



MEDICAL RETRIEVALS TO TERTIARY REFERRAL CENTRES IN SYDNEY

A medical retrieval is a mission in which a doctor (usually accompanied by a nurse or paramedical personnel) travels to a sick or injured patient and accompanies him or her to a hospital, stabilising and managing the patient at the retrieval site and en route. A distinction is made between medical retrieval and patient transport with a medical escort. Medical retrievals may be primary (e.g. from the roadside at the site of a motor vehicle accident) or secondary (from one hospital to another). The vehicles used are road ambulances, fixed-wing air ambulances and helicopters.

The Epidemiology and Health Services Evaluation Branch of the NSW Health Department, in collaboration with the Centre for Health Economics, Research and Evaluation, has carried out a review of all medical retrievals by Sydney-based retrieval teams to tertiary referral centres in Sydney between February 1 and May 31, 1991. The objectives of the review were to:

- enumerate retrievals by road ambulance, helicopter and fixed-wing aircraft;
- determine the demographic and clinical characteristics of the retrieved patients, and the pattern of retrievals by the three vehicle types;
- describe the outcomes;
- assess costs; and
- assess the quality and accessibility of routinely collected data and their suitability for ongoing monitoring of medical retrieval.

This article outlines the organisation of medical retrievals and summarises the findings of the review.

ORGANISATION AND FUNDING OF MEDICAL RETRIEVALS

The organisation of medical retrievals to Sydney tertiary centres is complex. There are three key components: the operators of transport vehicles, the retrieval teams which provide the medical services and the system which coordinates and activates retrievals.

Four retrieval operators provide the transport. The NSW Ambulance Service operates road ambulances and fixed-wing air ambulances. The Air Ambulance Service is based at Sydney (Kingsford-Smith) Airport. The other three operators provide helicopter services. These are the Westpac Surf Life Saving Association (SLSA), based at Prince Henry Hospital; Child Flight, based at the Royal Alexandra Hospital for Children (RAHC); and NRMA Careflight, based at Westmead Hospital.

Five retrieval teams use the transport vehicles provided by the operators. Two of these teams are employed by the retrieval operators, *viz.* SLSA and NRMA Careflight. The other three teams are hospital-based and are at the Grace Neonatal Intensive Care Unit, RAHC; the Lower Todman Intensive Care Unit, also at RAHC; and the Prince of Wales Children's Hospital. Retrievals are carried out by various combinations of operators and teams.

The three helicopter operators (SLSA, Child Flight and NRMA Careflight) are private non-profit organisations which are individually contracted to the NSW Health Department to provide transport for medical retrievals. The Department's payments comprise a fixed monthly retainer and additional fees which depend on the amount of time for which the helicopter's engine is switched on (engine time).

Continued on page 72 ►

Contents

Articles

71 *Medical retrievals to tertiary referral centres in Sydney*

73 *Genesis of a PHU disaster response plan*

News and Comment

77 *Attitudes to chemicals and pesticides*

Infectious diseases

78 *Notifications*

82 *Tuberculosis data update*

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Medical retrievals

► Continued from page 71

As examples, a crude estimate of the average cost to the Department of helicopter transport for retrieving a neonate from Western Sydney to the RAHC is \$2,935 (allowing 40 minutes engine time) and for retrieving a neonate from the Central Western or South East Region, \$5,285 (allowing 134 minutes engine time).

The costs of NSW Ambulance Service operations are more difficult to determine. Most of the workload of the Air Ambulance Service comprises scheduled transport of patients to and from country areas and, to a lesser extent, unscheduled transport. Medical retrieval operations are estimated to account for 8 per cent of flights. The Air Ambulance Service also has a coordinating function. Medical retrieval constitutes a very small proportion of all road ambulance operations. In addition to road ambulance retrievals *per se*, road ambulances provide ground connections for all fixed-wing air retrievals (e.g. between Sydney Airport and the destination hospital) and some helicopter retrievals (where the helicopter cannot land at the retrieval site or the destination hospital).

The Ambulance Service recoups monies by charging health care institutions according to an engine time formula for helicopter retrievals and a distance formula for road ambulance and fixed-wing air ambulance retrievals. For secondary retrievals by helicopter, half is paid by the referring hospital and half by the receiving hospital.

CONDUCT OF THE REVIEW

Medical retrievals in the review period were identified from two principal sources: Air Ambulance Service records of secondary and some primary retrievals by fixed-wing aircraft and helicopter, and lists of fixed-wing, helicopter and road ambulance retrievals provided by the five retrieval teams.

Clinical data and data on the operational aspects of individual medical retrievals were obtained from retrieval teams' records, Air Ambulance Service and helicopter flight records and medical records at the receiving tertiary referral centres. The data sought on each case included demographic items, the site from which the retrieval was undertaken, the type of vehicle used, key time points in the retrieval operation, clinical and diagnostic information at various stages during the retrieval and the subsequent hospital stay, length of stay and the outcome. The outcomes were categorised as follows: death, discharge or transfer for terminal care, transfer to an inpatient rehabilitation facility, or discharge to own home or transfer to a lower level hospital (other than for terminal care).

