less sensitive' would still be expected to respond to standard doses of the penicillins.

The proportion of strains demonstrating penicillinase activity (PPNG) is also shown in this table. This was highest in Sydney and in this city, 39 infections with PPNG were locally acquired and six were acquired overseas. Data on 15 other cases were not available. Local acquisition of PPNG was reported from most other centres, including Darwin. In Melbourne a case of

disseminated disease with a PPNG was recorded. Overall there is little change in the proportion of PPNG where data from the corresponding periods in 1987 and 1986 are reviewed.

The total number of strains examined (527) is nearly identical to the 560 strains examined in this quarter last year.

REFERENCES

1. Penicillin sensitivity of gonococci in Australia: development of the Australian Gonococcal Surveillance Programme. Members of the Australian Gonococcal Surveillance Programme. Br J Vener Dis 1984;60:226-30.

AIDS SURVEILLANCE, AUSTRALIA

To 24 February 1989, 1,239 cases of AIDS fulfilling the criteria of case definition were reported to the National Health and Medical Research Unit in AIDS Epidemiology and Clinical Research. The distribution of those patients by State or Territory of notification (Table 1), by age group (Table 2), by risk category (Table 3) and by clinical presentation (Table 4) are shown below. As previously stated the clinical classification of infection with HIV produced by CDC in Atlanta was adopted in Australia on 1 January 1988 and data is reported using that classification.

TABLE 1: AIDS patients by State or Territory of notification

STATE/ TERRITORY	CASES			DEATHS		
	Male	Female	Total	Male	Female	Total
NSW	763	29	792	391	18	409
VIC	248	6	254	88	2	90
QLD	79	4	83	44	3	47
WA	52	3	55	16	1	17
SA	33	1	34	17	1	18
NT	2	0	2	1	0	1
TAS	3	1	4	2	0	2
ACT	15	0	15	7	0	7
	1195	44	1239	566	25	591

TABLE 2: AIDS patients by age group

AGE (YEARS)	CASES			DEATHS		
	Male	Female	Total	Male	Female	Total
0 - 9	8	2	10	6	1	7
10 - 19	6	2	8	3	1	4
20 - 29	250	13	263	113	3	116
30 - 39	523	5	528	235	1	236
40 - 49	287	4	291	139	4	143
50 - 59	98	7	105	53	6	59
60 +	23	11	34	17	9	26
	1195	44	1239	566	25	591

TABLE 3: AIDS patients by risk category

RISK GROUP	CASES	DEATHS
Homosexual/Bisexual	1094	509
IV drug user:	(47)	(21)
. Homosexual/Bisexual IV drug user	34	17
. Heterosexual IV drug user	1	0
. Sexuality not stated	12	4
Blood transfusion recipient	52	42
Person with haemophilia	15	7
Heterosexual transmission	17	3
Under investigation	5	3
None of the above	9	6
	1239	591

TABLE 4: AIDS patients by clinical presentation*

INITIAL DISEASE REPORTED	CASES	DEATHS
GROUP IV:		
B: Neurological disease	25	14
C: Secondary infectious diseases	908	423
D: Secondary cancers	244	118
E: Other conditions	5	2
BC: Neurological disease + infectious diseases	9	7
BD: Neurological disease + cancers	1	1
CD: Infectious diseases + cancers	47	26
	1239	591

* The data in Table 4 include presumptive (clinical) diagnosis.

AIDS UPDATE, INTERNATIONAL - AS AT 28 FEBRUARY 1989
(Based on Wkly Epidem Rec 1989;64:61-2)

Country/Area	Number of cases	Date of report
Africa		
Algeria	13	26/03/88
Angola	85	30/09/88
Benin	15	30/06/88
Botswana	34	31/03/88
Burkina Faso	26	30/06/87
Burundi	1,408	30/06/88
Cameroon	62	03/08/88
Cape Verde	18	04/11/88
Central African Republic	432	15/06/88

Country/Area	Number of cases	Date of report
Chad	11	20/10/88
Comoros	1	12/01/89
Congo	1,250	31/12/87
Cote d'Ivoire	250	20/11/87
Djibouti	1	31/12/88
Egypt	6	31/12/88
Equatorial Guinea	-	16/05/88
Ethiopia	81	20/12/88
Gabon	27	31/12/88
Gambia	62	31/12/88
Ghana	227	31/10/88

