NEW SOUTH WALES
Public Health Bulletin

Volume 3
Number 9
September, 1992

NSW HEALTH DEPARTMENT

ISSN 1034 7674

MENINGITIS SURVEILLANCE 1991

Bacterial meningitis remains an important cause of morbidity and mortality in Australia, particularly in children[1-4]. In 1990 Levy et al[1] reviewed the incidence of bacterial meningitis in NSW and assessed the effectiveness of the notification system in ascertaining cases of meningitis.

We have reviewed meningitis again in NSW, between July 1, 1990 and June 30, 1991 to:

- monitor trends in the incidence of bacterial meningitis; and
- review the surveillance of meningitis by routine notification mechanisms (passive surveillance), active surveillance by Public Health Units (PHUs) and hospital separation data (Inpatient Statistics Collection).

The NSW Health Department Inpatient Statistics Collection (ISC) provides details of the diagnoses which account for a person's stay in hospital. The diagnoses are coded according to the International Classification of Diseases, 9th Revision — Clinical Modification (ICD9-CM). As all cases of bacterial meningitis should be admitted to hospital, the ISC provides a means of measuring the case ascertainment of the notification system.

At the time of this review, meningococcal meningitis was notifiable by medical practitioners in NSW. No other forms of meningitis were notifiable.

METHODS

Incidence rates are based on the NSW hospital ISC for the year July 1, 1990 to June 30, 1991[5] and 1991 Census data[6,7]. Records were extracted for all separations coded for meningococcal meningitis (ICD9-036.0), bacterial meningitis (ICD9-320) and meningitis, unspecified (ICD9-322.9). We excluded cases of neonatal meningitis. Cases that were transferred between hospitals were counted only once. The data were scrutinised individually to detect other duplications.

In August 1991 the NSW Infectious Diseases Data System was reviewed (passive surveillance) for all notified cases of meningococcal meningitis from January 1 to June 30, 1991. At the same time PHUs were requested to undertake active surveillance for the same period. We requested the number of admissions to all hospitals for meningococcal meningitis (ICD9-036.0) and bacterial meningitis (ICD9-320). The information requested for each case included age, sex, date of admission, date of discharge and organism. Cases ascertained by active surveillance were then compared to the ISC. For this part of the analysis transfers and readmissions were not excluded from the ISC as PHUs were asked to collect details on all cases regardless of separation mode. We attributed data from a hospital within any Area/Region to that Area Health Service or Region. No attempt was made to assess admission patterns across 'borders'.

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RESULTS

Between July 1, 1990 and June 30, 1991 there were 321 hospital separations for bacterial meningitis, for a rate of 5.6/100,000 population. Of these, 78 were meningococcal meningitis at a rate of 1.36/100,000 population and 115 were *Haemophilus influenzae* type b (Hib) meningitis at a rate of 2.0/100,000 population (Table 1).

In children aged between four weeks and five years there were 192 hospital separations for bacterial meningitis for the same period, a rate of 46.8/100,000 children aged less than five years. Of these, 46 were meningococcal meningitis (rate 11.2/100,000 children aged less than five) and 108 were Hib meningitis (rate 26.3/100,000 children aged less than five) (Table 2). Thus 60 per cent of all cases of meningitis occurred in children aged less than five years and more than half of these were due to Hib.

A further 191 cases of unspecified meningitis (ICD9-322.9) were reported on the ISC.

By August 1991 only eight cases of meningococcal meningitis had been notified to the NSW Health Department for the period January 1 to June 30, 1991.

With the exception of the Hunter Area, all PHUs (93 per cent) participated in active surveillance. Active surveillance identified a total of 130 hospital separations for bacterial meningitis and 180 cases were extracted from the ISC for the same period, excluding the Hunter Area (Table 3). All notified cases were detected by active surveillance.

Nineteen per cent of the cases of meningococcal meningitis identified by the ISC were notified to PHUs.

DISCUSSION

The annual incidence of bacterial meningitis in NSW, based on the ISC for 1990-1991, was 5.6/100,000. This rate is slightly increased from the previous two years, which may be attributable to the apparent increased rate of Hib meningitis in children under five years of age, from 13.6[1] to 26.3 per 100,000. It is unclear why the rate of Hib meningitis was low in 1989-90, but the 1990-91 rate is consistent with the rates found in children under five in Western Australia (26.9/100,000)[2], Victoria (25.4/100,000)[8] and Auckland (27/100,000)[9]. The annual incidence of meningococcal meningitis remained stable in both children and the whole population.

Incidence rates based on the ISC need to be interpreted with caution, as they are likely to be under-estimates. True incidence rates require a full examination of individual hospital records, laboratory records and mortality data for deaths before admission. A study by Hanna[2] found that 60 per cent of children with a discharge diagnosis of ICD9-322.9 (meningitis, unspecified) did have bacterial meningitis (personal communication). We identified 191 cases with a discharge diagnosis of ICD9-322.9. The implication for NSW is that the true incidence of meningitis may be as high as 7.6/100,000 population. However, the strengths of the ISC for this type of review are that it is accessible, quick and inexpensive. Further, and most important, it provides valid results for monitoring trends.

TABLE 1

INCIDENCE OF MENINGITIS PER 100,000 NSW POPULATION

Type of meningitis	1988-89[1]	1989-90[1]	1990-91
All bacterial	5.4	5.1	5.6
Meningococcal	1.2	1.4	1.4

TABLE 2

INCIDENCE OF MENINGITIS PER 100,000 CHILDREN <5 YEARS

Type of meningitis	1989-90[1]	1990-91
Meningococcal	10.5	11.2
Hib	13.6	26.3

TABLE 3

COMPARISON OF MENINGITIS CASE ASCERTAINMENT BY ACTIVE SURVEILLANCE (AS) AND HOSPITAL SEPARATIONS (ISC), BY PUBLIC HEALTH UNIT FOR JANUARY 1, 1991-JUNE 30,1991

Public Health Unit	Type of Meningitis					
	Meningococcal (ICD9-036.0)		Hib (ICD9-320.0)		Other bacteria (ICD9-320.1-9)	
	AS	ICS	AS	ISC	AS	ISC
Central and Southern Sydney	6	5	12	8	17	14
Western Sector	3	6	13	15	10	11
Northern Sydney	1	3	0	6	0	9
Eastern Sydney	7	4	0	5	0	13
South Western Sydney	4	2	2	6	2	1
Central Coast	3	3	4	4	6	6
Illawarra	3	3	2	2	8	9
North Coast	3	4	3	4	4	5
New England	2	2	0	2	0	4
Orana and Far West	0	2	3	5	1	2
Central West Region	1	0	1	1	2	2
South Eastern Region	1	0	1	0	0	1
South West Region	0	4	4	6	0	2
Total	34	38*	45	64*	51	78*

*excluding the Hunter area.

The detection of meningococcal meningitis by passive surveillance was disappointingly low, with only 19 per cent of cases detected compared to 54 per cent for the same period in 1990[1].