There were considerable variations in the data available on individual cases.

KEY FINDINGS

During the four-month period February 1-May 31, 1991, 533 medical retrievals were carried out by Sydney-based retrieval teams to tertiary referral centres in Sydney (4.4 per day on average). These comprised 33 primary and 500 secondary retrievals.

All 33 primary retrieval cases were adults. Of the 500 secondary retrieval cases, 44 per cent were neonates, 29 per cent were children (aged up to 12 years inclusive) and 27 per cent were adults.

TABLE 1

SECONDARY MEDICAL RETRIEVALS TO SYDNEY REFERRAL CENTRES, FEBRUARY-MAY 1991: LOCALITY OF REFERRING HOSPITAL AND TYPE OF TRANSPORT VEHICLE BY AGE GROUP OF PATIENTS

Referring Hospital	Transport Vehicle		
	Road Number (%)	Helicopter Number (%)	Fixed-Wing Number (%)
NEONATE			
Inner Sydney	73 (98)	1 (02)	— —
Outer Sydney	46 (73)	17 (27)	— —
Other Urban	9 (36)	16 (64)	— —
Rural	— —	28 (51)	27 (49)
CHILD			
Inner Sydney	29 (97)	1 (03)	— —
Outer Sydney	53 (78)	15 (22)	— —
Other Urban	5 (42)	6 (50)	1 (08)
Rural	2 (06)	10 (29)	22 (65)
ADULT			
Inner Sydney	6 (86)	1 (14)	— —
Outer Sydney	18 (38)	29 (62)	— —
Other Urban	— —	17 (100)	— —
Rural	1 (02)	22 (38)	35 (60)
Incomplete data on 10 cases			

Of the 33 primary retrievals, 31 were by helicopter. Of the secondary retrievals half were by road ambulance, one-third by helicopter and one-sixth by fixed-wing aircraft. A road ambulance was used for three-fifths of the neonates and children, but only one-fifth of the adults. A helicopter was used for 29 per cent of neonates, 22 per cent of children and 54 per cent of adults, and a fixed-wing aircraft was used for 12 per cent of neonates, 16 per cent of children and 27 per cent of adults.

To describe the locations from which patients were retrieved, the State was divided into four zones.

- **Inner Sydney** Central, Southern, Northern and Eastern Sydney Health Areas
- **Outer Sydney** Western and South-Western Sydney and Wentworth Health Areas
- **Other urban** Illawarra, Central Coast and Hunter Health Areas
- **Rural** The Health Regions

For secondary retrievals, the localities from which patients were retrieved varied markedly among the age groups (Table 1). The majority of neonates (63 per cent) and children (68 per cent) came from Sydney metropolitan localities while a large proportion of adults (45 per cent) came from rural regions.

The majority of neonates (78 per cent) and children (91 per cent) were retrieved to the RAHC and the Prince of Wales/Prince Henry group of hospitals, regardless of the locality from which they came. Less than one-quarter of the neonates referred from outer Sydney localities were taken to Westmead Hospital; 45 per cent of them went to the RAHC and 22 per cent to Prince of Wales Children's Hospital. Only 6 per cent of children from outer Sydney went to Westmead, while 60 per cent went to the RAHC. By contrast, 29 per cent of all adults were retrieved to Westmead, 23 per cent to the Prince of Wales/Prince Henry group and 21 per cent to Royal North Shore Hospital. Two-thirds of the adult retrievals to Westmead Hospital were from outer Sydney and most of the rest from rural areas.

Continued on page 76 ►

GENESIS OF A PHU DISASTER RESPONSE PLAN

At 10.27am on December 28, 1989, Newcastle was hit by an earthquake measuring 5.6 on the open-ended Richter scale. Twelve people were killed by collapsed buildings and 105 people presented to Hunter Hospitals with symptoms directly attributable to the earthquake.

Although the toll from the Newcastle earthquake was relatively small when compared with overseas earthquakes, the possibility of massive loss of life focused attention on the Health Department's counter-disaster medical contingency plans. A disaster medical aid system must respond quickly and appropriately¹, utilising the most relevant organisational concepts and the most advanced medical procedures available.

Since medical knowledge and especially medical technology are developing at an exponential rate², counter-disaster medical plans must be continually revised. For more than a decade each contingency plan developed by the NSW Health Department has incorporated a mechanism to ensure that the plan is continually renewed.

NSW disaster response plans

From the mid 1970s the revised Sydney Metropolitan Disaster Plan was kept under regular review. As a result its organisational structure was recast in the NSW Disaster Medical Plan promulgated in 1985. This latter was established as a master plan on which regional plans were to be based. Again the new structure emphasised that "Plans at all levels must be subject to regular review, so that an increasingly effective overall plan may evolve to facilitate response to any disaster situation which may occur in any part of this State"³.