Country/Area	Number of cases	Date of report
Africa, cont.		
Guinea	10	22/07/88
Guinea-Bissau	48	16/01/89
Kenya	2,732	30/06/88
Lesotho	2	26/08/88
Liberia	2	11/03/88
Libyan Arab Jamahiriya	-	31/12/88
Madagascar	-	25/04/87
Malawi	2,586	30/06/88
Mali	29	14/01/88
Mauritania	-	31/07/88
Mauritius	1	07/11/88
Morocco	22	15/12/88
Mozambique	27	03/01/89
Niger	43	31/12/88
Nigeria	13	03/11/88
Reunion	8	31/12/88
Rwanda	987	31/03/88
Sao Tome and Principe	1	11/02/88
Senegal	149	30/11/88
Seychelles	-	13/11/86
Sierra Leone	5	18/08/88
Somalia	-	31/12/88
South Africa	195	17/01/89
Sudan	88	31/12/88
Swaziland	14	16/06/88
Togo	2	15/06/88
Tunisia	36	31/12/88
Uganda	5,508	01/08/88
United Republic of Tanzania	3,055	31/07/88
Zaire	335	30/06/87
Zambia	1,296	31/12/88
Zimbabwe	119	30/04/88
Total	21,322	
Americas		
Anguilla	1	30/06/88
Antigua and Barbuda	3	30/09/88
Argentina	197	30/06/88
Bahamas	236	30/09/88
Barbados	67	30/09/88
Belize	11	30/09/88
Bermuda	92	30/09/88
Bolivia	16	30/09/88
Brazil	4,709	29/10/88
British Virgin Islands	-	30/06/88
Canada	2,196	31/12/88
Cayman Islands	4	30/09/88
Chile	100	30/09/88
Colombia	308	30/09/88
Costa Rica	79	30/09/88
Cuba	43	30/09/88
Dominica	6	30/09/88
Dominican Republic	619	30/09/88
Ecuador	45	30/06/88
El Salvador	55	30/09/88
French Guiana	113	31/03/88
Grenada	16	30/09/88
Guadeloupe	86	31/03/88
Guatemala	46	30/09/88
Guyana	40	30/09/88
Haiti	1,661	30/09/88
Honduras	186	30/09/88
Jamaica	72	30/09/88
Martinique	46	31/03/88
Mexico	1,642	30/09/88
Montserrat	-	30/09/88
Nicaragua	2	30/09/88
Panama	79	30/09/88
Paraguay	8	30/09/88
Peru	122	30/09/88
Saint Kitts and Nevis	14	30/09/88
Saint Lucia	11	30/09/88
Saint Vincent and the Grenadines	14	30/09/88
Suriname	11	30/09/88
Trinidad and Tobago	336	30/09/88
Turks and Caicos Islands	5	30/06/88
United States of America	86,157	16/02/89
Uruguay	35	30/09/88
Venezuela	263	30/09/88
Total	99,752	
Asia		
Afghanistan	-	31/12/88
Bahrain	-	31/12/88
Bangladesh	-	15/06/88

Country/Area	Number of cases	Date of report
Asia, cont.		
Bhutan	-	31/10/88
Brunei Darussalam	-	08/09/87
Burma	-	14/04/87
China	3	30/09/88
China (Province of Taiwan)	1	26/01/86
Cyprus	7	31/12/88
Democratic People's Republic of Korea	-	10/05/88
Democratic Yemen	-	31/12/88
Hong Kong	13	18/11/88
India	16	31/10/88
Indonesia	3	31/10/88
Iran (Islamic Republic of)	5	31/12/88
Iraq	-	31/12/88
Israel	76	31/12/88
Japan	97	12/01/89
Jordan	3	31/12/88
Kuwait	1	31/12/88
Lebanon	11	31/12/88
Malaysia	4	27/09/88
Maldives	-	30/06/87
Mongolia	-	31/12/88
Nepal	-	15/06/88
Oman	6	31/12/88
Pakistan	6	31/12/88
Philippines	20	31/12/88
Qatar	21	31/12/88
Republic of Korea	4	10/09/88
Singapore	10	11/01/89
Sri Lanka	1	31/12/88
Syrian Arab Republic	5	31/12/88
Thailand	8	01/07/88
Turkey	17	31/12/88
Vietnam	-	08/09/87
Yemen	-	31/12/88
Total	338	
Europe		
Albania	-	31/12/88
Austria	236	01/12/88
Belgium	408	30/09/88
Bulgaria	3	31/12/88
Czechoslovakia	12	31/12/88
Denmark	358	31/12/88
Finland	37	30/09/88
France	5,655	31/12/88
German Democratic Republic	6	30/09/88
Germany, Federal Republic of	2,885	31/01/89
Greece	170	31/12/88
Hungary	17	31/12/88
Iceland	10	31/12/88
Ireland	64	30/09/88
Italy	3,008	31/12/88
Luxembourg	13	30/09/88
Malta	12	30/09/88
Monaco	1	31/12/87
Netherlands	737	31/01/89
Norway	103	26/01/89
Poland	5	31/12/88
Portugal	199	31/12/88
Romania	9	30/09/88
San Marino	-	15/10/88
Spain	2,165	31/12/88
Sweden	262	31/01/89
Switzerland	702	31/12/88
USSR	5	31/10/88
United Kingdom	2,049	31/01/89
Yugoslavia	65	31/12/88
Total	19,196	
Oceania		
Australia	1,168	09/01/89
Cook Islands	-	08/09/87
Fiji	-	08/09/87
French Polynesia	3	15/12/88
Kiribati	-	18/01/88
Mariana Islands	-	05/08/87
New Caledonia and Dependencies	2	01/08/88
New Zealand	104	01/02/89
Papua New Guinea	8	31/12/88
Samoa	-	18/10/88
Solomon Islands	-	08/09/87
Tonga	1	01/08/88
Tuvalu	-	08/09/87
Vanuatu	-	25/01/89
Total	1,286	
WORLD TOTAL	141,894	

