



## SUICIDE MORTALITY IN NSW: CLIENTS OF MENTAL HEALTH SERVICES

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**T**his is the third in a series of articles on the epidemiology of suicide in NSW by the Mental Health Epidemiology Group (MHEG)<sup>1</sup>. This article examines suicide by clients of mental health services in NSW. Since April 1992 the Mental Health Branch of the NSW Health Department<sup>2</sup> has operated an incident monitoring system which requires all public mental health services in NSW to report unexpected deaths, including suicides, of current or former clients. Part I of this article describes the information collected through this monitoring system, and Part II estimates mental health service clients' risk of suicide, compared with that of the NSW population.

Suicide is more common among people with a history of a psychiatric disorder<sup>3,4</sup>. It is estimated from psychological autopsy studies that at least 88 per cent of all people committing suicide suffered from a diagnosable mental illness<sup>5,6,7</sup>. Depression, alcohol dependence, schizophrenia and personality disorders are strongly associated with suicide<sup>8</sup>.

Overseas studies estimate standardised mortality ratios (SMRs) for suicide of about 10 (SMR=1 for the relevant standard population group) for current or former psychiatric inpatients or outpatients<sup>9</sup>. For compatibility with the literature, we report risk as an SMR in which SMR=1 (rather than the usual SMR=100) for the relevant standard population group. There is little Australian information on the risk of suicide in mental health clients, but the risk appears to be consistent with that reported in overseas studies. In the NSW Psychiatric Case Register (1966-67 - 1972-73), the estimated suicide SMR for psychiatric inpatients was 13. Psychiatric patients thus have an elevated chronic risk of suicide.

The period after discharge from inpatient care is associated with a much higher risk. The Oxford Record Linkage Study found the suicide risk or SMR in the first 28 days after discharge was about 100 for females and 200 for males, compared with that of the population served by the Oxford Regional Health Authority<sup>3</sup>. In the remaining 11 months of a 12-month follow-up period the suicide SMR decreased to about 40 for females and 30 for males<sup>3</sup>.

In this context, self-injury and suicide must be monitored in mental health clients to ensure the NSW Health Department is discharging its responsibility to provide protection from serious physical harm<sup>9</sup>.

### PART I: THE NSW MENTAL HEALTH CLIENT INCIDENT MONITORING SYSTEM

The NSW Mental Health Client Incident Monitoring System requires all public inpatient psychiatric facilities and community mental health facilities to report the death by suicide of any client to Area and District Health Services within 24 hours of being informed of the death. The Area or District notifies the NSW Health Department of these deaths at the end of each month<sup>10</sup>. Psychiatric inpatient facilities comprise psychiatric hospitals and psychiatric inpatient units in general hospitals, and community mental health facilities comprise community mental health teams, crisis/extended hours teams, living skills centres and staff responsible for the running of supported accommodation.

Continued on page 76 ▶

### Contents

#### Articles

75 *Suicide mortality in NSW: clients of mental health services*

#### Infectious Diseases

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## Suicide mortality in NSW

► Continued from page 75

Data items collected in the Incident Monitoring System include information on the facility reporting the suicide; the demographic characteristics of the client; the client's diagnoses; information on the last contact with health services; the date, place and method of death; information on any warning of suicide; previous suicide attempts; and details of the death<sup>11</sup>.

### Results

A total of 259 deaths was reported to the Incident Monitoring System between April 1992 and June 1995. Eleven of the deaths were not from suicide. The remaining 248 were reported as 'probable suicides'. For 237 of these 'probable suicides', suicide was reported as the only cause, while suicide was the most likely cause for the other 11. For the analysis in this report we included all 248 deaths where 'probable suicide' was the cause given<sup>12</sup>.

The 248 'probable suicides' represented about 10 per cent of all suicides in NSW during the reporting period. The rate of reported 'probable suicide' was consistent over the time period and was fitted by a single-rate Poisson distribution with a mean of 6.35 cases a month<sup>13</sup>.

Most clients whose deaths were reported as 'probable suicides' were male (75 per cent). Most were born in Australia (70 per cent) or another English-speaking country (5 per cent). Seven (3 per cent) were Aboriginal or Torres Strait Islander people. Most of the suicide reports (63 per cent) came from community mental health centres, while 36 per cent were from psychiatric inpatient facilities<sup>14</sup> and 1 per cent from residential facilities.

Most 'probable suicides' were reported as occurring at home (46 per cent). The locations of the rest were as follows: 10 per cent occurred at railway stations, 26 per cent in other public areas, 6 per cent in residential institutions and 12 per cent at other places. Three-quarters (76 per cent) of reported 'probable suicides' died before being found, 8 per cent died before reaching a hospital, and 11 per cent died in hospital. (No information was available for 5 per cent of reports.)

The most common methods of committing suicide were reported as poisoning<sup>15</sup> (27 per cent) and hanging (25 per cent). For 10 per cent of suicides the method was reported as jumping in front of a train. The train deaths represented 17 per cent (15/88) of all reports from hospital facilities compared to 7 per cent (11/160) of all reports from community facilities. In males the most common method of suicide was hanging (27 per cent – 51/186), while in females poisoning was the most common (45 per cent – 26/62). Of the 29 reported 'probable suicides' involving firearms, only one report was of a female.

Seventy per cent of 'probable suicides' were by violent means, involving hanging, firearms, or cutting or jumping acts. This is consistent with a review of studies by Appleby<sup>4</sup>, who concluded that although no age- and sex-controlled comparison study between psychiatric clients and the general population had been done "there is a general consensus that psychiatric patients use more violent means".

Most of the clients who committed suicide (64 per cent) did not give any warning of their intention, but one-quarter

gave a written or a verbal warning. (No information was available for 10 per cent of reports.) A history of parasuicides or previous suicide attempts is a known risk factor for suicide. More than half the reported 'probable suicides' (53 per cent) had attempted suicide previously, while 24 per cent of individuals had no known history of suicide attempts. (No information was available for 23 per cent of reports.) This parallels information from England and Wales that in 30-47 per cent of cases of suicide the individual had made a previous suicide attempt (SMR=10-30)<sup>6,16</sup>.

Only 13 per cent of reports of 'probable suicides' were of clients who had been out of contact with the mental health service for more than a month. (No information was available for 2 per cent of reports.) This ascertainment of clients is much lower than that reported in a record linkage study in Western Australia<sup>17</sup> and suggests strongly that services were not very likely to be advised of suicides of their clients who had not been in contact for more than one month. The remaining 85 per cent (n=208) were reported as having had contact with mental health services in the month before death (26 per cent on the day of death, 44 per cent in the previous week and 15 per cent in the previous month). These 208 'probable suicides' represented about 8 per cent of all suicides in NSW during the reporting period. This finding is consistent with the proportion of all suicides in Western Australia for whom contact with public mental health services within the previous month was established by record linkage<sup>17</sup>. The rate of reported 'probable suicide' of clients who had contact with mental health services in the previous month was the same in all three years and fitted a single-rate Poisson distribution with a mean of 5.33 cases a month<sup>18</sup>.

### PART II: ESTIMATING THE RISK OF SUICIDE IN MENTAL HEALTH CLIENTS

A case was defined as a report of 'probable suicide' from a psychiatric inpatient facility or community mental health facility between April 1992 and June 1995, where last contact with services was stated to have been within one month.

For the purposes of estimating risk, we included only the 208 'probable suicides' reported as having had contact with a mental health service in the month before death. This decision was made because of the poor ascertainment of clients who had not recently been in contact with services, and because the immediate post-discharge period for inpatients is known to be one of unusually high risk<sup>3,4</sup>.

Reports were received both from psychiatric inpatient and community mental health facilities<sup>18</sup> which had contact with mental health clients in the month before their death. These reports represented two different client groups, a 'hospital contact' and a 'community service contact' group, so the data were analysed separately. Because the 'hospital contact' group included not only clients who had been discharged, but also clients who were on leave or were absent without leave, we refer to this period as the peridischarge period.