In July 1990 Medplan, designed to be compatible with the NSW Disaster Plan (NSW Displan), was released as a new model set of procedures. All Area and Regional Health Services and all ambulance districts and regions were required to maintain disaster plans which were operationally compatible with Medplan.

This document identifies in specific detail what review procedures are to be undertaken and who has executive responsibility for each. For example, a post-incident debrief of all Health Department agencies must be held and chaired by a person who did not participate in the disaster response. The aim of such debrief is to generate information to assist in assessing the efficiency of Medplan procedures and the adequacy of human and material resources⁴ and to offer psychological support for staff in the post-disaster period.

The debriefing provisions of Medplan established a procedure to help make effective the Health Department's 1985 recommendation designed to ensure some system renewal. These provisions also reflected the Department's determination to learn from experience. Because disasters of any kind are relatively rare, it is imperative that the Department take advantage of the few occasions when its contingency plans are, of necessity, realistically field-tested.

Hunter Area disaster response plans

The Hunter Area Health Service (HAHS) was created in August 1988 by amalgamating the four health services

of the Greater Newcastle, Lower Hunter, Northumberland and Upper Hunter areas. Authority for the organisation of a local medical response to a disaster was then vested in the HAHS. In the early months of the new body's existence, time and energy were spent establishing administrative and professional structures. Thus it was not possible to revise local medical disaster plans to meet the needs of the new area before the unexpected earthquake occurred.

The consequence of these chance events was that local health professionals generally had to assume the roles and protocols established by the NSW Disaster Medical Plan of 1985. This process generated a medical response which was relatively efficient, but also highlighted the need to revise existing plans.

In 1990 and 1991 the local disaster medical response plan pertaining to the HAHS was written, incorporating some suggestions arising from the experience of the earthquake. This plan has been named the Hunter Multiple Casualty, Emergency and Disaster Medical Response Plan (Hunter Medplan).

During the preparation of Hunter Medplan, it was recognised that previous disaster plans did not include public health response. PHUs, which were not established until 1990⁵, had no designated roles in counter-disaster activities. Moreover PHU and other personnel have had little opportunity to complete the detailed identification of such roles. The earthquake in Newcastle focused attention on the need to create a clear and workable counter-disaster plan, complementary to the Hunter Medplan, for the PHU.

The Hunter Public Health Unit

The Hunter PHU was established in March 1990 to evaluate and coordinate local health priorities and to develop associated public health strategies relating to infectious diseases, environmental health, reproductive health, chronic diseases and injuries⁶.

Environmental Health Officers were formally integrated into the PHUs in August 1991, and were also allotted additional duties under the Medical Officer of Health and Director of the PHU.

THE PUBLIC HEALTH UNIT DISASTER RESPONSE PLAN

The PHU has a vital role in implementing appropriate responses to disasters where the health of the public is threatened. The geographic and demographic profile of the Hunter Area dictates the kind of disasters which may occur⁶ and includes natural disasters such as earthquakes, epidemics, fires and floods and human-caused disasters such as chemical spills, industrial accidents and major transport accidents.

The aims of the PHU in a disaster are:

- to coordinate and cooperate with other agencies and to protect and maintain the health of the public; and
- to ensure the most efficient and effective use of public health resources.

Continued on page 74 ►

Genesis of a disaster plan

► Continued from page 73

The Hunter PHU disaster response plan outlines the possible effects of disasters, both on the environment and on the health of the public, and then outlines recommended responses to these possibilities. The roles of all PHU staff members are clearly delineated with a specific chain of command (Figure 1), and important links with other counter-disaster personnel described.

Comprehensive reference section

Guidelines to help a staff member implement a PHU response to diverse disasters constitutes an important section of the plan.

It was recognised that a PHU disaster response plan needed to be clear and easy to read and implement. With this in mind, the Hunter PHU plan was designed so individual sections could be summarised into concise action plans. Another important section in any disaster plan is the list of resource people and data bases. This list identifies, for example, all the significant community leaders and experts who can be called on in an emergency, with telephone or other contact information. Experience with previous counter-disaster plans indicates this list must be scrupulously accurate, and updated at regular intervals. To this end, responsibility for list revision must be vested in one person with the expectation that the lists will be checked at least twice a year.

Relationship with other disaster response plans

The Hunter PHU disaster response plan was designed to be an integral part of Hunter Medplan, which in turn was designed to complement NSW Medplan. NSW Medplan is operationally compatible with NSW Displan. The schematic illustration of the four plans can be seen in Figure 2.

Copies of the Hunter PHU Disaster Response Plan can be obtained from Jeanette Sheridan, Hunter Area Health Service PHU, PO Box 11A, Newcastle 2300. Telephone (049) 291 292; facsimile (049) 294 037.