CONSENSUS STATEMENT FROM CONSULTATION ON ACQUIRED IMMUNE DEFICIENCY SYNDROME (AIDS) AND SPORTS

(Based on Wkly Epidem Rec 1989;64:69-70)

Sports medicine practitioners, officials of sports organisations and public health professionals are frequently asked about AIDS and sports activities. To provide guidance on these questions, a Consultation on AIDS and sports was convened in Geneva on 16 January 1989 by the World Health Organization's Global Programme on AIDS and the Cardiovascular Diseases Unit of the Division of Noncommunicable Diseases. The Consultation was organised in collaboration with the International Federation of Sports Medicine. Participants included representatives of the Medical Commission of the International Olympic Committee, the International Federation of Sports Medicine, the International Federation for Wrestling and the International Rugby Football Board, several experts on epidemiological and public health aspects of AIDS.

The Consultation developed the following consensus statement:

1. No evidence exists for a risk of transmission of the human immunodeficiency virus (HIV) when infected persons engaging in sports have no bleeding wounds or other skin lesions. There is no documented instance of HIV infection acquired through participation in sports. However, there is a possible very low risk of HIV transmission when one athlete who is infected has a bleeding wound or a skin lesion with exudate and another athlete has a skin lesion or exposed mucous membrane that could possibly serve as a portal of entry for the virus.

2. The possible very low risk of HIV transmission through sports participation would principally involve the combative sports with direct body contact and other sports where bleeding may be expected to occur. In such sports, the following procedures should be considered:
   (a) If a skin lesion is observed, it should be immediately cleansed with a suitable antiseptic and securely covered.
   (b) If a bleeding wound occurs, the individual's participation should be interrupted until the bleeding has been stopped and the wound is both cleansed with antiseptic and securely covered or occluded.

3. As in other health care settings for the safety of personnel drawing blood samples from athletes, protective gloves should be worn.

4. Sports organisations, sports clubs and sports groups have special opportunities for additional meaningful AIDS education of athletes, sports officials and ancillary personnel. The following should constitute the core of information provided:
   (a) HIV can be transmitted through sexual intercourse, blood, and from infected mother to child. Sexual transmission can be either man to woman, woman to man or man to man, and transmission by blood can include any injection practice in which non-sterile needles and/or syringes are used.

(b) For transmission of HIV through blood to occur during sport, the blood of an infected person must contaminate a lesion/wound or mucous membrane of another person. It should be the responsibility of any athlete participating in a combative sport with direct body contact who has a wound or other skin lesion to report it immediately to a responsible official, and to report for medical attention.

(c) HIV is not transmitted through saliva, sweat, tears, urine, respiratory droplets, handshaking, swimming-pool water, communal bath water, toilets, food or drinking-water.

5. There is no medical or public health justification for testing or screening for HIV infection prior to participation in sports activities.

6. Persons who know they are HIV-infected should seek medical counselling about further participation in sports in order to assess risks to their own health as well as the theoretically possible risk of transmission of HIV to others.

7. Sports organisations, sports clubs and sports groups should be aware of the above recommendations and ensure that all participants, sports officials and ancillary personnel are aware of them. In addition, this may provide the opportunity for reviewing general hygienic practices relating to sports.

8. National level sports organisations are urged to contact national AIDS committees or programs for further information regarding HIV infection and AIDS.

THE EPIDEMIOLOGY AND CONTROL OF MENINGOCOCCAL DISEASE

(Based on CDR 89/08:3-6)

This review draws attention to the main epidemiological features of meningococcal diseases in England and Wales and discusses the scope for prevention and control.

Epidemiology

Neisseria meningitidis is one of the three common causes of bacterial meningitis, and causes epidemic and endemic disease. In Britain, meningococcal disease has occurred in irregular epidemics with the latest wave beginning in 1984. In 1988, Group B strains accounted for 61% of all isolates submitted to the Public Health Laboratory Service (PHLS) Meningococcal Reference Laboratory, Manchester. The proportion of Group C strains has been increasing steadily, from 27% in 1984 to 35% in 1988. Group A strains are rare (less than 2%). In 1987, 94% of group A, 36% group B and 39% group C strains were resistant to sulphonamides but only 0.5% of clinical isolates were rifampicin resistant.