On each suicide report, the psychiatric diagnoses were recorded in free text by the person reporting the suicide. These descriptive diagnoses were classified using ICD9-CM<sup>19</sup> codes, verified by a psychiatrist<sup>20</sup>, and primary diagnoses were identified<sup>21</sup>. The primary diagnoses were then grouped into seven diagnostic groups:

- schizophrenia (including schizo-affective disorders);
- depression (including both the major affective disorders, affective psychoses and unspecified depression<sup>22</sup>);
- manic-depressive disorder;
- neuroses (including neurotic depression);
- adjustment problems and stress-related disorders;
- substance abuse (including alcohol and drug usage, dependence and abuse); and
- other mental disorders.

The populations at risk ('special population'<sup>23</sup>) were estimated from NSW Inpatient Statistics Collection (ISC) and community mental health census data<sup>24</sup> by estimating the total number of clients who would have been in contact 'within the last month' with the relevant inpatient and community mental health services. Diagnostic groups were identified using the classification methods described above to provide comparable denominator data. The estimated rate of death in the special population is then the ratio of the number of cases to the estimated number of individuals whose vital status could have been reported. The detailed estimation procedures of the at-risk populations are described in the appendix.

Age-, sex- and diagnosis-specific mortality rates per 100,000 person months of risk were calculated for 'hospital contact' and 'community service contact' groups. These rates were indirectly standardised to a pooled NSW population (1979-1992)<sup>25</sup>, excluding the age range 0-9 years. SMRs and 99 per cent confidence intervals (CIs) were estimated. To permit comparison with the Oxford Record Linkage Study the rates were converted to deaths per 1,000 person years and scaled to SMR=1 for NSW as a whole.

### Results

The crude NSW suicide mortality rate in the general population aged >9 years for the years (SMR=1) 1979-1992 was 0.2 per 1,000 person years for males and 0.05 per 1,000 person years for females.

There were 208 cases where clients had been in contact with a mental health service in the previous month and these comprised 81 'hospital contact' cases and 127 'community service contact' cases.

#### 'Hospital contact' group

The crude suicide rates in the 'hospital contact' group were 23.8 per 1,000 person years for males and 9.6 per 1,000 person years for females. Age-standardised rates for males and females respectively were 23.3 and 9.4 per 1,000 person years.

The SMR was 112 (99 per cent CI: 75-149) for males and 157 (99 per cent CI: 60-254) for females respectively. By comparison, in the Oxford Record Linkage Study the SMR was 213 (95 per cent CI: 137-317) for male patients and 134 (95 per cent CI: 67-240) for female patients in the first 28 days post discharge<sup>8</sup>.

#### 'Community service contact' group

The crude suicide rates in the 'community service contact' group were 2.1 per 1,000 person years for males and 0.7 per 1,000 person years for females. Age-standardised rates for males and females were 2.0 and 0.6 per 1,000 person years respectively.

The SMR was 9 (99 per cent CI: 7 to 12) for males and 10 (99 per cent CI: 6 to 15) for females. By comparison, in the

Oxford Record Linkage Study the SMR was 30 (95 per cent CI: 20-43) for male patients and 45 (95 per cent CI: 30-65) for female patients in the 29-365 days post discharge<sup>8</sup>. The Missouri Institute of Psychiatry three-year follow-up study of public mental health patients reported an SMR of 5 for males and 8 for females<sup>26</sup>. A comparison of SMRs in seven studies comprising a mixture of inpatients and outpatient studies (including an Australian inpatient study<sup>27</sup>), demonstrated a reasonable agreement on a SMR of about 5 for male patients<sup>26</sup>. For female patients a SMR of about 9 was suggested, dependent on the population<sup>26</sup>. Our 'community service contact' SMRs lie generally between those in the Oxford and Missouri studies.

### Diagnoses

The SMRs varied according to psychiatric diagnosis. In Table 1 the results for the different diagnostic groups are compared with other results in the literature<sup>28</sup> and presented on the same scale. Our 'hospital contact' group's results are similar to the results of the Oxford Record Linkage Study except for males with schizophrenia, where we found a higher rate. Our 'community service contact' group's results lie generally between those in the Oxford and Missouri studies.

All the comparisons are shown graphically in Figure 1 ('community service contact' group) and Figure 2 ('hospital contact' group). In Figure 1 we have carried over the two most extreme groups from our previous comparison of geographic variations in population suicide rate<sup>25</sup>. Most of the data reported for the Areas and Districts in NSW are represented by the heavy bar for SMRs around 1.0, and even the elevated risks for Eastern Sydney Area Health Service (SMR=1.4) and the Far West District Health Service (SMR=2.0) are small in comparison with the risks in mental health clients. In Figure 2 we have carried over the most extreme 'community service contact' group from Figure 1 to show that even the risk in this group is low relative to 'hospital contact' clients and recently discharged clients.

### Discussion

Our results show that NSW mental health clients in community care have much the same suicide risk as mental health clients in systems of care overseas. There is no evidence that mental health clients in NSW are at unusually high risk of suicide in community care compared to inpatient care, but this risk is 10 times that of the general population (Figure 1).

We found a much higher risk of suicide (about 100 times that of the general population) for mental health clients around the time of discharge from inpatient care, again similar to findings of recently discharged inpatients in studies overseas (Figure 2). Not all cases reported by hospitals in our study were necessarily newly discharged inpatients; the reports included individuals who were on leave or absent without leave as well as discharged inpatients, and the elevated risk might be explained by the mixed levels of precaution and supervision for patients around the time of discharge (the peridischarge period) and the risk associated with discharge from hospital. This is a vulnerable time for patients because of perceived loss of support, reduced supervision, possible relapse due to exposure to home circumstances, and the fact that the patient may not be fully recovered<sup>9</sup>.

Continued on page 78 ►

**TABLE 1**

**SUICIDE RATES AND SMRs BY PSYCHIATRIC DIAGNOSIS**

	Peridischarge risks				Chronic risks					
	Hospital contact group Rate/ 1,000 py	SMR (99%CI)	Oxford <sup>3</sup> 28-day follow-up Rate/ 1,000 py*	SMR (95%CI)	Community contact group Rate/ 1,000 py	SMR (99%CI)	Oxford '29-365-day follow-up Rate/ 1,000 py*	SMR (95%CI)	Missouri <sup>24</sup> 3-year follow-up Rate/ 1,000 py	SMR
<b>Males</b>										
Schizophrenia	27.4	132 (60-204)	9	46 (1-258)	1.8	9 (5-12)	6	30 (11-66)	2.1	7
Depression – Other depression	121	581 (271-891)	116	519 (260-929)	12.1	58 (33-83)	12	55 (28-990)	1.9	6
– Major depression	n.a.	n.a. n.a.	60	268 (98-585)	n.a.	n.a. n.a.	9	42 (18-83)	4	14
Other	9.5	46 (15-76)	n.a.	n.a. n.a.	1.1	6 (3-8)	n.a.	n.a. n.a.	n.a.	n.a.
<b>Females</b>										
Schizophrenia	10.4	173 (0-372)	10	92 (2-515)	0.7	12 (4-21)	3	30 (6-88)	0.9	10
Depression – Other depression	16.5	282 (0-605)	19	147 (40-375)	1.7	28 (5-50)	5	43 (21-79)	0.7	8
– Major depression	n.a.	n.a. n.a.	14	96 (19-282)	n.a.	n.a. n.a.	6	40 (19-74)	1.8	18
Other	6.8	113 (4-222)	n.a.	n.a. n.a.	0.3	5 (1-9)	n.a.	n.a. n.a.	n.a.	n.a.
<b>All</b>										
Schizophrenia	21	158 (80-236)	n.a.	n.a. n.a.	1.4	10 (7-14)	n.a.	n.a. n.a.	n.a.	n.a.
Depression	59.4	447 (231-663)	n.a.	n.a. n.a.	4.1	31 (18-44)	n.a.	n.a. n.a.	n.a.	n.a.
Other	8.4	63 (28-97)	n.a.	n.a. n.a.	0.6	5 (3-7)	n.a.	n.a. n.a.	n.a.	n.a.