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1. Mahoney LE, Reutershan TP. Catastrophic disasters and the design of disaster medical care systems. *Ann Emerg Med* 1987; 16:1085-1091.
2. Callahan D. Shattuck Lecture — Contemporary biomedical ethics. *N Engl J Med* 1980; 302:1228-1233.
3. Department of Health, New South Wales. New South Wales Disaster Medical Plan. Sydney. NSW Health Department, 1985.
4. Department of Health, New South Wales. New South Wales multiple casualty emergency and disaster medical response plan (Medplan). Sydney. NSW Health Department, 1990.
5. Rubin G, Frommer M, Morey S, Leeder S. On the right track. *Public Health Bulletin* 1991; 2(1):1-2.
6. Sheridan J, Miles T, Mitchell M. Hunter Area Health Service Public Health Unit Disaster Response Plan. Newcastle. Hunter Area Health Service, 1991.

FIGURE 1

HUNTER PUBLIC HEALTH UNIT CHAIN OF COMMAND IN A DISASTER

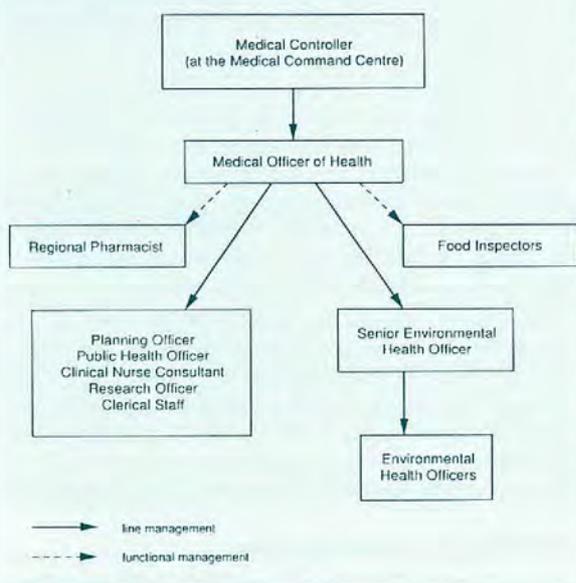
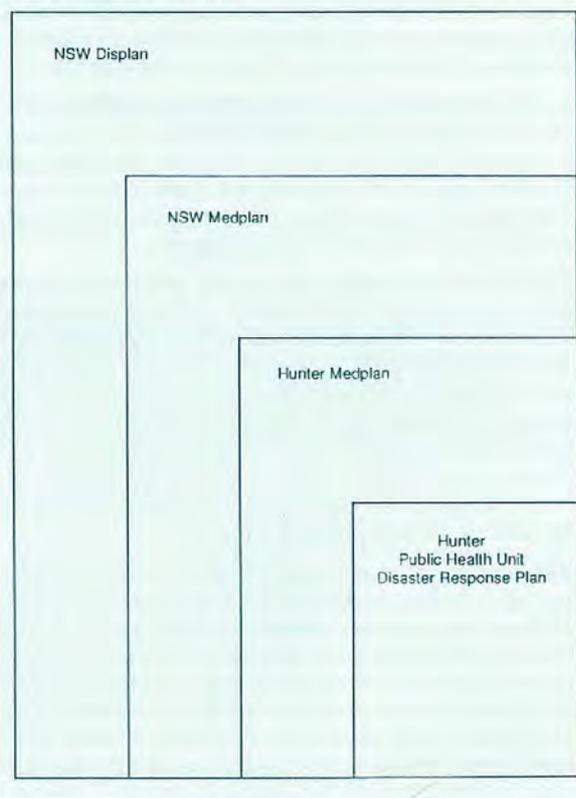


FIGURE 2

SCHEMATIC ILLUSTRATION OF THE RELATIONSHIP BETWEEN FOUR DISASTER RESPONSE PLANS



NEWS AND COMMENT

PUBLIC HEALTH UNIT DIRECTORS' MEETING

The following issues were discussed at the May 18 meeting of PHU directors and others at Rozelle Hospital:

Chemical incidents paper

The Chief Health Officer, Sue Morey, drew attention to the need to follow up people involved in accidents related to explosions or spills of chemicals. A system was needed to clarify who should notify the incidents and to whom they should be notified. Also, a chemical exposure register should be established.

GP sentinel surveillance

The GP liaison officer for the Central and Southern Public Health Unit, Michael Mira, discussed the sentinel surveillance system in Central and Southern Sydney Areas. His report will be published in a future edition of the *Public Health Bulletin*.

Public health network annual report

The meeting decided the annual report would include a description of the network and would cover infectious diseases, environmental health issues, injuries, health outcomes and maternity and child health. It is to be included with an issue of the *Public Health Bulletin*.

Health Outcomes

George Rubin reported positive response to the Health Outcomes Initiative paper which had been circulated to, and discussed with, clinicians. At the conclusion of the consultation process the document is to be redrafted.