The incidence of meningococcal disease is highest in infants, followed by 1-5 year olds, but the recent epidemic of Group B 15 P1.16 and the new B4 strain have been associated

with an increased incidence in teenagers [1,2]. The case fatality rate is about 10%. Transmission from case to case is rare and most cases acquire infection from healthy carriers by droplet spread or direct contact. The carriage rate for all meningococci in the normal population at any time is likely to be about 10% [3] although carriage rates vary with age; for example, about 25% of young adults may be carriers at any one time. The carriage rate for particular epidemic strains will be lower and in the Stonehouse survey only 1.4% of the population were carriers of the epidemic Group B 15 P1.16 strain [3].

Increased incidence in contacts

Forty-four of 5593 cases of meningococcal infection reported to CDSC from 1978-1987 were reported to be secondary cases in the immediate family of a prior case. In 19 of these cases the onset was within two days of the index case (and may be considered as co-primary cases), seven within 3-7 days, seven within 8-28 days and eight from 1-15 months later. The risk of subsequent illness cannot be calculated from these data but several studies have shown that the risk of symptomatic infection in household contacts following the diagnosis of meningococcal meningitis in the index case, though small, is significantly greater than in the general population [4,5], and this has led to the routine use of chemoprophylaxis in household contacts. It is not known whether the increased incidence in contacts is due to increased exposure to meningococci or to increased susceptibility of those exposed. The precise period during which the risk for household contacts is increased over the general population has not been been determined but most studies of secondary attack rates (or more correctly, the incidence of subsequent cases) have used an arbitrary risk period of about 30 days after last exposure to the index case. In one study in the USA the attack rate in household contacts within 28 days was 4/1000 persons exposed, which was 500-800 times greater than in the general population [4]. A study by Munford et al [6] suggested that the risk is highest immediately after the onset in the index case and falls thereafter. Studies in Belgium at the time when adequate chemoprophylaxis programs were not in operation found a relative risk of 1245 for secondary household cases within 60 days of the index case, 76 for day-care nursery contacts and 23 for nursery school contacts [5]. These data also showed that 25 of 44 secondary cases occurred in the first week, eight in the second, four in the third and seven over the following six weeks. In Gloucestershire the risk of subsequent cases occurring in household contacts was increased for much longer than 28 days [7].

Chemoprophylaxis

Efficacy: Earliest studies of the use of sulphadiazine to prevent secondary cases proved the effectiveness of mass chemoprophylaxis in army personnel when sulphonamide sensitive strains were prevalent [8]. Controlled studies of the efficacy of rifampicin or any other antibiotic in preventing disease in household contacts have not been carried out, although in one study rifampicin chemoprophylaxis was associated with a reduced incidence of secondary household cases [4]. Several studies

have shown that rifampicin is effective in reduced nasopharyngeal carriage rates by 80-90% one week after treatment [9] and therefore may be expected to reduce, but not completely eliminate, transmission between household members. Recent studies in Gloucester found a 96% reduction in carriage one month after a two day course of rifampicin [7]. However, there is no direct evidence to show that the decrease in carriage rates will lead to a permanent reduction in incidence of disease. In Gloucestershire the attack rate for secondary household cases between 1981-88 within six months of the index case was 19.4/1000, 750 times the overall district attack rate, despite the use of rifampicin chemoprophylaxis [7].

Rationale for chemoprophylaxis: The rationale for offering chemoprophylaxis is seldom stated in textbooks and often not clearly understood in practice. For example, in one incident, confusion led to rifampicin chemoprophylaxis being given only to children. There were two subsequent household cases in children who had received prophylaxis [10]. An adult household contact who was later shown to be a carrier had not received rifampicin and was the probable source of infection.

Three possible aims have been described:

1) *To eliminate carriage of meningococci in household members and other close contacts and thereby in turn reduce transmission to susceptibles who are not carriers* [11,12]. This rationale requires the simultaneous dosing of the whole contact network, although an arbitrary definition of that network has to be made for logistic reasons. It should also be noted that patients recovering from meningococcal disease who have been treated with penicillin may still be carriers and therefore potential sources of infection to household contacts. They should therefore receive the chemoprophylactic regime of rifampicin before hospital discharge [13].

2) *To treat newly acquired nasopharyngeal or blood-borne infection in contacts who are non-immune and may be incubating the disease which they may have acquired either from the index case or from the same source as the index case* [12]. The dose of rifampicin currently recommended to treat nasopharyngeal carriage may not reliably achieve this object. Penicillin rather than rifampicin is the treatment of choice for invasive disease [14] but penicillin will not reliably eliminate nasopharyngeal carriage. In Norway, since 1975, a seven-day course of phenoxymethyl-penicillin has been recommended for children under 15 years who are household contacts. From 1980-84, eight out of 1415 notified cases were secondary household cases and presented 1-8 weeks after the index cases [15]. Although no secondary household cases occurred during the week of treatment the risk of secondary cases remained after treatment.