**Suicide mortality in NSW**

► Continued from page 77

In general, male patients were more at risk than female patients – a finding consistent with the results of other studies<sup>3,8</sup>. Although the standardised suicide rate for males was higher than that for females in the 'hospital contact' group, the SMR for females indicates that in the peridischarge period the risk increased more for female patients than for males. The vulnerability of women in this period has been reported in other studies<sup>25</sup>.

The risk of suicide was greatest for patients with depression, especially during the peridischarge period. Although the assignment of diagnoses in the current reporting system was less than perfect, the risk for clients with depression is consistent with that reported in overseas studies<sup>3,4,8,26</sup>. This finding underlines the importance of maintaining effective antidepressant therapy, adequate community support and vigilance for early signs of relapse in depression<sup>4</sup>.

Our results show that only about 8 per cent of all people committing suicide in NSW had recent contact with mental

health services. By contrast there is evidence that at least 88 per cent of people attempting suicide suffered from a diagnosable mental disorder during the period preceding the attempt<sup>5,6,7</sup>. Studies based on case registers have shown that 40-50 per cent of people who commit suicide have at some time been in the care of mental health services<sup>5</sup>. These reports, together with our findings, suggest most people who commit suicide do not come to the attention of NSW mental health services at the most critical time.

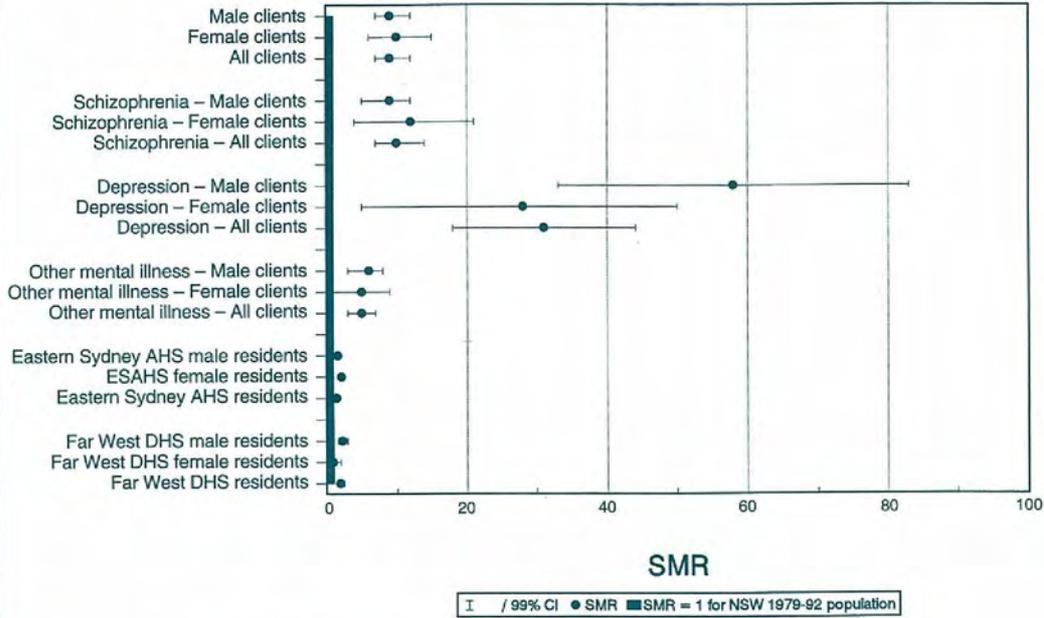
**Conclusions and recommendations**

Mental health clients are clearly at increased risk of suicide compared to the general population, especially in the peridischarge period. Even so, the implications for clinical decision-making are limited by the fact that suicide is still a rare outcome. Our findings are consistent with those of the Oxford Record Linkage Study in which the greatest risk was experienced by males suffering from depression in the first 28 days after discharge from hospital (SMR=519). This represented a very small number of events; one patient in 122 from that group committed suicide within 28 days, and over the full 12 months post-discharge, one other patient

Continued on page 80 ►

**FIGURE 1**

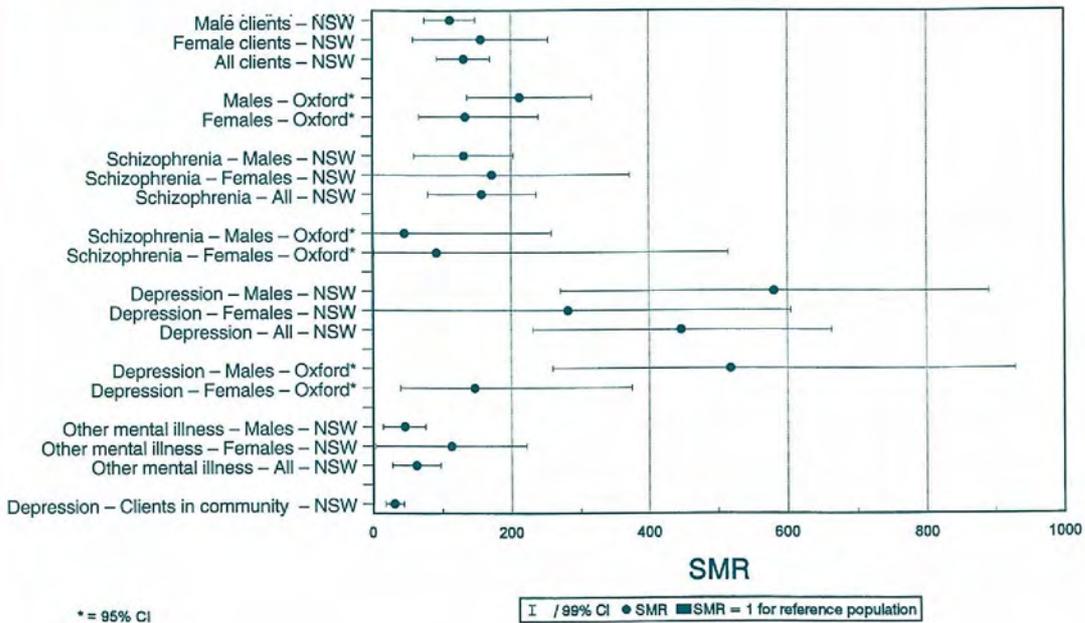
**SMRs FOR PROBABLE SUICIDES OF COMMUNITY CONTACT MENTAL HEALTH CLIENTS**



Source: Epidemiology Branch, ABS deaths 1979-92, registered by 1993; NSW Suicide Incident Monitoring System

**FIGURE 2**

**SMRs FOR PROBABLE SUICIDES OF HOSPITAL CONTACT MENTAL HEALTH CLIENTS**



Source: Epidemiology Branch, ABS deaths 1979-92, registered by 1993; NSW Suicide Incident Monitoring System

committed suicide. There is no method of suicide risk assessment which is known to improve the performance of clinicians in identifying this one patient<sup>28</sup>. Risk reduction is therefore an issue for a whole system of care, not an issue of individual decision-making.