However, the first six months of 1991 coincided with the introduction of computer databases to PHUs and the low detection rate may reflect teething problems. Active surveillance fared better, detecting 89 per cent (34/38) of meningococcal meningitis and 72 per cent (130/180) of all bacterial meningitis identified by the ISC. The overall rate

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MATERNAL SCREENING FOR DOWN'S SYNDROME

Down's syndrome is the most common chromosomal disorder, with an incidence of about 1.2 per 1,000 births in Australia. It is characterised by mental retardation, hypotonia, prominent tongue, oblique palpebral fissures and epicanthic folds and is associated with congenital heart disease and strabismus. Down's syndrome can be diagnosed in pregnancy by chorionic villus sampling or amniocentesis. However, it is not feasible to apply these invasive procedures to all pregnant women. This article compares the impact in NSW of current screening practice and a proposed new test to identify women who are at increased risk of a Down's syndrome pregnancy.

The risk of a Down's syndrome pregnancy rises with increasing maternal age. This is the basis of current prenatal screening practice for Down's syndrome in NSW, whereby amniocentesis or chorionic villus sampling is offered to all women 37 years of age or over. But age alone is an unsatisfactory screen because the great majority of Down's syndrome pregnancies occur in younger women. A screening test which identifies high-risk pregnancies at all ages is needed. Four case-control studies[1-4] and one prospective trial[5] have shown that a combined screening test, which uses maternal age and three maternal serum markers (alpha-fetoprotein, unconjugated oestriol and human chorionic gonadotrophin) to calculate a woman's individual risk of having a Down's syndrome pregnancy, is better than maternal age alone.

SCREENING BY MATERNAL AGE ALONE

If the maternal age-specific incidence rates for Down's syndrome are applied to the distribution of maternal ages at birth in NSW during 1990 then 125 Down's syndrome babies would be expected to be born in that year. Of these, 35 (28 per cent) would occur in women aged 37 years and over, and 90 (72 per cent) in those aged less than 37 years. While the risk of Down's syndrome births is higher in the 37-plus age group, the majority of births are to women aged less than 37 years, and the majority of Down's syndrome births are also to women aged less than 37 years. The sensitivity of screening by maternal age alone is therefore 28 per cent (this assumes all eligible women agree to amniocentesis).

Of the 87,587 births in NSW during 1990 an estimated 4,586 (5 per cent) were to women aged 37 years or over. Only 35 of the infants born would be expected to have Down's syndrome. Thus, while the risk of Down's syndrome is higher in women aged 37-plus, most Down's syndrome-affected pregnancies occur in younger women, because the great majority of pregnancies occur in younger women. Screening by maternal age alone gives a false positive rate of 5 per cent, which may be expressed as a specificity of 95 per cent.

The amniocentesis rate in NSW for women aged 37 years and over is, in fact, about 50 per cent. Under the current screening program using maternal age alone, it is therefore expected that 17 (14 per cent) Down's syndrome pregnancies would be detected per year as a result of 2,293 amniocenteses and 108 (86 per cent) Down's syndrome pregnancies would be missed. Assuming a fetal loss rate of 0.5 per cent after amniocentesis, it is expected that about 11 normal fetuses will be lost.

SCREENING USING THE TRIPLE TEST

The likely impact of the triple test in NSW can be calculated from known sensitivity and specificity measurements, and estimates of amniocentesis uptake rates.

TABLE 4

SENSITIVITY AND SPECIFICITY OF THE TRIPLE TEST AT DIFFERENT MATERNAL AGES

Maternal age (years)	Sensitivity	Specificity
20	40.4	97.4
25	43.9	97.0
30	51.9	95.2
35	70.5	87.1
40	89.8	63.7

Source: Canick JA, George JK. Multiple marker screening for fetal Down syndrome. Contemporary Ob/Gyn, 1992, April, pp. 3-12.

TABLE 5

EXPECTED NUMBER OF TRUE POSITIVES, FALSE POSITIVES AND TOTAL POSITIVES FOR MATERNAL SERUM SCREENING USING THE TRIPLE TEST, ASSUMING 100 PER CENT AMNIOCENTESIS UPTAKE RATE, BY RISK CUT-OFF LEVEL, NSW, 1990 (a)

Risk cut-off level	True positive	False positive	Total positive
1:100	55	1,489	1,544
1:150	65	2,452	2,518
1:200	71	3,416	3,487
1:250	77	4,379	4,456
1:300	80	5,343	5,423
1:350	84	6,306	6,390

(a) Sensitivities and specificities are taken from Wald et al[2].

The triple test has a sensitivity of 61 per cent and a specificity of 95 per cent at a risk cut-off of about 1:250 (equivalent to the risk for a woman aged 37 years if age alone were the screening criterion)[2]. This means that, if all women with a calculated risk of a Down's syndrome pregnancy of 1:250 or higher are referred for amniocentesis, then 61 per cent of Down's syndrome pregnancies would be detected and 5 per cent of the pregnant population would have a positive test result, assuming all eligible women agree to amniocentesis.

However, the sensitivity of the triple test increases and the specificity decreases with increasing maternal age (Table 4). The test is therefore better for detecting Down's syndrome pregnancy at older maternal ages, at the cost of a higher false positive rate.

The proportion of Down's syndrome pregnancies which is detected can be increased by reducing the risk cut-off level. But this will also increase the number of false positive results and the total number of amniocenteses. Table 5 shows the effect of raising or lowering the risk cut-off level for referral for amniocentesis for the NSW population.

It is unlikely that amniocentesis uptake rates will reach 100 per cent. Figure 1 shows the effect of varying amniocentesis uptake rates on the number of Down's syndrome pregnancies detected and missed, and the number of fetuses lost (assuming a fetal loss rate due to amniocentesis of 0.5 per cent), at a risk cut-off level of 1:250. The number of Down's syndrome cases detected exceeds those missed at an amniocentesis uptake rate of about 90

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per cent or more. At the more likely amniocentesis uptake rate of 50 per cent more than twice the number of Down's syndrome pregnancies is missed than detected.

Figure 2 shows the same information as Figure 1 but for a lower risk cut-off level of 1:350. This will increase the yield of Down's syndrome pregnancies to 84 (67 per cent) — an increase of seven affected cases — for an increase in the number of amniocenteses by 1,934 to 6,390. The number of Down's syndrome cases affected will be greater than the number missed at amniocentesis uptake rates of 70 per cent or more. At the more likely uptake rate of 50 per cent, about twice as many Down's syndrome pregnancies will be missed as will be detected. However, at a fetal loss rate of 0.5 per cent due to amniocentesis, it is expected that 16 fetuses will be lost. It is therefore likely that a reduction in the risk cut-off to 1:350 will result in more additional fetuses lost than additional Down's syndrome pregnancies detected.

DISCUSSION

Maternal serum screening with the triple test yields about twice the number of Down's syndrome pregnancies as screening by maternal age alone, for a similar number of amniocenteses and a similar number of fetuses lost. A range of screening strategies is possible using maternal age or the triple test or a combination of both. Table 6 shows the expected results of five screening strategies, assuming an amniocentesis uptake rate of 50 per cent. The highest yield of Down's syndrome pregnancies is produced by a strategy which combines amniocentesis for all pregnant women aged 35-plus and 'triple test screening' for the remainder. This will identify 35 per cent of Down's syndrome pregnancies at a 'cost' of 6,405 amniocenteses, which is equivalent to 7.3 per cent of the pregnant population. However, triple test screening alone is expected to detect 30 per cent of Down's syndrome pregnancies for 2,228 amniocenteses. The combined strategy of amniocentesis for all women aged 35-plus and triple test screening for the rest will therefore detect an additional six Down's syndrome pregnancies as a result of an additional 4,177 amniocenteses. The combined strategy is not substantially better than triple test screening alone because the triple test already has maternal age incorporated into the algorithm.