3) *To prevent susceptible contacts from acquiring infection by directly inhibiting colonisation* [14]. This could only be effective for the two days of prophylaxis.

Target population: People sleeping in the same household are known to be at increased risk [4,5] but anecdotal reports and a few published reports suggest that extended family members, close neighbour contacts, party guests and contacts in day-care

centres [5] may also be at increased risk. Without population based data it is not possible to determine the minimum exposure which will confer a significant increased risk of disease. In most incidents the source of the first and subsequent cases is believed to be a member of the household or mouth kissing contacts of the case [2]. Since the incubation period for meningococcal infection is 2-10 days the source contact of the case is likely to be included if all those who have been living in the same household, or have been mouth kissing contacts within 10 days of onset in the case, are identified and given chemoprophylaxis. This policy would also meet the second rationale of treating those who might have been infected by the index case after onset of illness. It should be borne in mind, however, that the index case may have been infected from outside the household and this source may subsequently also infect secondary cases within the family. A broader definition of the target population for rifampicin would be indicated from this consideration, but this has to be balanced against the risk of side effects, the development of rifampicin resistance and the difficulty of defining the limits of the wider at risk group.

Chemoprophylaxis should be offered as soon as possible after recognition of a case since the risk of secondary cases is greatest in the first few days, but even if delayed may still prevent late onset cases.

Antibiotic of choice: At present rifampicin is the antibiotic of choice for chemoprophylaxis unless in an outbreak the organism is known to be sensitive to sulphadiazine. Ciprofloxacin as a single oral dose of 500mgs is an alternative for adults but it is not yet licensed in the UK for use in children or adolescents. The dosage recommended for rifampicin is 600mg every 12 hours for two days in adults, 10mg/kg dose for children over one year of age, and 5mg/kg for children less than one year. Compliance with this regime may be poor in some circumstances. Contraindications to long courses of rifampicin are pregnancy, liver disease or alcoholism, but there is no evidence that a two-day course for chemoprophylaxis would be harmful unless there is severe liver disease. Side effects of rifampicin are discolouration of soft contact lenses; interaction with the contraceptive pill; urine, saliva and other body secretions coloured orange-red. These side effects should not be considered to be contraindications. The emergence of rifampicin resistance following chemoprophylaxis is a possibility but significant problems with this have mainly been reported where mass prophylaxis has been instituted [16].

Vaccines

Polysaccharide vaccines against group A, C, W135 and Y groups have proved successful in reducing infection (but not carriage) rates in US military personnel, and in the general population in parts of Africa, as well as in controlling an epidemic in Finland in 1973. Vaccine protection may last only up to 5 years. Existing polysaccharide vaccines are poorly immunogenic in children under 2 years of age. In older persons good antibody levels are usually achieved within 10-14 days. Therefore, vaccination cannot substitute for chemoprophylaxis in controlling infection in household contacts. These vaccines are not yet licensed for use in the UK and can only be obtained on a named-patient basis. It has been suggested that the

vaccine might be considered for household contacts of cases with Group A and C infections, in addition to chemoprophylaxis, in order to protect against the longer term increased risk of infection [14].

Recommendations for control policy

Despite some of the uncertainties outlined above, the following are recommendations for action.

- Treatment: General practitioners or casualty officers should treat suspected cases of meningococcal disease immediately with intravenous (IV) benzyl penicillin rather than waiting for the patients to be admitted to hospital. Crystapen has a shelf life of three years at 25°C and is therefore well suited for carrying in the GP's bag. If the patient is known to be allergic to penicillin, IV penicillin should still be given unless there is a history of anaphylaxis*. Following recovery, children should be followed up to detect and manage hearing loss or other neurological sequelae.

- Investigation and diagnosis of cases: Suspected cases should be investigated thoroughly and this should include: clinical evaluation, CSF film and culture, blood culture, throat swab for meningococcal culture and paired sera for subsequent examination for virus or meningococcal antibodies. CSF and blood cultures should be taken as soon as possible, particularly if IV penicillin has been given. Intravenous penicillin is likely to render blood cultures negative but is less likely to affect CSF results. All meningococcal isolates should be sent for grouping, typing and sulphonamide sensitivity.

- Management of contacts: Household contacts should be alerted to the increased risk of subsequent cases, which is greatest within the first few days but may persist for several months. They should be advised to seek medical advice urgently if any member of the family develops fever and headache, even if chemoprophylaxis has been given.

- Chemoprophylaxis: A two day course of rifampicin should be offered to those sharing living accommodation with the case and to mouth kissing contacts of the case in the 10 days preceeding admission, as soon as possible after identification of the index case. Ideally, rifampicin should be administered simultaneously to all intimate contacts. Patients with meningococcal disease should also receive rifampicin before hospital discharge. Contacts must be informed of side effects of rifampicin and a proforma detailing these should be prepared for patients and general practitioners.