Public Health Officers (PHOs)

The meeting discussed the difficulty of finding PHOs willing to work in PHUs and in country Regions as opposed to city Areas. It was suggested that a database be set up to include details about PHOs and about the needs of the PHUs, but it was agreed to maintain the existing selection process.

Legionella

In the light of the Legionnaires' disease outbreak in South Western Sydney in April, Greg Stewart recommended that Environmental Health Officers be given guidelines for cooling tower inspections. He said the Division of Analytical Laboratories was very responsive in testing the many samples taken during the outbreak and the Public Health Network had provided good support. Councils should, urgently, compile registers of cooling towers and the Legionella Management Plan should be amended to address the allocation of responsibility.

Environmental health

Steve Corbett reported that South Australia had produced a paper on the rehabilitation of areas contaminated with lead. He also said there had been 30 requests for grants to study air pollution and decisions would be made soon.

Special interest groups

It was decided these groups would be established only to meet a specific current need, after which they would be disbanded.

Food Inspectors

The meeting asked that the transfer of Food Inspectors to PHUs and hospitals be postponed from May 27 until June 30.

Amalgamation of Regions

A guarantee was given that there would be no reduction in the number of PHUs.

TELL US ABOUT YOUR WORK

Our readers would like to learn about the work of your unit, special program(s) or projects. To keep your colleagues informed please send us your brief article on the objectives, activities/mechanisms and where possible the results and public health implications of your efforts.

LETTERS

EXOTIC DISEASES

The establishment of Public Health Units (PHUs) and the new infectious disease notification system means that the potential to monitor and respond to cases or outbreaks of infectious diseases is greatly enhanced. Initiatives by individual PHUs to establish a network of personnel and contacts within their Region or Area are essential. Of importance for Regional PHUs is contact with agriculture and veterinary authorities.

In the South West Region the Regional Veterinary Officer is informed by the PHU of cases of zoonotic diseases. The disease name, the age and sex of the patient, the first two letters of the surname and the doctor's name is supplied. At the same time the patient's doctor is made aware that he or she may be contacted for further information.

Recently the South West Region PHU was informed by the Regional Veterinary Officer of a human case of screw-worm fly myiasis occurring in a traveller who returned from South America. The consequences of the establishment of the screw-worm fly in Australia would be extremely serious, having a profound impact on livestock industries as well as being of public health importance. Infestation usually follows trauma although the size of the initial wound may be small. Large lesions are produced within a few days. Serious disease may result in humans when infestation of the nose, eyes, ears or mouth occurs.

Knowledge of exotic diseases, particularly those with predominantly agricultural or veterinary significance, among medical practitioners and public health staff generally is limited. As well as notifiable exotic diseases it may be wise for public health workers to become familiar with a number of other exotic diseases which may be brought into Australia by returning travellers or recent arrivals. Screw-worm and warble flies are obligate parasites and myiasis due to larvae of these flies should be considered in travellers with infested lesions.

Contact with agriculture and veterinary authorities is recommended as an important part of an infectious diseases surveillance network in addition to knowledge of the methods of diagnosis or identification available through veterinary laboratories.

Tony Kolbe, Associate Director Public Health, South West Region

INFANT MORTALITY RATES — AUSTRALIA'S INTERNATIONAL RANKING

In his excellent article in the February 1992 issue of the *Public Health Bulletin*, Peter Lewis states: 'Australia's infant mortality does not compare favourably with other equally developed countries. In 1986 Japan, Singapore and most European countries had lower infant mortality rates than Australia, which ranked 18th'.

This statement is not correct, mainly because it is based on incorrect 1986 figures for Australia issued by the United Nations. These incorrect figures were subsequently used by several other

Continued on page 76 ▶

News and Comment

► Continued from page 75

reports including the first Biennial Report of the Australian Institute of Health which Peter Lewis used as a reference to make the above statement.

The sequence of events which explains this error is as follows:

- The 1986 figure for Australia issued by the Australian Bureau of Statistics (ABS) was 8.8 infant deaths per 1000 live births. However, the United Nations recorded a figure of 9.8 in the demographic year book for 1986. This has now been recognised and the United Nations demographic year book for 1988 now shows trends for the past five years revising the 1986 figure downwards, in line with the ABS estimate of 8.8.
- The annual report issued by UNICEF, *The State of the World's Children*, used the incorrect figure of 9.8 which it rounded to 10 per 1000 live births.
- The Australian Institute of Health used the UNICEF figures in its first biennial report, *Australia's Health 1988*. The correct 1986 ABS figure of 8.8 (rounded to 9) was quoted on page 41 of the report, but the UNICEF figures were used to compile a graph on page 42, showing international comparisons. Subsequently, an incorrect statement was made by the institute based on the graph 'despite the substantial decline in Australia's infant mortality, it does not compare favourably with other equally developed countries among which Australia ranks 18. Japan, Singapore and most European countries have lower rates.'