TABLE 6

EXPECTED NUMBER OF DOWN'S SYNDROME CASES DETECTED AND MISSED, AND EXPECTED TOTAL NUMBER OF AMNIOCENTESES AND FETUSES LOST FOR VARIOUS POPULATION-BASED MATERNAL SCREENING PROGRAMS, FOR AN AMNIOCENTESIS UPTAKE RATE OF 50 PER CENT (a)

Screening program (b)	Number of Down's pregnancies detected		Number of Down's pregnancies missed		Number of amniocenteses	Number of fetuses lost (c)
	No.	%	No.	%		
1	18	**14**	107	**86**	2,293	11
2	24	**19**	101	**81**	4,642	23
3	38	**30**	87	**70**	2,228	11
4	42	**34**	83	**66**	4,363	32
5	44	**35**	81	**65**	6,405	41

(a) These figures are based on the maternal age distribution for NSW births, January-June 1990
(b) Screening programs as follows:
1 Maternal age ≥ 37 years
2 Maternal age ≥ 35 years
3 Triple test screening (incorporating age) only
4 Maternal age ≥ 37 years plus triple test screening of remainder with triple test cut-off of 1:250
5 Maternal age ≥ 35 years plus triple test screening of remainder with triple test cut-off of 1:250
(c) Expected number of fetuses lost is estimated at 0.5 per cent of total amniocenteses

FIGURE 1

Expected number of Down's syndrome pregnancies detected and missed and number of normal fetuses lost as a result of maternal serum screening using the 'triple test' at a risk cut off level of 1:250, by amniocentesis uptake rate, NSW, 1990.

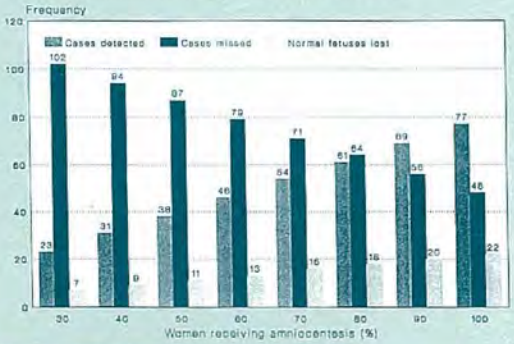
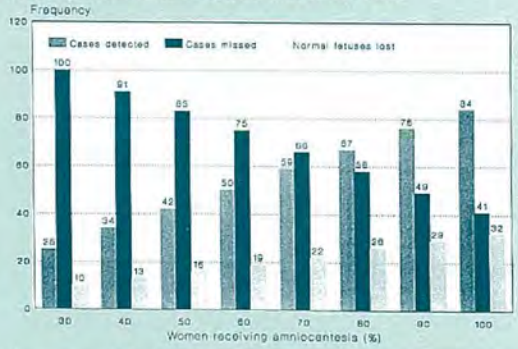


FIGURE 2

Expected number of Down's syndrome pregnancies detected and missed and number of normal fetuses lost as a result of maternal serum screening using the 'triple test' at a risk cut off level of 1:350, by amniocentesis uptake rate, NSW, 1990.



The yield of Down's syndrome pregnancies detected may be increased in two ways. First, the risk cut-off level for the triple test could be reduced. This will probably result in the number of additional fetuses lost due to amniocentesis exceeding the number of additional Down's syndrome pregnancies detected. Second, the proportion of women who agree to amniocentesis could be increased. For example, in order to detect 50 per cent of Down's syndrome pregnancies using triple test screening alone, an amniocentesis uptake rate of 82 per cent would be required, entailing 3,653 amniocenteses, equivalent to 4 per cent of the pregnant population. In order to detect 50 per cent of Down's syndrome pregnancies using a strategy which includes the offer of amniocentesis to all women aged 37-plus and triple test screening for the remainder, an amniocentesis uptake rate of 74 per cent would be required, entailing 6,457 amniocenteses, and equivalent to 7 per cent of the pregnant population.

Population-based maternal serum screening for Down's syndrome using the triple test is the most efficient screening test available. A risk cut-off of 1:250 gives the best yield in terms of maximum Down's syndrome pregnancies detected for the fewest number of

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Maternal screening for Down's syndrome

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amniocenteses. However, even if all women who screen positive accept amniocentesis, only 61 per cent of Down's syndrome pregnancies will be detected. Triple test screening will also result in large numbers of false positive test results and some false negative results. Each mother screened will need to be carefully advised on the meaning of the test result, be it positive or negative. The result of an amniocentesis is known after about three weeks, and should be available by the 20th week of pregnancy so the family may decide whether to proceed with the pregnancy. Counselling services will need to be available almost immediately the test results are available, so a decision about amniocentesis can be reached and acted on promptly. For families living in rural regions, an amniocentesis will entail travel to a major centre at short notice.

The rate of some other chromosomal defects increases with increasing maternal age. These include trisomy 18, trisomy 13 and XXY abnormalities. Some trisomy 18 pregnancies have been detected after screening with the triple test, but the reliability of the test in regard to trisomy 18 is not known. If amniocentesis is offered only to women whose risk is high according to the triple test, regardless of maternal age, some affected pregnancies which would have been detected under screening based on maternal age will be missed.

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of detection was lowered in part by some PHUs actively seeking only cases of meningococcal meningitis.

Table 3 shows that while most PHUs did not identify as many cases from their Area/Region as the ISC, two PHUs identified more. There are several explanations for the discrepancies. Active surveillance, in some instances, was based on hospital admissions while the ISC reports separations so patients may have been admitted in the surveillance period but discharged after June 30, 1991 when the ISC closed. Also, patients may cross borders. In some cases more detail was provided on active surveillance. For example, a case identified to South Western Sydney PHU as meningococcal meningitis, on clinical grounds, was discharged as 'meningitis due to unspecified bacterium (ICD9-320.9)' because no organism was isolated. Finally, the ISC was not a full enumeration of all hospital separations for the study period. Full enumeration of all public hospital separations began on July 1, 1991 and will begin for all private hospital separations on July 1, 1993, which will alleviate this problem in the future.

Innovative changes to public health in NSW should assist passive surveillance of meningitis. The Public Health Act 1991 has made Hib meningitis a notifiable condition. It is to be notified by both hospitals and laboratories, which should not only increase detection rates but allow swift public health action to prevent secondary cases. This is also the case for meningococcal meningitis.

Another positive public health development has been the licensing of a first vaccine against Hib infections. Although immunisation for Hib infections will not be added to the childhood immunisation schedule until a vaccine that is suitable for children less than six months of age becomes available[10], a PRP-D vaccine is available on a retail basis for children aged 18 months.

RECOMMENDATION

That the NSW Health Department Inpatient Statistics Collection provides the most cost-effective method for annually reviewing trends in bacterial meningitis in NSW.

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INFECTIOUS DISEASES

TIMELINESS AND COMPLETENESS OF REPORTING

The following table lists the number of weekly reports made to the Epidemiology and Health Services Evaluation Branch in the past two months, from Epiweek 28 to Epiweek 35.