  Special circumstances, eg attendance of the index case at a party with young children present, should be identified and the advisability of extending chemoprophylaxis should be considered, bearing in mind that there is at present little

*Editorial note: If there is a history of anaphylaxis, chloramphenicol is recommended.

hard data on which to decide the best course of action. Hospital staff should only be considered to be at high risk if mouth to mouth contact has occurred with the case. Contacts at school are not usually considered to require chemoprophylaxis unless more than one related case occurs in the school. When a case occurs in a schoolchild the head teacher and the general practitioners in the vicinity should be informed. Public concern persisting despite reassurance from the public health doctor should not be an indication for mass chemoprophylaxis. When a case occurs in a nursery school or day-care centre, which may resemble a 'household' setting, close contacts amongst children and staff should be offered chemoprophylaxis.

. Swabbing: Identifying carriers by culture of throat swabs from contacts before administering chemoprophylaxis is not appropriate since:
- it would delay chemoprophylaxis during the highest risk period;
- negative contacts may have become carriers before the result of the swabbing would be available; and
- swabbing is likely to have about at least a 10% failure rate in identifying carriage.

The effectiveness of chemoprophylaxis in eliminating carriage should be checked by culturing throat swabs from all contacts 4-7 days after chemoprophylaxis, although this will add to the workload of the public health physician and logistically may not be possible in every incident. If a contact is still carrying the organism, repeated chemoprophylaxis is recommended.

. Use of vaccines: Vaccine is not a substitute for chemoprophylaxis should that be indicated. However, meningococcal vaccines may be considered appropriate in closed or semi-closed populations (eg school) in which the incidence of group A or C disease is significantly increased.

. Clusters: When two or more cases closely connected in place and time occur, the public health authorities should be contacted. Wider prophylaxis may be indicated, eg for classmates if two children are ill in the same class; vaccination could be considered if group C (or A) organisms are responsible.

. Public health control: Responsibility within the health authority for the management of the public health aspects of a case of meningococcal meningitis should be clearly laid out and resources made available for taking all necessary steps. Good communications should be maintained between the hospital clinicians, the microbiologist and the public health doctors so that suspected cases are reported early by telephone and, subsequently, by official notification. The public health doctor responsible for infection control should keep a register of all suspected cases of meningitis (and septicaemia) to ensure that all necessary actions have been taken.

Public health doctors responsible for infection control should, during an outbreak or whenever there is public concern, brief the local press officer, distribute information leaflets as appropriate, be prepared to issue a press statement and talk to concerned parent groups or others. Public alarm may quickly develop into widespread panic, especially if fuelled by media sensationalism. Physicians, paediatricians, general practitioners and environmental health departments should be kept informed of the progress of any outbreak.

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AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS FROM CONTRIBUTING LABORATORIES
BASED ON DATE OF REPORTING

PERIOD 16/3/89 TO 29/3/89

1. CODE 019 - FAIRFIELD(VIC)
2. CODE 065 - STATE LAB(WA) PMH(WA)
3. CODE 110 - IMVS(SA)
4. CODE 111 - RCH(VIC)
5. CODE 112 - ICPMR(NSW) WVH(ACT)
6. CODE 113 - PHH POW(NSW)
7. CODE 114 - RAHC(NSW)
8. CODE 115 - STATE LAB(QLD)