In fact, the revised figures show that in 1986, Singapore had the same rate of infant mortality as Australia. Of the 24 major European countries listed by the United Nations, only 7 had an infant mortality rate lower than Australia. If the correct 1986 figure of 9 per 1000 had been used, Australia would have ranked about 11th, not 18th, as stated by the institute.

In addition, it is important to indicate that infant and perinatal mortality data is very difficult to compare on an international basis because of the complexity and differing interpretations of the definitions of 'live births' and 'infant deaths'. The difficulties are further compounded by the different data used by the United Nations as compared by individual countries for legal purposes. In addition, Keirse¹ working in Holland and Gerald Lawson² in a detailed study in Newcastle, NSW, have both shown the widely differing practices of doctors when certifying deaths in the perinatal period. Australian definitions appear to be more stringent than many other countries in the sense that perinatal deaths are recorded as deaths of living infants, which in many other countries would be regarded as miscarriages.

These views on the difficulty of international comparisons of infant and perinatal death rates are shared by the Editor of the *Australian and New Zealand Journal of Obstetrics and Gynaecology* who said: 'International differences in the definition of a stillbirth confound intercountry comparisons of perinatal mortality and almost certainly influence the gestation at which a foetus born with "any evidence of life" will be registered as a live birth instead of a spontaneous abortion'³.

These are not matters purely of academic interest. Despite the difficulties in comparisons of the data between countries, comparisons are made with great passion at international conferences and in debates about the virtues or otherwise of homebirths, birth centres, technological interventions in midwifery, and in any arena in which the standards of maternal and infant care are debated.

James S. Lawson, Professor and Head, School of Health Services Management

Patricia Mayberry, Ph.D. scholar, School of Health Services Management, University of NSW

1. Keirse MJN. Perinatal mortality rates do not contain what they purport to contain. *Lancet* 1984; 1:1166-1169.
2. Lawson GW. Under-reporting of perinatal mortality. *Aust NZ Obstet Gynaecol* 1987; 27:312-314.
3. In Lawson GW above.

Medical retrievals

► Continued from page 72

A simplified classification of the reasons for retrieval indicates the majority of neonates were retrieved because of an actual or potential need for respiratory support. Non-traumatic causes predominated in children, while head injury and other trauma accounted for almost half the adult retrievals, with non-respiratory medical problems explaining the other half. Endotracheal intubation was performed in two-thirds of the patients and in most cases it was done by staff of the referring hospital.

Outcomes appeared to be favourable for 77 per cent of the neonates, 86 per cent of the children and 62 per cent of the adults. The majority of children and half the adults were discharged directly to their homes, while more than half the neonates were discharged to lower-level hospitals. Twelve per cent of neonates, 8 per cent of children and 20 per cent of adults died.

Some general observations were made about the choice of transport vehicle. At the extremes of distance there was no choice of vehicle type; road ambulances were used for short distances and fixed-wing aircraft for very great distances. Where retrievals involved distances for which there was the potential to choose among the vehicle types, time factors could be compared. For example, there was a clear time advantage for helicopters over road ambulances for neonatal retrievals from outer Sydney. Nevertheless, road ambulances were selected in almost three-quarters of cases. For secondary medical retrievals from rural Health Regions within the range of helicopters, helicopters were found to provide a substantially more expeditious service than fixed-wing aircraft. This advantage was reflected in the choice of vehicle, with helicopters dispatched in three-quarters of cases.

Detailed results of the review will be published elsewhere. Recommendations arising from it include:

- The strategic placement of medical retrieval teams, transport facilities and receiving hospitals warrants careful consideration, with greater emphasis given to the development of all three of these elements in Western and/or South Western Sydney.
- Clear guidelines should be established for the choice of vehicle types. For short-range urban retrievals, road ambulances should be used. For long-range retrievals from rural sites, fixed-wing aircraft should ordinarily be used. However, for longer-range urban retrievals and for rural retrievals within the range of helicopters, clinical criteria should be applied to determine the urgency of each case, and this should be a major factor in determining the choice of vehicle type.
- Consideration should be given to greater participation of the rural retrieval networks in the management of medical retrievals.
- Uniform case data should be collected on all medical retrievals.
- Adequate data should be collected to enable monitoring of the cost of medical retrieval operations. In particular, data should be collected to monitor the costs to the Ambulance Service of the use of road and fixed-wing air ambulances in medical retrievals.

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ATTITUDES TO CHEMICALS AND PESTICIDES

The Health Promotion Unit of Hornsby Ku-ring-gai Hospital and Community Health Services has investigated householders' attitudes and behaviour relating to household chemicals and pesticides.

A survey was conducted between May and June 1991 among residents in the Hornsby Shire and the Kuring-gai Municipal Council areas, which are serviced by the Hornsby Ku-ring-gai Hospital and Community Health Services. Two thousand questionnaires were sent to a randomly selected sample of residents aged 18 years and over. A total of 994 residents returned the survey, which represents a 49.7 per cent response rate. A report on the results of the survey has been produced¹.