There has been a major improvement in the quality of infectious diseases data received from Public Health Units (PHUs), both with respect to weekly reporting (Table 7) and the inclusion of basic epidemiological parameters on infectious disease notifications (Table 8).

TABLE 7

NUMBER OF WEEKLY REPORTS MADE TO EPIDEMIOLOGY BRANCH — JULY-AUGUST 1992

Public Health Unit	Number	Status
Central/Southern Sydney	8	Complete
Eastern Sydney	6	Complete
South Western Sydney	6	Incomplete
Western Sector	8	Complete
Northern Sydney	8	Complete
Central Coast	8	Complete
Illawarra	7	Complete
Hunter	8	Complete
North Coast	8	Complete
New England	8	Complete
Orana and Far West	8	Complete
Central West	8	Complete
South-West	8	Complete
South-East	7	Complete

TABLE 8

PERCENTAGE OF NOTIFICATIONS WITH INCOMPLETE INFORMATION BY VARIABLE AND AREA/REGION, JULY-AUGUST 1992

Area/Region	Age	Sex	Aboriginality
Central Sydney	complete	complete	38.7
Southern Sydney	complete	complete	44.5
Eastern Sydney	3.0	6.8	61.6
South Western Sydney	complete	complete	33.4
Western Sydney	1.8	0.9	25.0
Wentworth	complete	complete	33.4
Northern Sydney	4.6	3.4	25.8
Central Coast	complete	complete	100.0
Illawarra	complete	complete	76.5
Hunter	3.7	complete	100.0
North Coast	0.8	0.8	complete
New England	complete	1.8	25.0
Orana and Far West	2.7	complete	25.0
Central West	complete	complete	44.5
South-West	complete	complete	20.0
South-East	complete	complete	complete

PERTUSSIS (WHOOPING COUGH)

NSW faces the prospect of a pertussis epidemic in the 1992-93 summer and autumn. This prediction is based on three factors. First, pertussis epidemics have occurred in NSW at three- to four-year intervals, with recent epidemics in the summer/autumn months of 1985-6 and 1989-90. Second, to the end of August 1992, 75 pertussis notifications had been received in 1992, compared with 32 for the corresponding period in 1991 (Table 9). Third, the Australian Bureau of Statistics National Health Survey conducted in 1989-90 found that the NSW pertussis immunisation rate was only 89 per cent. Control of pertussis requires immunisation rates of more than 94 per cent.

TABLE 9

SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS AUGUST 1992

Condition	Number of cases notified Period		Cumulative	
	Aug 1991	Aug 1992	Aug 1991	Aug 1992
Adverse reaction	N/A	3	N/A	27
AIDS	30	1	238	93
Arboviral infection	7	3	454	274
Brucellosis	–	–	2	–
Cholera	–	–	–	1
Diphtheria	–	–	–	–
Foodborne illness (NOS)	279	3	2183	141
Gastroenteritis (instit.)	8	5	40	184
Gonorrhoea	38	15	274	275
H influenzae epiglottitis	1	3	11	31
H influenzae B — meningitis	7	9	27	69
H influenzae B — septicaemia	2	–	8	16
H influenzae infection (NOS)	9	3	90	23
Hepatitis A	145	17	551	667
Hepatitis B	155	42	858	1561
Hepatitis C	53	53	256	2273
Hepatitis D	N/A	–	N/A	5
Hepatitis, acute viral (NOS)	1	–	234	14
HIV infection*	67	62	534	514
Hydatid disease	2	–	4	4
Legionnaires' disease	–	–	22	75
Leprosy	–	–	–	5
Leptospirosis	–	1	23	14
Listeriosis	–	–	–	9
Malaria	21	2	147	85
Measles	28	13	244	232
Meningococcal meningitis	7	6	30	41
Meningococcal septicaemia	2	3	10	8
Meningococcal infection (NOS)	3	3	27	9
Mumps	N/A	–	N/A	15
Mycobacterial tuberculosis	41	10	196	245
Mycobacterial — atypical	16	–	77	159
Mycobacterial infection (NOS)	15	3	116	43
Pertussis	2	–	32	75
Plague	–	–	–	–
Poliomyelitis	–	–	–	–
Q fever	13	3	142	99
Rubella	5	1	28	30
Salmonella infection (NOS)	83	6	932	511
Syphilis	75	22	400	537
Tetanus	–	–	3	1
Typhoid and paratyphoid	2	1	40	21
Typhus	–	–	–	–
Viral haemorrhagic fevers	–	–	–	–
Yellow fever	–	–	–	–

*Data to July only

Three hundred and fifty-one cases of pertussis were recorded in the calendar years 1989-90. This was an underestimate of the true incidence, because the surveillance system in operation at the time was based on doctor notifications alone. The current system relies on hospital and laboratory as well as doctor notifications.

Of the 75 notifications received this year, sixty-eight (91 per cent) were for children over the age of six months, and could therefore have been prevented by age-appropriate immunisation.

Pertussis vaccine is one of the three components of Triple Antigen vaccine. No monovalent pertussis vaccine is available in Australia. A full course of immunisation

requires four injections of Triple Antigen, at the ages of two, four, six and 18 months.

To minimise the incidence of pertussis in the coming months, parents and medical attendants are urged to review the immunisation status of all children. Pertussis immunisation (Triple Antigen) can be given to any child under the age of four years.

The following public health measures should be taken if pertussis is diagnosed:

- Erythromycin should be given to cases to reduce transmission.
- Unimmunised household contacts aged less than five years should be excluded from child-care facilities for 14 days after the last exposure to infection, or until they have received five days of a 14-day course of erythromycin.

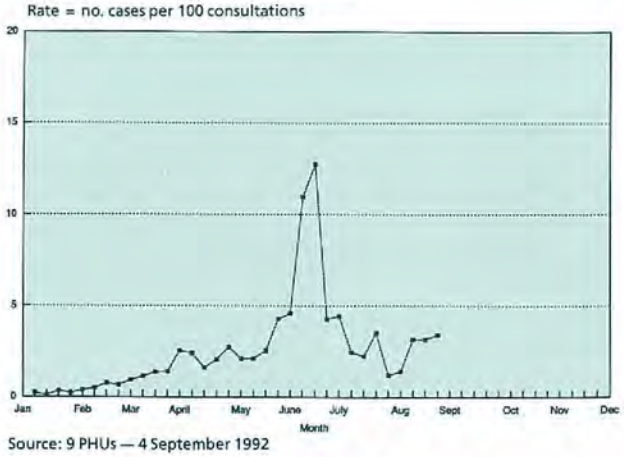
The role of pertussis immunisation is enhancement of immunity before exposure. Pertussis vaccine does not prevent infection after exposure has occurred.

INFLUENZA

Nine Public Health Units (CCA, CSA/SSA, CWR, ILL, ESA, NSA, SER, SWS and Western Sector) provide General Practitioner Sentinel Surveillance data on influenza. The August 1992 rate of influenza-like illness (ILI), expressed as the number of cases per 100 consultations averaged over all participating PHUs, ranged from 1.4 cases per 100 consultations in the first week of August to 3.4/100 consultations for the last week of August (Figure 3). Throughout August all participating PHUs, other than CWR, reported ILI rates of <5.0 cases per 100 consultations. CWR reported higher rates for the latter three weeks of August (12.2, 10.5 and 7.3/100 consultations).