		019	065	110	113	114	115	TOTAL
0100	ADENOVIRUS NOT TYPED	0	2	2	1	1	11	17
0102	ADENOVIRUS TYPE 2	0	0	1	0	0	0	1
0103	ADENOVIRUS TYPE 3	1	0	0	0	0	0	1
0104	ADENOVIRUS TYPE 4	1	0	0	0	0	0	1
0107	ADENOVIRUS TYPE 7	1	0	0	0	1	0	2
0126	ADENOVIRUS TYPE 26	1	0	0	0	0	0	1
0199	ADENOVIRUS TYPING PENDING	3	0	0	1	0	0	4
0203	INFLUENZA B VIRUS	0	1	0	0	0	0	1
0302	PARAINFLUENZA VIRUS TYPE 2	0	0	3	0	0	2	5
0303	PARAINFLUENZA VIRUS TYPE 3	1	0	0	2	0	1	4
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	3	1	0	1	4	9
0500	RHINOVIRUS (ALL TYPES)	4	1	8	1	0	4	18
0600	MYCOPLASMA PNEUMONIAE	4	3	8	0	0	0	15
0700	ORNITHOSIS-PSITTACOSIS	2	1	0	0	0	0	3
0809	COXSACKIEVIRUS A9	0	1	0	0	0	0	1
0816	COXSACKIEVIRUS A16	0	1	0	0	0	0	1
0902	COXSACKIEVIRUS B2	0	1	0	0	0	0	1
0905	COXSACKIEVIRUS B5	0	1	0	0	0	0	1
1004	ECHOVIRUS TYPE 4	0	0	1	0	0	0	1
1006	ECHOVIRUS TYPE 6	0	1	0	0	0	0	1
1007	ECHOVIRUS TYPE 7	0	2	0	0	0	0	2
1009	ECHOVIRUS TYPE 9	2	1	0	2	0	0	5
1011	ECHOVIRUS TYPE 11	0	1	0	1	0	0	2
1022	ECHOVIRUS TYPE 22	1	0	0	0	0	0	1
1028	ECHOVIRUS TYPE 28 = RHINO VIRU	0	0	7	0	0	0	7
1030	ECHOVIRUS TYPE 30	2	18	2	1	0	0	23
1100	POLIOVIRUS NOT TYPED	0	1	0	0	0	0	1
1101	POLIOVIRUS TYPE 1	1	0	0	0	0	0	1
1300	HERPES VIRUS GROUP - NOT TYPED	3	2	0	0	0	0	5
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	2	0	0	0	0	2
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	2	18	11	0	0	0	31
1303	VARICELLA-ZOSTER VIRUS	3	5	1	2	0	3	14
1306	HERPES SIMPLEX TYPE 1	27	57	18	7	0	28	137
1307	HERPES SIMPLEX TYPE 2	42	96	18	12	0	24	192
1401	COXIELLA BURNETI	1	1	3	0	0	0	5
1502	PICORNIA VIRUS - NOT TYPED = E	0	2	0	9	0	15	26
1521	MEASLES VIRUS	0	1	1	0	0	0	2
1522	RUBELLA VIRUS	1	1	1	0	0	0	3
1532	HEPATITIS B ANTIGEN	11	29	18	9	1	23	91
1535	HEPATITIS A ANTIBODY	1	2	0	1	0	1	5
1541	CHLAMYDIA A - C. TRACHOMATIS	0	64	22	0	0	38	124
1556	CMV - CYTOMEGALOVIRUS	9	9	4	5	2	10	39
1563	CORONAVIRUS	1	0	0	0	0	0	1
1564	ROTAVIRUS	0	18	2	0	2	0	22
1599	ENTEROVIRUS TYPING PENDING	0	0	0	20	3	0	23
9902	POXVIRUS GROUP NOT TYPED	1	0	0	0	0	0	1
9992	ROSS RIVER VIRUS	40	134	14	2	0	0	190
TOTAL		166	480	146	76	11	164	1043

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 1.

PERIOD 16/3/89 TO 29/3/89

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	9	0	0	0	5	0	0	0	14
0102	ADENOVIRUS TYPE 2	0	1	0	0	0	0	0	0	0	1
0107	ADENOVIRUS TYPE 7	0	1	0	0	0	0	0	0	0	1
0126	ADENOVIRUS TYPE 26	1	0	0	0	0	0	0	0	0	1
0302	PARAINFLUENZA VIRUS TYPE 2	0	5	0	0	0	0	0	0	0	5
0303	PARAINFLUENZA VIRUS TYPE 3	2	2	0	0	0	0	0	0	0	4
0400	RESPIRATORY SYNCYTIAL VIRUS (R	0	8	0	0	1	0	0	0	0	9
0500	RHINOVIRUS (ALL TYPES)	2	14	0	1	0	0	0	0	0	17
0600	MYCOPLASMA PNEUMONIAE	1	13	0	0	1	0	0	0	0	15
0700	ORNITHOSIS-PSITTACOSIS	0	1	0	0	0	0	0	0	0	1
0809	COXSACKIEVIRUS A9	0	0	0	1	0	0	0	0	0	1
0816	COXSACKIEVIRUS A16	0	0	0	0	0	0	0	0	1	1
0902	COXSACKIEVIRUS B2	0	0	0	1	0	0	0	0	0	1
0905	COXSACKIEVIRUS B5	0	0	0	1	0	0	0	0	0	1
1004	ECHOVIRUS TYPE 4	0	0	1	0	0	0	0	0	0	1
1006	ECHOVIRUS TYPE 6	1	0	0	0	0	0	0	0	0	1
1007	ECHOVIRUS TYPE 7	0	0	0	0	0	1	0	0	0	1
1009	ECHOVIRUS TYPE 9	0	1	0	3	0	0	0	0	1	5
1022	ECHOVIRUS TYPE 22	0	1	0	0	0	0	0	0	0	1
1028	ECHOVIRUS TYPE 28 = RHINO VIRU	0	7	0	0	0	0	0	0	0	7
1030	ECHOVIRUS TYPE 30	2	0	2	12	0	3	0	0	2	21
1300	HERPES VIRUS GROUP - NOT TYPED	0	0	0	0	0	0	0	0	5	5
1301	HERPES SIMPLEX VIRUS - NOT TYP	0	0	1	1	0	0	0	0	0	2
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	9	1	0	0	0	0	1	0	0	11
1303	VARICELLA-ZOSTER VIRUS	0	1	0	0	0	0	0	0	12	13
1306	HERPES SIMPLEX TYPE 1	1	7	0	1	0	0	0	1	89	99
1307	HERPES SIMPLEX TYPE 2	2	0	0	0	0	0	0	0	106	108
1401	COXIELLA BURNETI	1	0	0	0	0	0	0	0	0	1
1502	PICORNIA VIRUS - NOT TYPED = E	0	8	0	0	1	16	0	0	0	25
1521	MEASLES VIRUS	1	0	0	0	0	0	0	0	0	1
1522	RUBELLA VIRUS	0	0	0	0	0	0	0	0	3	3
1532	HEPATITIS B ANTIGEN	45	0	0	0	0	1	42	0	0	88
1535	HEPATITIS A ANTIBODY	1	0	0	0	0	0	4	0	0	5
1541	CHLAMYDIA A - C. TRACHOMATIS	0	0	0	0	0	0	0	0	1	1
1556	CMV - CYTOMEGALOVIRUS	5	15	0	1	0	1	0	2	1	25
1563	CORONAVIRUS	0	0	0	0	0	1	0	0	0	1
1564	ROTAVIRUS	0	0	0	0	0	21	0	0	0	21
1599	ENTEROVIRUS TYPING PENDING	0	1	0	3	0	16	0	0	1	21
9902	POXVIRUS GROUP NOT TYPED	0	0	0	0	0	0	0	0	1	1
9992	ROSS RIVER VIRUS	37	1	0	0	0	0	0	0	22	60
TOTAL		111	97	4	25	3	65	47	3	245	600