The main issues revealed in the report are as follows:

- There are concerns about the effects of household chemicals and pesticides on families and the environment. However, there is greater concern about the impact of pesticides.
- Some people have experienced health problems associated with household chemicals and pesticides.
- There are misconceptions about the hazard level of household chemicals and pesticides. In particular, cleaning agents were perceived as least hazardous to the family as well as to the environment.
- People are aware of alternatives to household chemicals and pesticides, and alternative methods for pest control. Many people would use alternatives if they were cheap and effective, but there are still misconceptions about what constitutes a "safer" alternative.
- There is still a need for people to be informed about where to get information and assistance on household chemicals and pesticides.
- People want more information and education about household chemicals and pesticides.
- The media have played a vital role in raising community awareness, as they are perceived to be a major source of information and education.

In relation to specific behaviours:

- Many people do not safely store their household chemicals and pesticides. For example, chemicals are stored in unlocked cupboards which are accessible to children.
- People reported storing chemicals in their original containers and do not reuse containers for other storage purposes.
- Most people reported being cautious when using household chemicals and pesticides. They read labels, follow safety directions and wear protective clothing and they do not use them around children, pets, food or food preparation areas.
- People disposed of chemicals and their containers in the garbage and were unaware of other provisions for disposal, such as chemical disposal days.
- Many people have changed the way they use chemicals, especially over the past two years. They report using fewer chemicals, using alternatives and having stopped using some chemicals.
- Few people reported having their dwelling regularly sprayed for pests and most did not take action until there were signs of problems with pests.

More information and education would raise awareness of chemical and pesticide issues, dispel misconceptions and encourage safe practices. This may lead to a safer household environment and reduce the potential for accidents and injuries with household chemicals and pesticides. For

further information about the report, contact the Health Promotion Unit on (02) 449 9144.

1. Krolik P, Piper D, McKenna G. *Household Chemicals and Pesticides: A Study of Community Attitudes and Behaviour*. Sydney, Health Promotion Unit, Hornsby Ku-ring-gai Hospital, 1992.

EDITORIAL NOTE

A significant proportion of domestic chemicals is not subject to any formal review mechanism before marketing in Australia. To gain some insight into how often and why accidental poisoning by domestic chemicals occurs, a National Health and Medical Research Council Working Party on Domestic Chemicals was instructed to prepare a National Plan for Domestic Chemicals¹. This plan was completed in August 1991.

Two studies^{2,3} were commissioned by the working party. The first was a national survey of 2,677 people aged 14 years and over which involved qualitative and quantitative research into the hazards of domestic chemicals, with particular emphasis on the community's awareness, understanding and behaviour associated with domestic chemicals. In addition, 500 households within this sample were audited to identify actual behaviour (compared to stated behaviour) with regard to the perceived hazards associated with common domestic chemicals. This survey found that the risks of a range of domestic chemicals were likely to be underestimated. In 90 per cent of homes at least one chemical product rated as being highly hazardous was being stored unsafely. This proportion fell only slightly (to 84 per cent) in households frequented by under 4-year-olds where the household heads reported they **always** read label information and **always** take danger warnings seriously.

The second study was a follow-up survey of 1,455 calls to the NSW Poisons Information Centre. A significant number of these calls related to potentially serious poisonings as judged by the toxicity of the substance involved. The report concluded that many of the accidents were preventable. The importance of packaging and labelling in the prevention of accidental poisoning was emphasised.

The findings of this study in Hornsby Shire and Kuring-gai Municipal Council areas are in agreement with the self-reported perceptions of participants in the national survey, but the discordance with **actual** behaviour underlines the need to raise awareness about the hazards of these chemicals in the home.

Important recommendations of the working party were:

- To develop a common hazard identification system for domestic chemicals based on easily identifiable symbols, supported by education and training schemes;
- To extend the use of child-resistant containers where appropriate;
- To improve surveillance of accidental poisoning in the domestic environment; and
- To obtain agreement from industry to provide product formulation details and to employ a uniform hazard identification system.

These recommendations address some of the structural impediments to reducing accidental poisoning in the home and complement those in the North Sydney report.

1. A National Plan for Domestic Chemicals. A Report of the NH&MRC Working Party Report to the Public Health Committee. August 1991.

2. Corbett SJ, Williamson M, Harrison J. Accidental Poisoning in the Domestic Environment. Report to the NH&MRC Working Party on Domestic Chemicals. July 1991.

3. Reark Research National Survey of Chemicals Used in the Home and the Community's Understanding of the Hazards of Domestic Chemicals.

INFECTIOUS DISEASES

NOTIFICATIONS

Data in this *Bulletin* relate to Epiweeks 1 to 26. Table 2 lists the number of weekly reports, out of a possible 25, made to the Epidemiology and Health Services Evaluation Branch this year.