FIGURE 3

INFLUENZA-GENERAL PRACTITIONER SENTINEL SURVEILLANCE NETWORK, NSW 1992



Source: 9 PHUs — 4 September 1992

HAEMOPHILUS INFLUENZAE type b

An effective and safe vaccine against *Haemophilus influenzae* type b has been available in Australia for four months for children between the ages of 18 months and five years.

Of the 139 notifications received for *Haemophilus influenzae* type b to the end of August 1992, 64 (46 per cent) occurred within the age range 18 months to five years, and could therefore have been prevented by immunisation.

The Department has recently released an information bulletin on *Immunisation for Haemophilus influenzae type B infections* (92/34).

MEASLES

Eighty-two per cent of notifications received in 1992 were for children over the age of one year. As measles immunisation is recommended at the age of 12 months, these cases were preventable by age-appropriate immunisation.

TUBERCULOSIS

Notifications received for tuberculosis are 25 per cent higher in 1992 than those reported for the same period in 1991. Reasons for this are:

- a true increase in the incidence of tuberculosis;
- improved surveillance of mycobacterial infections;
- improved data quality allowing most notifications to be correctly classified as tuberculosis or atypical mycobacteria; and
- Public Health Units not *denotifying* cases that do not fulfil clinical or epidemiological case definitions.

The NSW Health Department will be convening a meeting of Public Health, Infectious Disease and Thoracic Physicians on October 28 to discuss the following questions:

- Should tuberculin positive refugees and migrants be routinely offered chemoprophylaxis on arrival in Australia?
- Should isoniazid be the only drug used for routine chemoprophylaxis, as suggested by the NHMRC guidelines?
- Should fully supervised chemotherapy be given:
  — to all TB patients (as far as possible), and/or
  — where there is doubt about compliance, for example migrants with communication problems, alcoholics, elderly patients with poor memories, as suggested by the NHMRC guidelines, and/or
  — at the physician's discretion?
- For those known to have taken an adequate course of chemotherapy, how long should routine follow-up be continued?

The Community Health and Anti-tuberculosis Association is sponsoring the 1992 Tuberculosis Seminar on October 29. Further details can be obtained from TB Statewide Services on (02) 646 8576.

MENINGOCOCCAL MENINGITIS

Three children died of meningococcal meningitis in August-September — a two-year-old male from North Coast Region, a four-year-old female in South Eastern Region and a three-year-old male from the Hunter Area.

Notifications of meningococcal infections for the period January-August were 67 in 1991 and 58 in 1992, a decrease of 16 per cent. Notifications for meningococcal meningitis, for the same period, increased 37 per cent.

British and New Zealand Health Authorities have recently recommended that Benzylpenicillin should be carried in doctors' emergency bags and administered to all suspected cases of meningococcal disease before transfer to hospital. This will not affect the ability to confirm a diagnosis, as bacterial antigen will be identifiable in the cerebrospinal fluid.

Children referred to hospitals with a differential diagnosis of meningitis should be triaged appropriately to prevent unnecessary delays in diagnosis.

Continued on page 104 ►

► *Continued from page 103*

When meningitis is suspected in a child a lumbar puncture should be considered. No child should be discharged from hospital with a differential diagnosis of meningitis if a lumbar puncture has not been performed.

NON-NOTIFIABLE SEXUALLY TRANSMITTED INFECTIONS

Notifications of sexually transmitted infections[1] (STIs) which are not notifiable under the Public Health Act 1991 are being received from Sexual Health Clinics (SHCs) in nine Areas and Regions (Table 12). NSW is the only State in which such data are compiled. They will provide a means of describing the pattern of STIs managed in both urban and rural public SHCs.

Within three months Epidemiology and Health Services Evaluation Branch staff and members of the Venereology Society will devise case definitions and criteria for diagnosis and notification, so data are comparable among the Areas/Regions.

1. Previously referred to as *sexually transmitted diseases (STDs).*

GONORRHOEA — AUSTRALIAN GONOCOCCAL SURVEILLANCE PROGRAM — SYDNEY SECTION

One hundred and seventy-four gonococcal isolates have been examined from Sydney laboratories in the second quarter of 1992. This compares with 125 isolates for the same period in 1991, and 106 in 1990.

One-third of the isolates were penicillin-resistant. Three per cent of strains showed a decreased sensitivity to quinolones. Tetracycline resistance has also been detected.

A specific gonococcal strain, fully sensitive to penicillin, continues to be isolated in increasing numbers since its first appearance in 1990. Isolations are almost exclusively from males. Although the majority of sites have been urethral, a relatively high proportion of specimens were rectal.

PUBLIC HEALTH OFFICER OUTBREAK LOG

Since the inception of the training program in 1990 Public Health Officers (PHOs) have been closely involved in disease outbreak investigations throughout NSW, either as principal investigators or as part of an investigation team.

A disease outbreak log (Table 14) will be published periodically in the Public Health Bulletin. This will identify contact information for completed reports of disease investigations.

Copies of questionnaires used, correspondence, media communications and other field-tested procedural details may be made available.

HEPATITIS D

Between January and August 1992 the public health network received five reports of hepatitis D. All were males ranging in age from 24 to 38 years.

One case was reported from Eastern Sydney Area, one from Central Coast Area, one from Hunter Area and two from North Coast Region.

In Australia hepatitis D is most often seen in injecting drug users.

Hepatitis D virus (HDV) is always associated with hepatitis B virus (HBV), requiring the HBV for replication. HDV superinfection in a chronic HBV carrier often leads to severe chronic hepatitis, while acute HDV and HBV co-infection is usually associated with fulminant hepatitis.

TABLE 10

NSW HIV POSITIVE TESTS, EXCLUDING PREVIOUS POSITIVES, CUMULATIVE FROM 1984 TO JULY 31, 1992

Risk	Gender			
	F	M	U	Total
Drug injecter	44	154	15	213
Haemophilia	0	62	0	62
Heterosexual	80	144	5	230[2]
Heterosexual + IDU	18	20	3	41
Homo/bisexual + IDU	—	85	4	90[2]
Homo/bisexual	—	4154	146	4301[2]
Not interviewed	0	3	0	3
Other	11	39	18	68
Transfusion	38	50	1	90[2]
Uncoded	3	5	0	8
Unknown	244	3860	1847	5952[2]
Vertical	7	12	4	23
Total	445	8588	2043	11081

TABLE 11

NSW HIV POSITIVE TESTS, EXCLUDING PREVIOUS POSITIVES, 1992 DATA

Risk	Gender			
	F	M	U	Total
Drug injecter	2	6	0	8
Haemophilia	0	1	0	1
Heterosexual	8	21	2	31
Heterosexual + IDU	2	3	1	6
Homo/bisexual + IDU	0	10	0	11[3]
Homo/bisexual	—	234	9	243
Not interviewed	—	3	0	3
Other	1	3	0	4
Transfusion	0	1	0	1
Uncoded	0	0	0	0
Unknown	12	168	23	203
Vertical	0	3	0	3
Total	25	453	35	514

2. Includes people who give their sex as transsexual.
3. Includes one person who gave sex as transsexual.

HUMAN IMMUNODEFICIENCY VIRUS

The pattern of risk factors for 1992 differs from that observed in the cumulative data set in several respects.