The phases of transition between the levels of care are areas where surveillance and interventions should be focused. The following possible areas for improvements in the monitoring of groups at elevated risk are suggested:

- *Review of NSW Mental Health Client Incident Monitoring System.* The NSW Mental Health Client Incident Monitoring System is being revised. The revised system will include information on levels of supervision, discharge status of patients, primary diagnoses, risk factors and precipitating stressors. It may also be important to monitor all hospitalised suicide attempts as well as deaths, and to extend the reporting to include private hospitals.
- *Clinical audit.* We recommended in a previous article<sup>11</sup> that clinical audit is a valuable tool to collect more relevant information on suicides. Some mental health services already conduct reviews of suicides and serious suicide attempts by mental health clients as part of the post-suicide management protocol. These reviews are conducted to formally debrief staff and relatives and to identify ways of improving the management of mental health clients. They do not usually include systematic collection of data describing suicide risk factors. Rather, ad hoc risk information is collected in the context of counselling of bereaved relatives. For consistent data collection it would be desirable to formalise this process<sup>29</sup>.
- *Case registers.* The monitoring system captures information on about 10 per cent of all suicides in NSW. To monitor all suicides would require a case register and linkage to death reports. Case registers operate successfully in Western Australia and Victoria. A case register operated in NSW between 1964 and 1977. Case registers allow monitoring of suicide and other outcomes, such as accidental injury and other aspects of 'harm'.
- *Protocols.* The existing NSW protocol for the management of suicide attempts<sup>30</sup> requires facilities to have policies and procedures for the assessment of the risk of suicide in specific settings, such as community health services, accident and emergency departments, general hospital wards and psychiatric inpatient units. These include procedures on how to manage suicidal patients whether they are newly admitted, established patients on leave, or discharged. The Richmond District Health Service is implementing mandatory 'At Risk' guidelines on the management of suicide attempts and will be reporting on these by the end of this year<sup>31</sup>. However, there are no specific protocols for the management of the group most at risk – recently discharged patients with depression. Strategies offering help and support for people at high risk could be included in these protocols<sup>32</sup>. It is important to monitor the sequence of care for this group. Care may require protocols, supported by resources and training to ensure proper implementation and evaluation.

## APPENDIX

The cases were compared with a 'special population' of all those who had been in contact with a reporting mental health facility in 'a month'.

### Estimation of inpatient mental health facilities population at risk

The NSW Mental Health Client Incident Monitoring System applies only to public psychiatric hospitals and to psychiatric inpatient facilities in public general hospitals. Inpatient episodes are recorded in the NSW Inpatient Statistics Collection (ISC) via a 'psychiatry flag' which is set in response to the query "Was patient admitted to a psychiatric unit during this episode of care?", or automatically in the case of public psychiatric hospitals.

Across NSW inpatient facilities as a whole there is no consistent way of identifying individual clients, so there may be multiple records of any individual in the Statewide collection for each separate episode of care. Readmissions were excluded because multiple contacts within 28 days constitute only one person month of risk within a month of contact.

We estimated this population by selecting records from the 1993-94 ISC which met all the following criteria:

- Hospital role is public.
- Stay diagnosis in the ICD9-CM code range 290-319 inclusive.
- Psychiatry flag set to yes.
- Age >9 years.
- Readmission within 28 days flag set to no<sup>33</sup>.

The monthly average number of separations for 1993-94 was used in all analyses.

### Estimation of community health facilities population at risk

There is no standardised Statewide reporting from community mental health facilities<sup>34</sup>, so Statewide estimates were based on census data. The size of this population was estimated by applying a suitable weighting factor to the data obtained in a one-day census of community mental health facilities. These censuses were conducted in 1991<sup>35</sup>, 1992 and 1993, on the last Wednesday in October. Each census included drug and alcohol facilities as well as mental health facilities, which often operate from the same community health centre and share staff with mental health services. There is significant comorbidity between mental health problems and drug and alcohol problems, and a client may receive a mixture of services. Reporting of deaths is required only of community mental health teams, crisis/extended hours teams<sup>36</sup>, living skills centres and "staff responsible for the running of supported accommodation" so we excluded records where the primary team membership of the staff member completing the census form was "Drug & Alcohol Team", and included all others.

We treated month as a period of 28 days, or 20 working days, and we estimated the sampling weight associated with each client seen on the census day. These weights took account of frequency of contact, previous contacts with the agency and age.

The census form included three variables which were used in deriving weights:

- *Frequency of contact:* coded as 1=daily, 2=more than once a week, 3=weekly, 4=fortnightly, 5=monthly, 6=quarterly, 7=as required. This generated weights of 20.0 for clients seen monthly, on the assumption that a different group of clients seen at this rate would be obtained in a census on each of the other 19 working days in a month. In the same way, weights of 10.0, 5.0 and 1.0 were respectively associated with clients seen fortnightly, weekly and daily. It was assumed that contact more than once a week could be interpreted as twice a week on average, with a weight of 2.5. All groups seen less frequently than once a month receive the same weight as those seen monthly.
- *Previous sessions/contacts (this agency):* coded as 1=first contact, 2=0-9 contacts, 3=10-19, 4=up to 49, 5=up to 99, 6=100 or more. First contact clients received a weight of 20.0 irrespective of frequency of contact. Clients in daily contact but with only 0-9 previous sessions received a weight of 2.0, since average treatment duration would be 11 working days.
- *Age:* was coded as 1=0-4, 2=5-9, and thence in successive 10-year intervals to 11=80+. Age was used to assign weights for about 200 clients being treated as required and who were not first contact clients. Based on data from the Victorian Department of Health & Community Services<sup>37</sup>, 'as required' treatment was taken to mean once every 1.5 weeks for adults, once every three weeks for children and once every two weeks for aged clients, leading to weights of 7.5, 15.0 and 10.0 respectively.

The estimated contact population per calendar month in 1993 was used in all analyses.

1. Membership of MHEG is open to people with a professional interest and expertise in mental health epidemiology who are willing to contribute to the planning and production of a series of publications and reports on important mental health topics. The policy of MHEG is joint publication by the group as a whole in which authors are listed in order of their contribution to the particular report. The contact address for MHEG is Mental Health Epidemiology Group, Centre for Research & Development, Public Health Division, NSW Health Department, Locked Bag 961 PO North Sydney 2059 (Fax: 391-9041, Internet email jchip@gwsm.doh.health.nsw.gov.au).
2. This system was established by Chris Terpaj, Senior Policy Analyst of the Review and Evaluation Section of the Mental Health Branch (now the Centre for Mental Health).
3. Goldacre M, Seagroatt V and Hawton K. Suicide after discharge from psychiatric inpatient care. *Lancet* 1993; 342:283-286.
4. Appleby L. Suicide in psychiatric patients: risk and prevention. *Br J Psychiatry* 1992; 161:749-758.
5. Henriksson MM, Aro HM, Heikinen ME, Isometsa ET, Kuoppasalmi KI and Lonnqvist JK. Mental disorders and comorbidity in suicide. *Am J Psychiatry* 1993; 150 (6):935-40.
6. Davis AT and Schrueder C. The prediction of suicide. *Med J Aust* 1990; 153:552-554.
7. Cheung P. Suicide precautions for psychiatric inpatients: a review. *Aust NZ J Psychiatry* 1992; 26:592-598.
8. Gunnell D and Frankel S. Prevention of suicide: aspirations and evidence. *Br Med J* 1994; 308:1227-1233.
9. The NSW Mental Health Act (1990) criteria for formal involuntary admissions require a decision that either owing to a mental illness or to behaviour which for the time being is irrational, "... care, treatment or control of the person is **necessary:** (a) for the person's **own protection from serious physical harm;** or (b) for the **protection of others from serious physical harm.**" There is no specific mention of self-harm or suicide, but clearly it is included.
10. Letter sent to Area and (then) Regional services dated March 10, 1992.
11. Chippis J, Stewart G and Sayer G. Suicide mortality in NSW: An introduction to the clinical audit. *NSW Public Health Bulletin* 1995; 6(7):68-70.
12. It should be stressed that the additional information supplied with a number of these cases makes it likely that an open finding would be returned by the coroner because of the absence of any clear evidence of intent. Thus the data really represents the opinions of the mental health workers making the reports, and it may be reasonable to describe the

data analysed as 'probable suicides' once the ambiguous cases have been excluded.