AUSTRALIA - COMMUNICABLE DISEASES INTELLIGENCE

VIRAL IDENTIFICATIONS BY CLINICAL INFORMATION TABLE 2.

PERIOD 16/3/89 TO 29/3/89

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

		12	13	14	15	16	17	18	19	20	21	TOTAL
0100	ADENOVIRUS NOT TYPED	2	0	0	0	0	0	0	0	1	0	3
0103	ADENOVIRUS TYPE 3	1	0	0	0	0	0	0	0	0	0	1
0104	ADENOVIRUS TYPE 4	0	0	0	0	0	0	0	0	1	0	1
0107	ADENOVIRUS TYPE 7	0	0	0	0	0	0	0	1	0	0	1
0199	ADENOVIRUS TYPING PENDING	1	0	0	0	0	0	0	1	2	0	4
0203	INFLUENZA B VIRUS	0	0	0	0	0	0	0	1	0	0	1
0500	RHINOVIRUS (ALL TYPES)	0	0	0	0	0	1	0	0	0	0	1
0700	ORNITHOSIS-PSITTACOSIS	0	0	0	0	1	0	1	0	0	0	2
1007	ECHOVIRUS TYPE 7	0	0	0	0	0	0	0	0	1	0	1
1011	ECHOVIRUS TYPE 11	0	0	0	0	0	0	0	1	1	0	2
1030	ECHOVIRUS TYPE 30	0	0	0	0	0	0	0	1	1	0	2
1100	POLIOVIRUS NOT TYPED	0	0	0	0	0	0	0	0	1	0	1
1101	POLIOVIRUS TYPE 1	0	0	0	0	0	0	0	0	0	1	1
1302	EPSTEIN-BARR VIRUS (EB VIRUS)	0	0	11	3	3	0	0	1	2	0	20
1303	VARICELLA-ZOSTER VIRUS	0	0	0	0	0	0	0	1	0	0	1
1306	HERPES SIMPLEX TYPE 1	4	28	0	0	0	0	0	1	5	0	38
1307	HERPES SIMPLEX TYPE 2	0	81	0	0	0	1	0	0	2	0	84
1401	COXIELLA BURNETI	0	0	0	0	0	0	3	1	0	0	4
1502	PICORNIA VIRUS - NOT TYPED = E	0	0	0	0	0	0	0	1	0	0	1
1521	MEASLES VIRUS	0	0	0	0	0	0	1	0	0	0	1
1532	HEPATITIS B ANTIGEN	0	0	0	0	0	1	0	0	2	0	3
1541	CHLAMYDIA A - C. TRACHOMATIS	0	123	0	0	0	0	0	0	0	0	123
1556	CMV - CYTOMEGALOVIRUS	0	0	0	1	0	1	0	4	8	0	14
1564	ROTAVIRUS	0	0	0	0	0	0	0	0	1	0	1
1599	ENTEROVIRUS TYPING PENDING	1	0	0	0	0	0	0	1	0	0	2
9992	ROSS RIVER VIRUS	0	0	0	0	123	0	0	7	0	0	130
TOTAL		9	232	11	4	127	4	5	22	28	1	443