- In the cumulative data set, 54 per cent and 18 per cent of notifications respectively lack risk factor and sex information (Table 10). In the 1992 data, these have reduced to 39 per cent and 7 per cent respectively (Table 11).
- The number of notifications associated with heterosexual exposure has increased from 5 per cent in the cumulative data (Table 10) to 12 per cent in the 1992 data (Table 11) (these are percentages of the notifications for which risk factor data are available). Correspondingly, the proportion of notifications specifying homosexual exposure has decreased slightly, from 86 per cent in the cumulative data (Table 10) to 82 per cent in the 1992 data (Table 11).

TABLE 12

NOTIFICATIONS OF NON-NOTIFIABLE SEXUALLY TRANSMITTED INFECTIONS BY AREA HEALTH SERVICE/REGION

[1] 1/1/92-31/7/92
[2] 1/1/92-30/6/92
[3] 1/3/92-31/7/92
[4] 1/5/92-31/8/92
[5] 1/1/92-30/6/92
[6] 1/3/92-30/6/92
[7] 1/7/92-31/7/92
[8] 14/5/92-31/8/92
[9] 1/7/92-31/8/92

AHS Infection	CSA	SSA	ESA[1]	SWS	WSA[2] + WEN	NSA[3]	CCA[4]	ILL[5]	HUN[6]	NCR[7]	NER[8]	OFR[9]	CWR	SWR	SER
Chlamydia trachomatis			141		29	4	3	13	8	–	6	7			
Donovanosis			–		–	–	–	–	–	–	–	–			
Genital herpes			371		27	11	3	27	29	–	6	8			
Genital warts			778		175	35	1	150	80	11	18	6			
Non-specific urethritis			501		189	18	1	53	42	–	5	1			
Lymphogranuloma Venereum			–		–	–	–	–	–	–	–	–			

For notifications received by 7 September 1992

TABLE 13

INFECTIOUS DISEASE NOTIFICATIONS BY HEALTH AREA AND REGION CUMULATIVE 1992

CONDITION	CSA	SSA	ESA	SWS	WSA	WEN	NSA	CCA	ILL	HUN	NCR	NER	OFR	CWR	SWR	SER	U/K	OTH	TOTAL
Adverse event after immunisation	3	3	–	–	1	–	–	1	–	1	5	7	–	–	1	5	–	–	27
AIDS infection	21	2	5	2	8	5	22	2	2	2	9	4	–	2	5	2	–	–	93
Arboviral infection	1	2	–	–	6	6	6	7	7	20	108	24	52	10	25	–	–	–	274
Cholera	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	1
Foodborne illness (NOS)	5	2	31	2	33	8	–	10	3	5	5	4	31	1	1	–	–	–	141
Gastroenteritis (instit)	17	1	9	1	4	1	–	–	1	50	2	94	4	–	–	–	–	–	184
Gonorrhoea infection	48	17	103	8	16	1	17	2	3	7	16	10	8	9	5	5	–	–	275
H. Influenzae epiglottitis	–	3	1	3	6	3	1	–	2	4	3	3	–	–	1	1	–	–	31
H. Influenzae meningitis	3	4	3	5	5	5	16	1	7	4	5	4	1	–	3	3	–	–	69
H. Influenzae septicaemia	–	1	1	3	2	–	3	–	–	2	1	–	–	2	1	–	–	–	16
H. Influenzae infection (NOS)	3	1	2	–	2	–	–	4	–	2	–	1	1	2	2	3	–	–	23
Hepatitis A — acute viral	82	30	103	18	38	6	76	4	21	26	85	112	45	4	7	6	–	1	667
Hepatitis B — acute viral	4	3	30	4	4	2	3	1	6	1	8	3	18	2	2	1	–	–	92
Hepatitis B — unspecified	265	267	16	174	266	24	195	21	12	83	44	34	22	13	12	19	–	2	1469
Hepatitis C — acute viral	1	1	4	14	7	1	3	1	3	–	8	5	4	3	–	1	–	–	56
Hepatitis C — unspecified	329	99	238	56	178	35	166	295	53	284	373	36	7	38	13	17	–	–	2217
Hepatitis D — unspecified	–	–	1	–	–	–	–	1	–	1	2	–	–	–	–	–	–	–	5
Hepatitis, acute viral (NOS)	–	–	1	4	1	–	–	1	–	–	–	1	3	2	1	–	–	–	14
HIV infection	48	18	140	9	23	7	30	3	2	20	16	–	3	–	1	4	180	10	514
Hydatid disease	–	–	–	–	–	–	–	–	–	–	1	2	–	1	–	–	–	–	4
Legionnaires' disease	3	2	1	36	14	2	4	7	2	2	1	–	–	–	–	1	–	–	75
Leprosy	–	–	–	1	1	1	–	–	–	–	–	1	–	–	1	–	–	–	5
Leptospirosis	–	1	–	–	–	1	–	–	–	–	5	2	–	5	–	–	–	–	14
Listeriosis	–	1	–	–	–	2	4	–	–	–	1	–	–	1	–	–	–	–	9
Malaria	10	7	7	2	13	–	17	–	6	2	6	7	1	1	4	2	–	–	85
Measles	33	11	7	15	24	8	16	6	10	49	17	13	10	5	1	7	–	–	232
Meningococcal meningitis	4	3	–	2	2	2	–	6	4	4	6	2	1	5	–	–	–	–	41
Meningococcal septicaemia	–	1	2	3	–	1	–	–	–	–	–	–	1	–	–	–	–	–	8
Meningococcal infection (NOS)	–	–	2	–	–	–	1	–	1	–	–	2	1	2	–	–	–	–	9
Mumps	–	–	3	1	3	–	1	–	1	3	1	–	–	–	1	1	–	–	15
Mycobacterial atypical	29	12	32	14	20	3	25	–	6	17	–	–	–	–	1	–	–	–	159
Mycobacterial tuberculosis	32	22	21	54	29	5	39	7	9	4	7	5	–	1	5	5	–	–	245
Mycobacterial infection (NOS)	7	5	–	–	5	2	7	1	5	3	–	4	1	–	2	–	–	1	43
Pertussis	2	9	1	6	5	5	11	3	–	6	25	2	–	–	–	–	–	–	75
Q Fever	–	–	–	–	5	2	–	1	–	6	42	22	14	2	3	2	–	–	99
Rubella	2	–	3	1	5	1	9	–	–	2	4	1	–	–	–	2	–	–	30
Salmonella (NOS)	19	26	30	21	36	22	63	13	8	22	40	20	15	15	11	15	–	–	376
Salmonella bovis morbificans	1	2	–	–	2	1	1	–	–	–	1	1	–	–	–	–	–	–	9
Salmonella typhimurium	7	16	2	9	25	17	17	3	4	13	2	2	5	–	4	–	–	–	126
Syphilis infection	101	35	96	13	31	5	29	–	8	6	88	25	81	12	4	2	–	1	537
Tetanus	–	–	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Typhoid and paratyphoid	4	–	6	–	3	–	5	–	1	–	–	–	–	–	2	–	–	–	21

Abbreviations used in this Bulletin:
CSA Central Sydney Health Area, SSA Southern Sydney Health Area, ESA Eastern Sydney Health Area, SWS South Western Sydney Health Area, WSA Western Sydney Health Area, WEN Wentworth Health Area, NSA Northern Sydney Health Area, CCA Central Coast Health Area, ILL Illawarra Health Area, HUN Hunter Health Area, NCR North Coast Health Region, NER New England Health Region, OFR Orana & Far West Health Region, CWR Central West Health Region, SWR South West Health Region, SER South East Health Region, OTH Interstate/Overseas, U/K Unknown, NOS Not Otherwise Stated

Please note that the data contained in this Bulletin are provisional and subject to change because of late reports or changes in case classification. Data are tabulated where possible by area of residence and by the disease onset date and not simply the date of notification or receipt of such notification.