13. Models were fitted to the event rate data using the SAS procedure GENMOD, and allowing a different rate parameter each year or the same parameter for all years. The multiple risk model produced a non-significant improvement in fit.
14. Using the information available to us, we are unable to determine whether the reported suicides were active clients, inpatients, discharged patients, on leave, absent without leave or a person who is unknown to the service.
15. The current reporting system does not distinguish between carbon-monoxide poisoning, drug overdoses and poisoning with other substances.
16. Gunnell DJ, Peters TJ, Kammerling, RM and Brooks J. Relation between parasuicide, suicide, psychiatric admissions and socioeconomic deprivation. *Br Med J* 1995; 311:226-230.
17. The Health Department maintains a Mental Health Case Register which has been linked to the WA Coroner's database (Silburn S. Institute for Child Health Research, Western Australia, personal communication, 1995.) We wish to thank Mr Sven Silburn for conducting specific analyses of this data at our request.
18. Including residential services (n=3).
19. ICD-9-CM, 1978, WHO, Ninth edition 1992.
20. We wish to thank Drs Victor Storm and Titia Sprague of the Centre of Mental Health for verifying the diagnoses.
21. Primary diagnoses were identified if more than one diagnosis was reported. Diagnoses of schizophrenia took precedence over other diagnoses; major affective diagnoses over neurosis. Personality disorders and substance abuse were classified as comorbidity if in conjunction with other diagnoses. All other diagnoses were grouped together.
22. 'Depression' was often stated without specification and therefore was coded as ICD 311.
23. We have followed the terminology used by Armitage B and Berry G, *Statistical Methods in Medical Research*, Second Edition. Oxford: Blackwell Scientific Publications, 1987. To quote: "The basic idea in standardization is that we introduce a *standard population* with a fixed age structure. The mortality for any *special population* is then adjusted to allow for discrepancies in age structure between the standard and special populations." (p 400).
24. This is a one-day census of community mental health and drug and alcohol facilities and was developed by Ms Christina Terpaj of the Review and Evaluation section of Mental Health Services Branch of Public Health Division.
25. Stewart G, Chippis JA and Sayer G. Mortality in NSW: Geographic variations. *NSW Public Health Bulletin* 1995; 6(6):49-52.
26. Evenson RC, Wood JB, Nutall EA and Cho DW. Suicide rates among mental health patients. *Acta Psychiatrica Scandinavica* 1982; 66:254-264.
27. James IP and Levin S. Suicide following discharge from psychiatric hospital. *Archives of General Psychiatry* 1964; 10: 43-46.
28. Pokorny AD. Prediction of suicide in psychiatric patients. *Archives of General Psychiatry* 1983; 40:249-257.
29. A more detailed report which will review the practicality of implementation of clinical audits on a State level is in preparation. Protocols for data to be collected, ethical and legal issues affecting the audit and the feasibility of implementing this on a local level will be discussed. Suggestions are invited.
30. Policy guidelines on suicidal behaviour - key assessment criteria for NSW Health Area & District Staff. Circular 94/54.
31. North Coast Public Health Unit. Health Outcomes Council: Suicide Prevention Progress Report, 1992-94. Interim Report March 1995.
32. Morgan HG, Jones EM and Owen JH. Secondary prevention of non-fatal deliberate self harm: The green card study. *Br J Psychiatry* 1993; 165:111-112.
33. This flag is available in the NSW Inpatient Statistics Collection only for 1993-94 and subsequent years. This data set is also the most appropriate since it covers the middle of the period of operation of the client suicide reporting system. No adjustment was made for the fact that readmission within 28 days is not quite the same as readmission within a month.
34. By contrast, the Victorian Department of Health and Community Services operates a uniform system of client identifiers across both inpatient and community facilities, and collects standard data from both on a Statewide basis. The situation in NSW is expected to change within a few years, as the Community Health Information Development Project (CHIDP) moves to the implementation phase. Details about this development may be obtained from Ms Christina Terpaj, Acting Manager, Information Development Unit, Information and Data Services Branch, Information and Business Services Division, NSW Health Department.
35. Summary data from the 1991 census, without weighting, has been reported in Census of Community Mental Health Services 1991, Mental Health Information Series, Terpaj C and Starkey G, NSW Department of Health State Publication No. MHSB 92/121 ISBN 0 7310 0415 9.
36. Because the censuses cover a 24-hour period on a Wednesday, they underestimate the workload of extended hours/crisis teams, since their busiest periods are over the weekend, from ordinary closing time on Friday. There was no way of adjusting for this with the available data.
37. Health and Community Services Annual Report 1993-94, Victorian Government Department of Health and Community Services, Melbourne, 1994. We thank Ms Jillian Hitchcock from the Mental Health Library for supplying this information at short notice.

# INFECTIOUS DISEASES

## OUTBREAKS OF VIRAL GASTROENTERITIS

Six Public Health Units (Northern Sydney, Central Sydney, Southern Sydney, Eastern Sydney, Western Sector and Hunter) reported outbreaks of gastroenteritis occurring in institutions in July-August. Outbreaks were reported in two private hospitals, four nursing homes, five retirement villages and nine child care centres. Not all cases appear in the tables as most of the outbreaks were reported in August, too late to be included in this edition of the *Bulletin*. But the total number of cases will exceed 800. All outbreaks have been consistent with a viral gastroenteritis and were not related to the consumption of food. Symptoms were usually diarrhoea and vomiting lasting 24 hours. Several individuals required admission to hospital and one death has been reported that was possibly related. A causative organism has been reported in only one case – rotavirus was isolated from a retirement village resident from Eastern Sydney.

The wintertime occurrence of the cases, and the isolation of rotavirus from an adult, suggest rotavirus was the most likely causative organism of the outbreaks. Figure 3 shows rotavirus isolations from Eastern Sydney laboratories this year. Laboratory data are likely to reflect infections in children, as adults with gastroenteritis are less likely to be tested for rotavirus.

Rotavirus usually infects children up to the age of three years. It causes fever, vomiting, watery diarrhoea and, rarely, severe dehydration and death. It seldom causes disease in adults because resistance to the virus is usually acquired in childhood. Outbreaks of gastroenteritis due to rotavirus usually occur in the cooler months.

Norwalk virus is the most common cause of viral gastroenteritis in adults. It causes diarrhoea, vomiting, abdominal pain and myalgia, the gastrointestinal symptoms usually lasting 24-48 hours. Both viruses are transmitted via the faecal-oral route, usually by person-to-person contact or by contact with contaminated surfaces. The possibility of faecal-airborne transmission has also been suggested. Norwalk virus has been associated with waterborne and foodborne outbreaks of gastroenteritis.

Simple infection control measures are recommended for institutions affected by an outbreak of gastroenteritis. These include:

- thorough hand washing before and after contact with patients,
- the wearing of gloves by staff when in contact with the body fluids of patients,
- frequent cleaning of bathrooms and surfaces such as hand rails (twice daily is suggested),
- restriction of patient movement in and out of affected areas,
- discouraging visitors from having close contact with residents; and
- ensuring that staff who experience symptoms of illness seek advice from their medical attendants as to when they should return to work.

## HIV NOTIFICATIONS IN NSW, 1992-1995

In July we reported an apparent slight increase in HIV notifications for 1995 compared with the same period for 1994. A more detailed analysis is presented here.

New diagnoses of HIV infection reported by the NSW HIV State Reference Laboratories have been analysed in six-month periods between January 1992 and June 1995. The 1995 data, however, may be a slight over-estimate (by about 5 per cent) because some incomplete data have been included.

The terms "new diagnosis" and "new infection" are used in this report. A new diagnosis is defined as a case that has newly tested positive for HIV infection, regardless of when the infection was likely to have been contracted. A new infection refers to a case where there is evidence that infection was contracted within the previous 12 months.

Each year since 1986 (with the exception of 1990) the number of notifications of cases of newly diagnosed HIV has been greater for the first six-month period (semester) than for the second semester. Consequently, we present here the comparison of data for the first semester of 1995 with the first semester of 1994.

### Results

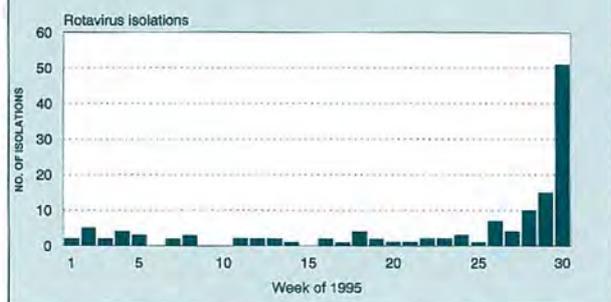
There has been a very significant and decreasing trend of notifications of new diagnoses over time since 1988 ( $p < 0.001$ ). But the total number of new diagnoses for the first semester of 1995 (256) was 10 per cent higher than that for the same period in 1994 (233) (Figure 4).

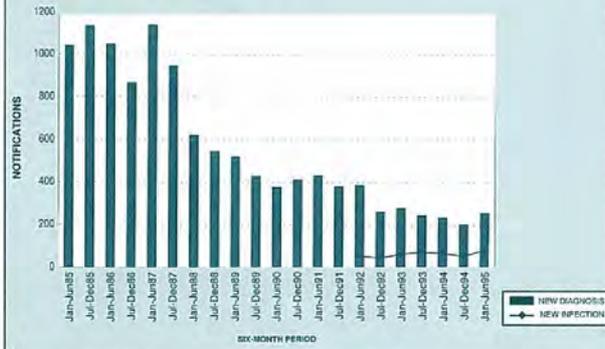
The number of new infections notified has been increasing since 1992 but this trend is not statistically significant. The proportion of new diagnoses that were new infections increased significantly ( $p = 0.001$ ), probably because of more complete reporting. The apparent increase of new infections as a proportion of total diagnoses in the first semester of 1995 (83, 32 per cent) compared with the first semester of 1994 (68, 29 per cent) was not statistically significant. Diagnoses with evidence of infection within three years showed the same pattern as that for new infections. There are no significant trends between 1992 and 1995 when the data are analysed by gender, age group, risk exposure or clinical status as a proportion of total notifications.

Most new diagnoses and new infections occurred in males aged 25-34 years who reported homosexual contact. Most cases were in this group, but there was a significant decrease in numbers (11 per cent) in it when the first

FIGURE 3

WEEKLY ROTAVIRUS REPORTS, NSW  
EASTERN SYDNEY LABORATORY SURVEILLANCE PROGRAM, 1995



**FIGURE 4****HIV NOTIFICATIONS IN NSW  
JANUARY 1985 TO JUNE 1995**

semesters of 1995 and 1994 were compared ( $p=0.01$ ). There was also a significant increase (9 per cent) in the proportion of new diagnoses occurring in individuals aged 35-44 years ( $p=0.02$ ). Eastern Sydney remained the centre of the epidemic, followed by Central Sydney and Northern Sydney.

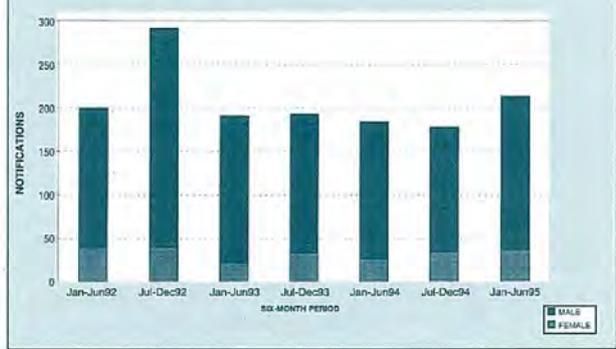
The number of females in NSW who tested positive for HIV infection was too small to discern a trend. But there has been an increase in the number of females newly diagnosed with HIV infection in the first semester of 1995 (26), compared with that for 1994 (14). The numbers for males were 215 and 210 respectively. For 14 diagnoses (5 per cent) in 1995 the gender of the individual was unknown. The change in the proportions for each gender during this period was not statistically significant.

For females, the highest number of notifications occurred among those aged 25-34 and the majority (for both new diagnoses and new infections) reported heterosexual contact only.

Evidence suggests the observed increase was not the result of a recent change in HIV testing patterns, HIV testing policy reported by clinics or the numbers of specimens tested for HIV. Further, there has been no increase in the number of people notified with late-stage HIV infection and this also suggests there has been no increase in the number of people tested.

Sixteen per cent of notifications were diagnosed in the late stage of infection. This is a concern because of the missed opportunities to support these individuals through counselling and treatment.

In this context it is worth noting that the Gonococcal Reference Laboratory at the Prince of Wales Hospital has reported an increasing trend in the numbers of gonococcal isolates and anorectal gonorrhoea cases between 1990 and 1993. During the first semester in 1995 the number of gonorrhoea isolates examined (333) was 34 per cent higher than for the same period in 1994 (248). In the first quarter in 1995 there were more isolates from males than for any period in 1994. More isolates were identified from rectal and pharyngeal sites, suggesting a higher proportion of infections resulting from male homosexual contact. There were also more gonorrhoea notifications to the NSW Health Department in 1995 than 1994 (Figure 5).

**FIGURE 5****GONORRHOEA NOTIFICATIONS IN NSW  
JANUARY 1992 TO JUNE 1995**

### Conclusions

- At this stage, analysis of HIV notifications in NSW from 1992 to 1995 does not confirm any statistically significant change. Data for the second half of 1995 will assist in determining whether or not a real trend exists.
- Comparison of 1995 and 1994 data reveals no statistically significant difference in the number of new diagnoses or new infections detected. However, in view of the previous decreasing trend since 1986, the higher figure for the first semester of 1995 is of concern. This concern is further raised by the apparent increase in cases of gonorrhoea in 1995.
- From 1994 to 1995 there was a statistically significant increase in the proportion of new diagnoses in individuals aged 35-44 and a decrease in those aged 25-34. There were no other significant differences when the data were analysed by gender, age, risk exposure or clinical status.

### Action

The AIDS/Infectious Diseases Branch of the NSW Department of Health has convened a task force, which includes representatives of the AIDS Council of NSW, People Living with HIV/AIDS, the National Centre in HIV Epidemiology and Clinical Research, the National Centre in HIV Social Research and AIDS/Infectious Diseases Branch, to advise on a prevention strategy response. The Task Force has indicated that while no statistically significant trend is discernible at the time, the number of new infections overall remains unacceptable and it proposes to use the opportunity to recommend some specific response strategies.

### SALMONELLA DEATHS

Two notifications of unrelated deaths due to salmonella infection are being investigated by Public Health Units. Both cases were elderly. Preliminary investigations in one case suggest the infection may have been acquired while eating onshore in Noumea during a Pacific Island cruise.

Continued on page 84 ▶

## Infectious diseases

► Continued from page 83

No other cases of foodborne illness related to the cruise have been notified.

An unusual cluster of six cases of *Salmonella typhimurium* phage type 179 var 1 has been notified by the Microbiological Diagnostic Unit of the University of Melbourne. Four of the notifications were from the South Western Sydney Area and one each from the Southern Sydney and the Western Sydney Areas. All the cases appeared to be closely related geographically. The dates of collection of specimens were between July 13 and 24, with three specimens dated July 13. The *S. typhimurium* phage type 179 var 1 isolated was unusual in that no antibiotic resistance was detected; phage type 179 is normally resistant to ampicillin or tetracycline. The PHUs are investigating these notifications for a possible foodborne relationship.

### CHOLERA ACQUIRED IN INDONESIA

The Eastern Sydney PHU was notified in July that a patient had been admitted to the Prince Henry Hospital with cholera. *Vibrio cholera* 01, biotype El Tor, serogroup Ogawa was isolated from a stool culture.

The patient and her partner had been on a three-week holiday in Indonesia where they had visited Jakarta, Bali and Lombok. They had stayed in five-star accommodation and eaten in the hotels or in tourist-type restaurants.