TABLE 14

PHO EPIDEMIC LOG — 1.9.92

1990	Disease	Area	Reports	Investigators
Aug	SIDS	Coffs Harbour	Report on the occurrence of SIDS in the Coffs Harbour LGA 1 April-31 July 1990	M Frommer, C Roberts
Oct	SIDS	Western Sydney	The investigation of SIDS in Western Sydney	P Lewis
Nov	Asthma	New England	Epidemic of asthma in Tamworth	S Corbett, M Bek
Dec	Measles	Hunter	Report on a significant outbreak of measles in the Hunter Area of NSW — Epi 2	T Miles, J James
			Analysis of the 1990 measles outbreak in the Hunter Area of NSW — Epi 3	T Miles
1991				
Feb	Meningococcal meningitis	Newcastle	Response to meningococcal meningitis — Epi 2	T Miles, M Rea
Mar	Stillbirths	Queanbeyan	Queanbeyan cluster investigation — stillbirths and spontaneous abortions	V Westley-Wise, P Hlavacek, G Sam
May	Measles	Central & Southern Sydney	Epi 1, Epi 2, Epi 3	L Taylor
May	Gastroenteritis	Tamworth	An apparent outbreak of a gastrointestinal illness in a school	G Close, M Levy, J Rooney
Jun	Haemophilus influenzae B	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Jun	Scarlet fever	Illawarra	Investigation of a reported outbreak of scarlet fever in a day care centre	V Westley-Wise
Jul	Meningococcal disease	South Western Sydney	Meningococcal outbreak in South Western Sydney	K Chant, G Stewart, J Brown
Aug	Measles	Newcastle	Measles in Mayfield East — Epi 2	T Miles, M Rea
Aug	Measles	Maitland	Measles in East Maitland — Epi 2	T Miles, M Rea
Sep	Measles	Maitland	Measles in East Maitland — Epi 2	T Miles, M Rea
Sep	Haemophilus influenza B	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Sep	Hepatitis A	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Sep	Meningococcal septicaemia	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Oct	Haemophilus influenza B	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Oct	Haemophilus influenza B	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Oct	Cancer	Illawarra	Report of an investigation of a suspected cancer cluster in Coalcliff residents	V Westley-Wise
Nov	Gastroenteritis	Singleton	Investigation of an outbreak of gastroenteritis — Epi 3	T Miles, V Westley-Wise, M Levy
Nov	Meningococcal meningitis	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Nov	Gastroenteritis	Eastern Sydney	Investigation of an outbreak of gastroenteritis in Eastern Sydney	M Williamson, C Cowie, L Young
Nov	Salmonella typhimurium	NSW	Salmonella typhimurium phage type 9 outbreak	J Westbrook, E Kraa
Dec	Hepatitis A	Eastern Sydney	Report on hepatitis A in Eastern Sydney — Epi 3	M-L Stokes, W Manning
Dec	Scabies	Wollongong	Investigation of a scabies outbreak in a local nursing home	V Westley-Wise
Dec	Vibrio pararhaemolyticus	Central Sydney	Suspected food poisoning outbreak at an hotel	E Kraa, H Moore
1992				
Jan	Meningococcal meningitis	Central & Southern Sydney	Epi 2	K Goldston, L Taylor
Jan	Asthma	South Western Sydney	Asthma attendances at hospital and ozone	P Lewis, D Lyle, H Moore
Apr	Diarrhoea	Eastern Sydney	Diarrhoea outbreak in a day care centre	S Furber, M Ferson
Apr	Gastroenteritis	Central & Southern Sydney	Investigation of an outbreak of gastroenteritis at a day care centre, Illawong	C Lonie, K Goldston
May	Diarrhoea	Cessnock	Diarrhoea in a nursing home	P Lewis, W Stanton
Jun	Haemophilus influenza B	Randwick	A case of Hib meningitis at Randwick open care for kids	S Furber, M Ferson
Jul	Meningococcal septicaemia	Eastern Sydney	A case of meningococcaemia at the Hibiscus Children's Centre	S Furber, L Young, M Ferson
Aug	Haemophilus influenza B	Eastern Sydney	A case of Hib meningitis at Hillsdale child care centre	S Furber, L Young, M Levick, M Ferson
Aug	Legionnaires' disease	South Western Sydney	Report on Legionnaries' disease in South Western Sydney in April 1992	M Levy, V Westley-Wise, M Frommer, D Lyle, C Blumer, G Rubin, J Brown, C Salisbury-Marsh, G Stewart

QUARANTINABLE DISEASES

The NSW Health Department has distributed to Chief Executive Officers and Regional Directors a document called *Contingency plan for cases of suspected quarantinable diseases including viral haemorrhagic fevers.*

Quarantinable diseases include the viral haemorrhagic fevers (VHF) (Lassa fever, Ebola haemorrhagic fever, Marburg disease, Crimean-Congo haemorrhagic fever, Argentinian haemorrhagic fever, Bolivian haemorrhagic fever), cholera, plague, typhus (epidemic) and yellow fever.

Westmead Hospital has been designated the preferred hospital for referral of patients within NSW with suspected VHFs.

In the development of a plan for the public health reponse and facilities for the clinical care and diagnosis of cases of VHFs in NSW four key elements need to be recognised:

- A changing international perception of the degree of risk to health care workers by aerosol transmission of the viruses. The US Centers for Disease Control (CDC) recommend that levels of biological containment sufficient to restrict aerosol transmission must be used in the laboratory during diagnosis of these cases. Universal precautions must be followed at all times.
- The rarity of patients presenting with VHFs in Australia (the last case was in 1987).
- The clinical presentation may be non-specific (fever, pharyngitis, myalgia, haemorrhagic manifestations) and is likely to be mimicked by a more common condition. It is important to realise that the haemorrhagic manifestations occur late in the disease, and the clinical status is often labile.
- Potential for severe illness requiring intensive care treatment.

Five possible forms of presentation can be envisaged:

1 A case occurring on a ship or international flight en route to Sydney.

2 "False positive" VHF — febrile patient arriving from Africa is thought to have a VHF. S/he is admitted to Westmead Hospital, or any other hospital in NSW. Subsequently another diagnosis is made (e.g. malaria, typhoid, influenza, dengue or bacterial/viral pharyngitis).

3 "True positive" VHF — a moderate febrile illness in a patient returning from Africa recognised as a possible VHF by the doctor of first contact and referred to Westmead Hospital.

4 A visitor to Australia with a moderate febrile illness is referred to any hospital in NSW for investigation, and VHF is recognised as a likely diagnosis, usually after exclusion of malaria and dengue. Improvement may lead to discharge before definitive diagnosis. Failure to improve or deterioration would lead to transfer to Westmead Hospital.