The patient had developed watery diarrhoea while on the island of Lombok. She left Indonesia by air the next day, returning directly to Australia. She continued to have moderate to severe diarrhoea, and consulted her general practitioner the following day. A stool specimen was collected and sent to a private laboratory. The next day her condition became worse, with the onset of vomiting. She was admitted to hospital five days after the onset of symptoms with a provisional diagnosis of cholera, confirmed later that day. She was treated with intravenous fluids and doxycycline.

The patient's partner remained well and unaffected. Both he and one other contact were offered antibiotic prophylaxis.

Cholera vaccine provides only partial protection (50 per cent), and therefore immunisation is not recommended for travellers to countries where cholera is endemic. When travelling in such countries, drinking water should always be boiled or sterilised, and no uncooked food should be eaten unless it has been peeled, regardless of the standard of facilities.

### INFLUENZA SURVEILLANCE

Influenza activity remained stable in July and decreased in the first week of August.

Data from the General Practitioner Sentinel Network representing about 73 doctors and 9,500 consultations a week were received up to the third week of July. The consultation rates for influenza-like-illness (ILI) in NSW for June and July were about 4 per cent (Figure 6). The rate for the third week of July (3.8 per cent) was slightly lower than for the previous two weeks. The ILI consultation rate reported by the South East PHU has sharply declined since early July, following the epidemic level rates (>10 per cent)

FIGURE 6

#### INFLUENZA-LIKE ILLNESS

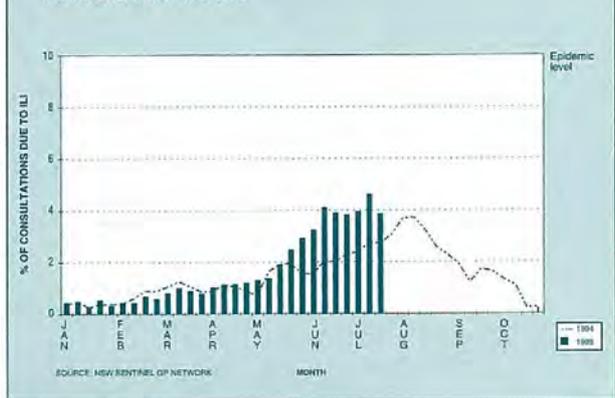
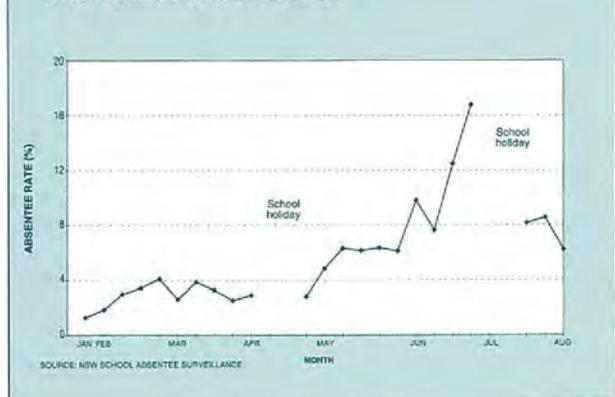


FIGURE 7

#### SCHOOL ABSENTEE SURVEILLANCE



since the second week of May. The Eastern Sydney, Western Sydney and Wentworth, and South West PHUs have also reported decreasing rates. However the rates reported by the Northern Districts PHU steadily increased from early May to the third week of July.

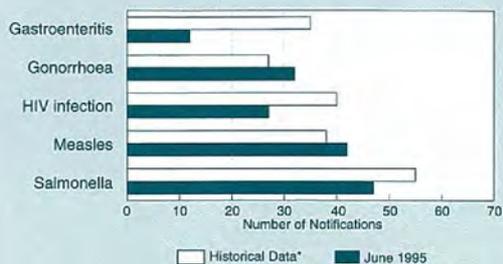
School absenteeism was reported by five PHUs representing 13 schools and 9,200 pupils. The absentee rate in the first week of August was a moderate 6.2 per cent (Figure 7).

For the first week of August the serology laboratories of the Prince of Wales and Westmead Hospitals reported 10 isolates of influenza A and 10 of influenza B. Influenza B was more common in July (40) than in June (5), while influenza A was less common (41 in July, 28 in June).

For the first week of August the virology departments of Westmead, Royal Alexandra Hospital for Children and Liverpool Hospitals reported the following isolates: 1 influenza A, 3 influenza B, 26 RSV, 2 parainfluenza 3 and 8 rhinovirus. The total numbers for July were 9 influenza A, 18 influenza B, 236 RSV, 9 parainfluenza 3, 1 parainfluenza 2, 12 rhinovirus and 6 adenovirus. A significant number of isolates of influenza B continues to be identified, while the number of influenza A isolates in July was a third of that in June. RSV isolates, which were expected to be high throughout the winter months, have sharply declined since the third week of July.

**FIGURE 8**

**SELECTED INFECTIOUS DISEASES  
JUNE 1995 COMPARED WITH HISTORICAL DATA**



\*Historical data: the average number of notifications diagnosed in the same month in the previous three years

**TABLE 2**

**INFECTIOUS DISEASE NOTIFICATIONS FOR 1995  
BY SELECTED MONTH OF ONSET FOR NOTIFICATIONS  
RECEIVED BY JULY 31, 1995**

Condition	Apr	May	Jun	Jul	Total
Adverse event after immunisation	2	4	4	3	13
AIDS	22	29	25	8	84
Arboviral infection	118	79	22	11	230
Brucellosis	-	1	-	-	1
Foodborne illness (NOS)	25	6	6	4	41
Gastroenteritis (instit)	35	38	12	105	190
Gonorrhoea infection	29	42	32	7	110
H. influenzae epiglottitis	2	-	-	-	2
H. influenzae infection (NOS)	1	-	-	-	1
H. influenzae meningitis	-	-	2	2	4
H. influenzae septicaemia	-	1	-	-	1
Hepatitis A - acute viral	32	51	29	9	121
Hepatitis B - acute viral	8	5	4	1	18
Hepatitis B - chronic/carrier	36	55	41	7	139
Hepatitis B - unspecified	324	395	362	143	1,224
Hepatitis C - acute viral	3	13	7	3	26
Hepatitis C - unspecified	543	771	643	221	2,178
Hepatitis D - unspecified	2	-	2	-	4
Hepatitis, acute viral (NOS)	-	-	-	1	1
Hydatid disease	-	-	3	-	3
HIV infection	35	48	27	20	130
Legionnaires' disease	2	7	6	1	16
Leptospirosis	1	-	-	-	1
Malaria	10	17	1	3	31
Measles	34	62	42	23	161
Meningococcal infection (NOS)	3	1	-	-	4
Meningococcal meningitis	2	3	12	8	25
Meningococcal septicaemia	-	1	3	2	6
Mumps	-	1	2	2	5
Mycobacterial atypical	29	17	6	-	52
Mycobacterial infection (NOS)	9	19	12	5	45
Mycobacterial tuberculosis	14	22	14	3	53
Pertussis	66	141	102	47	356
Q fever	11	15	15	9	50
Rubella	5	17	7	6	35
Salmonella (NOS)	97	102	47	38	284
Syphilis infection	63	91	59	38	251
Tuberculosis - non-active	5	4	11	1	21
Typhoid and paratyphoid	5	-	-	1	6

**TABLE 3**

**SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS  
JULY 1995**

Condition	Number of cases notified		Cumulative	
	July 1994	July 1995	July 1994	July 1995
Adverse reaction	4	3	26	12
AIDS	40	8	313	168
Arboviral infection	7	11	349	459
Brucellosis	-	-	-	1
Cholera	-	-	-	-
Diphtheria	-	-	-	-
Foodborne illness (NOS)	5	4	135	275
Gastroenteritis (instit.)	47	105	159	205
Gonorrhoea	32	7	217	221
H influenzae epiglottitis	-	-	18	3
H influenzae B - meningitis	-	2	10	7
H influenzae B - septicaemia	1	-	9	4
H influenzae infection (NOS)	-	-	8	2
Hepatitis A	38	9	328	313
Hepatitis B	379	151	2,562	2,682
Hepatitis C	777	224	5,202	4,550
Hepatitis D	1	-	14	10
Hepatitis, acute viral (NOS)	-	1	1	1
HIV infection	35	20	268	276
Hydatid disease	2	-	10	7
Legionnaires' disease	10	1	46	49
Leptosy	-	-	2	1
Leptospirosis	-	-	11	2
Listeriosis	-	-	4	7
Malaria	12	3	127	79
Measles	37	23	347	383
Meningococcal meningitis	6	8	35	37
Meningococcal septicaemia	5	2	18	13
Meningococcal infection (NOS)	2	-	8	10
Mumps	-	2	3	7
Mycobacterial tuberculosis	32	3	253	143
Mycobacterial - atypical	40	-	311	199
Mycobacterial infection (NOS)	2	5	20	70
Pertussis	98	47	852	578
Plague	-	-	-	-
Poliomyelitis	-	-	-	-
Q fever	16	9	169	101
Rubella	4	6	61	64
Salmonella infection (NOS)	57	38	703	757
Syphilis	68	38	620	489
Tetanus	-	-	2	-
Typhoid and paratyphoid	3	1	19	24
Typhus	-	-	-	-
Viral haemorrhagic fevers	-	-	-	-
Yellow fever	-	-	-	-

**PUBLIC HEALTH EDITORIAL STAFF**

The editor of the Public Health Bulletin is Dr Michael Frommer, Director, Research and Development, NSW Health Department. Dr Lynne Madden is production manager.

The Bulletin aims to provide its readers with population health data and information to motivate effective public health action. Articles, news and comments should be 1,000 words or less in length and include a summary of the key points to be made in the first paragraph. References should be set out using the Vancouver style, the full text of which can be found in *British Medical Journal* 1988; 296:401-5.

Please submit items in hard copy and on diskette, preferably using WordPerfect, to the editor, NSW Public Health Bulletin, Locked Mail Bag 961, North Sydney 2059. Facsimile (02) 391 9029.

Please contact your local Public Health Unit to obtain copies of the NSW Public Health Bulletin.

**TABLE 4**

**INFECTIOUS DISEASE CUMULATIVE NOTIFICATIONS FOR 1995  
RECEIVED BY JULY 31, 1995**

Condition	CCA	CSA	CW	ESA	HUN	ILL	NC	ND	NSA	SE	SSA	SW	SWS	WEN	WN	WSA	U/K	Total
AIDS	2	42	-	54	7	1	14	-	19	-	10	-	6	6	-	7	-	168
Arboviral infection	6	4	-	7	10	24	178	41	3	150	3	11	-	2	18	2	-	459
Brucellosis	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Gonorrhoea infection	2	41	6	83	3	9	13	6	7	5	13	-	13	2	9	9	-	221
Hepatitis B - acute viral	-	3	1	6	-	-	3	2	-	1	-	-	-	3	1	8	3	32
Hepatitis B - chronic/carrier	15	-	9	147	-	-	4	9	2	-	10	-	-	5	7	63	-	271
Hepatitis B - unspecified	18	269	8	43	56	55	35	4	286	17	354	14	882	11	5	322	-	2,379
Hepatitis C - acute viral	1	-	-	4	-	-	-	-	-	1	-	-	-	2	33	1	-	42
Hepatitis C - unspecified	138	495	196	698	281	287	442	79	299	144	300	143	529	78	15	384	-	4,508
Hepatitis D - unspecified	-	-	-	1	-	-	4	-	1	-	1	-	-	3	-	-	-	10
HIV infection	4	42	1	102	9	7	6	-	14	-	13	-	15	7	-	16	40	276
Hydatid disease	-	-	1	1	-	-	1	-	1	-	-	2	-	-	-	1	-	7
Legionnaires' disease	1	2	-	3	8	5	1	2	6	-	-	-	3	1	1	16	-	49
Leprosy	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Leptospirosis	-	-	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	2
Malaria	3	5	-	7	8	4	8	1	19	1	3	3	4	3	-	10	-	79
Meningococcal infection (NOS)	1	-	-	1	1	-	2	-	-	-	2	1	1	-	1	-	-	10
Meningococcal meningitis	5	1	3	2	7	3	3	2	3	2	2	-	3	1	-	-	-	37
Meningococcal septicaemia	-	3	-	-	5	-	1	-	1	-	1	-	-	-	-	-	-	13
Mycobacterial atypical	7	28	-	43	12	6	8	6	26	1	17	3	27	4	6	5	-	199
Mycobacterial infection (NOS)	3	5	-	1	6	-	3	-	3	-	4	-	39	1	-	5	-	70
Mycobacterial tuberculosis	2	21	2	9	4	4	3	2	18	1	22	3	6	3	3	40	-	143
Q fever	-	1	7	-	9	2	24	4	-	-	-	1	1	-	31	1	-	101
Syphilis infection	5	54	9	86	12	10	44	25	19	5	35	2	76	8	71	28	-	489
Tuberculosis - non-active	1	-	-	-	-	5	1	-	16	-	24	1	-	-	1	2	-	51

**TABLE 5**

**VACCINE PREVENTABLE AND RELATED CONDITIONS, CUMULATIVE NOTIFICATIONS FOR 1995  
BY PUBLIC HEALTH UNIT, RECEIVED BY JULY 31, 1995**

Condition	CCA	CSA	CW	ESA	HUN	ILL	NC	ND	NSA	SE	SSA	SW	SWS	WEN	WN	WSA	Total
Adverse event after immunisation	-	-	-	-	1	-	3	2	-	2	2	5	-	4	-	1	20
H. influenzae epiglottitis	-	-	-	1	-	-	1	-	-	-	1	-	-	-	-	-	3
H. influenzae infection (NOS)	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2
H. influenzae meningitis	-	1	-	-	-	-	3	-	-	-	-	-	1	-	-	-	2
H. influenzae septicaemia	-	-	-	-	1	-	-	-	1	-	1	-	-	-	-	-	4
Measles	11	23	6	52	36	53	22	32	12	5	30	8	24	37	-	32	383
Mumps	-	-	-	1	-	2	2	-	1	-	-	-	-	-	-	-	7
Pertussis	22	18	8	20	30	41	156	6	47	16	27	33	33	51	11	59	578
Rubella	-	-	-	4	5	2	9	5	1	-	12	1	-	4	1	20	64

**TABLE 6**

**FOODBORNE INFECTIOUS DISEASE CUMULATIVE NOTIFICATIONS FOR 1995  
BY PUBLIC HEALTH UNIT, RECEIVED BY JULY 31, 1995**

Condition	CCA	CSA	CW	ESA	HUN	ILL	NC	ND	NSA	SE	SSA	SW	SWS	WEN	WN	WSA	Total
Foodborne illness (NOS)	16	9	-	-	162	-	-	1	4	-	-	8	36	-	20	19	275
Gastroenteritis (insti)	-	33	-	-	2	-	45	-	34	1	-	-	1	84	2	3	205
Hepatitis A - acute viral	8	51	32	80	13	7	15	-	26	-	22	10	25	3	3	18	313
Listeriosis	-	1	1	1	-	-	-	1	1	1	-	-	-	-	-	-	7
Salmonella (NOS)	18	41	14	48	58	39	90	49	79	31	69	21	62	34	29	74	756
Typhoid and paratyphoid	-	1	-	7	-	-	1	-	2	-	5	-	3	1	-	4	24
Vibrio infection (non-cholera)	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1

*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, NC North Coast Public Health Unit, ND Northern District Public Health Unit, WN Western New South Wales Public Health Unit, CW Central West Public Health Unit, SW South West Public Health Unit, SE South East Public Health Unit, 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.