5 Severely ill febrile patient with unsuspected VHF in a hospital, or suspected when too ill to transfer to Westmead.

The most likely presentation is the second. Thin/thick films for malaria may provide a diagnosis but dual infections have been recorded.

Presentations 3 and 4 (acute suspected VHF) have not yet been experienced in Australia. With increasing travel a frequency of one case every 5-10 years could be envisaged. It is notable that fewer than 20 cases of VHF have been diagnosed in the USA and the whole of Europe in the past 15 years. One case of Ebola haemorrhagic fever occurred in a laboratory worker who pricked his thumb while handling infected specimens. The most common VHF is Lassa fever, usually from West Africa, which may resolve spontaneously or require treatment with Ribavirin. According to the CDC guidelines an isolation suite is not required, simply a single room with anteroom and preferably separate ventilation.

Presentation 5 may require a single room in the intensive care unit. The likely frequency of this event is <1 in 10-20 years. Existing single rooms in the intensive care unit of major teaching hospitals could be used if they were modified. Duration of stay in the intensive care unit would depend on severity of illness, timing of diagnosis and response to antiviral agents (Ribavirin).

IMPLICATIONS FOR NSW HOSPITALS

The Chief Health Officer has written to Chief Executive Officers and Regional Directors requesting that hospitals devise a local contingency plan for the management of patients with VHFs. Active involvement of infection control, nursing, laboratory and public health staff is encouraged.

All NSW hospitals should consider that a case of VHF could present as an inpatient or be referred to the Accident and Emergency Department by a medical practitioner. Each hospital is therefore required to have in place a contingency plan for the treatment and referral of patients with suspected VHFs.

Planning of health resources for a very rare, but contagious and potentially fatal, disease, is very difficult, especially as advances in infection control, diagnosis and anti-viral treatment are to be expected in the next 10 years before such a case may occur. Whole structures of hospitals, including intensive care units, may be changed before one potential case emerges. It is important to plan for cases which might occur in the next month but realise that nothing may happen for five years. In these situations modifications of rooms, either low or high dependency, should be the mimimum required to comply with the CDC guidelines without impairing the normal day-to-day functioning of those rooms.

The **minimum** requirement is an area that can be sealed off, with an adjoining anteroom. **Ideally**, an area that can be sealed off, with an adjoining anteroom and a separate degowning room on the exit side of the patient's room, needs to be identified in each hospital. There should be no movement from the patient's room to the anteroom (a clean area). Contingency plans for transfer of patients to Westmead Hospital need to be devised. But it must be realised that patients with suspected VHFs present a diagnostic dilemma, and are clinically labile, so immediate transfer may not always be possible.

NEWS AND COMMENT

WORKCOVER AUTHORISED MEDICAL PRACTITIONER NETWORK

The Occupational Medicine Branch of the NSW WorkCover Authority ensures the provision of a wide range of occupational medicine services to workers in NSW. This is achieved in conjunction with medical practitioners authorised by WorkCover to conduct certain statutory medical examinations. This network of medical practitioners numbers more than 360 and includes general practitioners and specialists including occupational physicians and academics. WorkCover aims to expand the network so all workers in NSW have ready access to medical advice on occupational health matters. The network has the potential to deliver a wide range of occupational medical services at the local level, and also serves as a model for the development of a national approach to providing effective occupational health services, particularly in rural areas. Workers requiring medical examination under current regulations include those engaged in the asbestos, abrasive blasting, electroplating, lead, spray painting and pest control industries.

Available WorkCover medical training

Since the introduction of the Occupational Health and Safety Act in 1983 there has been an upsurge of interest in occupational health in the general community. In turn, medical practitioners have been increasingly approached by employers and employees to provide occupationally related medical services. To support these practitioners a training program has been developed by the Occupational Medicine Branch of WorkCover. This activity was formalised in 1987 with the introduction of an induction seminar for all new WorkCover Authorised Medical Practitioners. The seminar has been repeated twice yearly since then and has been extended from a half-day to a two-day program. Each participant is given a training manual which can be kept for reference. The depth of learning is up to each participant, but literature references are given in the training manual so topics of interest or controversy may be explored further. The occupational physicians of WorkCover are also available for further discussion. A take-home multiple choice examination is also given to reinforce the learning of important concepts. After successful completion of the examination the medical practitioners enter the WorkCover Authorised Medical Practitioner Network where they receive support from WorkCover occupational health physicians. WorkCover aims not only to improve the standard of occupational statutory medical examinations but to encourage medical practitioners to go further and develop their skills in occupational medicine.

Developments for the control of hazardous substances

The training program had been restricted to some extent by the specific nature of current regulations. However, it is government policy to review and to rationalise regulations. In the area of hazardous substances, this means the replacement of a large number of relatively specific regulations with just one regulation. The proposed Hazardous Substances Regulation has recently received public comment and is expected to be gazetted by mid-1993. This regulation is designed to cover the use and safe handling of a wide range of hazardous chemicals and dusts.

Provision is made in this proposed regulation for the occupational medical examination of workers by WorkCover Authorised Medical Practitioners. In recognition of the fact that these practitioners have received training in the health effects of hazardous substances, the exact form of the medical examination is usually left to the judgment of the practitioner. This approach ensures flexibility in matching the medical examination to the individual worker's needs. It also encourages a rational approach to the investigation of new health hazards due to changes in workplace technology. The Authorised Medical Practitioner is responsible for coordinating occupational health surveillance, performing medical examinations and determining workrelated health effects.

In response to these developments the induction seminar is being developed further to incorporate a general approach to the management of workers exposed to hazardous chemicals and dusts. Sources of information on the extremely wide range of hazardous substances in use will be given. More specifically, the health issues surrounding the use of potential or proven carcinogenic substances in the workplace will be addressed. Other issues to be covered include the risks associated with occupational exposure to synthetic mineral fibres and chemicals affecting reproduction.

The next induction seminar for WorkCover Authorised Medical Practitioners will be held on Thursday, October 29 and Friday, October 30, 1992 in Sydney. For more information contact Kelvin Wooller on (02) 370 5106 or write c/- WorkCover Authority, Locked Bag 10, Clarence Street, Sydney 2000.

Kelvin Wooller is an occupational physician working in the Occupational Medicine Branch of the NSW WorkCover Authority.

CONFERENCE REMINDER

The first annual NSW Public Health Network Conference will be held on November 23 and 24 at Westmead Hospital. The main speakers will include Professor Peter Baume, Ms Liz Williams, Dr Lyn Clarke and Professor Phillip Boyce. NSW Health Department Director-General Dr Bernie Amos will open the conference, which aims to present the scientific activities of members of the Public Health Network. Sessions will cover environmental health, infectious disease, chronic disease and injury, health services and economics, and maternal and child health.

Registration fee is $60 for the two days, or $30 a day. Registration forms can be obtained by contacting the conference organiser by telephone (02) 391 9218 or facsimile (02) 391 9232.

CALLING CENTRAL COAST PHU

The facsimile number shown in the May 1992 *Public Health Bulletin* for the Central Coast Public Health Unit was incorrect. The number shown was that of the Central Coast Area Health Service (general number).

The correct facsimile number for the Central Coast PHU is (043) 20 2822.