TABLE 2

WEEKLY REPORTS MADE TO
EPIDEMIOLOGY BRANCH — 1992

Public Health Unit	Number	Status
Central/Southern Sydney	20	Complete
Eastern Sydney	13	Complete
South Western Sydney	13	Incomplete
Western Sector	23	Complete
Northern Sydney	25	Complete
Central Coast	15	Incomplete
Illawarra	20	Incomplete
Hunter	20	Complete
North Coast	24	Complete
New England	23	Complete
Orana and Far West	25	Complete
Central West	25	Complete
South-West	25	Complete
South-East	25	Complete

TABLE 3

PERCENTAGE OF NOTIFICATIONS WITH
INCOMPLETE INFORMATION BY VARIABLE
AND PUBLIC HEALTH UNIT, JANUARY-JUNE 1992

Public Health Unit	Age	Sex	Aboriginality
Central/Southern Sydney	0.5	complete	89.2
Eastern Sydney	5.0	4.4	86.4
South Western Sydney	2.0	4.3	62.6
Western Sydney	5.7	7.5	68.9
Wentworth	2.9	4.9	80.7
Northern Sydney	4.0	4.1	97.9
Central Coast	1.6	3.1	95.2
Illawarra	1.9	0.9	88.6
Hunter	2.4	1.2	99.3
North Coast	1.3	1.1	37.0
New England	24.0	9.5	64.6
Orana and Far West	6.5	complete	43.3
Central West	4.8	complete	62.5
South-West	complete	complete	23.0
South-East	2.7	2.7	38.1

New England Regional Public Health Unit has successfully transferred data to Epidemiology and Health Services Evaluation Branch via modem connection.

GONORRHOEA

One hundred and thirty-six notifications had been received for 1992 to the end of June, compared with 177 for the same period in 1991 — a 13 per cent decrease. Taking into account reporting delays, the total for 1992 is compatible with the 10 per cent annual decline in gonorrhoea incidence observed since 1982.

SYPHILIS

To the end of June 172 notifications of syphilis had been received for 1992. This compares with the 245 observed for the same period in 1991 — a 30 per cent decrease. There may be a level of underreporting of syphilis as Sexual Health Clinics (SHCs) had been reluctant to notify syphilis cases under the original provisions of the Public Health Act

1991 as identifying data were to be included for each notification. A change to the Regulation to the Public Health Act in April allows SHCs to notify cases using the first two letters of the given and family names if all public health action has been carried out.

CONGENITAL SYPHILIS

This is defined as the occurrence of syphilis in children under the age of one year. Two cases have been notified for 1992, one from Western Sydney Area Health Service in January, and the other from Orana and Far West Area Health Service in April (21 and 79 cases per 100,000 births per year respectively). A large improvement in these statistics has been observed for the Orana and Far West Region, which in 1991 reported a rate over 500 cases per 100,000 births. The overall rate for NSW in 1991 was 37 cases per 100,000 births.

ACQUIRED IMMUNODEFICIENCY SYNDROME (AIDS)

To the end of May 1992, 60 notifications had been entered on the Infectious Diseases Database System (IDSS). Most were from the Northern and Central Sydney Area Health Services (12 and 11 respectively). These compare with the 164 notifications for the same period in 1991.

The NSW AIDS Register records 39, 26 and 11 notifications from the Eastern, Northern and Central Sydney AHSs respectively, and a total of 100 notifications for NSW for the period January-June 1991. These numbers correspond to rates of 6.6 (Central Sydney), 24 (Eastern Sydney) and 7.2 (Northern Sydney AHS) notifications per 100,000 population per year. Of note is the possible increased rate observed in Northern Sydney AHS, which in 1991 was 5.4 per 100,000 population.

Notifications of AIDS from all treatment centres other than St Vincent's Hospital are now being entered on the IDSS by Public Health Units. This accounts for the under enumeration of cases for Eastern Sydney Area Health Service on IDSS. These data, and the numbers of notifications and rates for all Areas and Regions, are shown in Table 4.

TABLE 4

AIDS NOTIFICATIONS NSW 1991-92.
INFECTIOUS DISEASES SURVEILLANCE
SYSTEM AND THE AIDS REGISTER.

AHS	IDSS Jan-May 1992	AIDS Register Jan-May 1992	AIDS Register Jan-Dec 1991	1991 Rate per 100,000 pop ^a .
CSA	11	26	61	18.3
SSA	2	4	19	3.6
ESA	2	39	147	4.5
SWS	2	1	10	1.6
WSA	6	3	19	3.2
WEN	5	2	16	6.0
NSA	12	11	39	5.4
CCA	1	0	9	4.2
ILL	1	2	6	2.0
HUN	2	2	12	2.5
NCR	7	5	12	3.5
NER	3	0	0	0.0
OFR	0	0	1	0.7
CWR	1	0	2	1.2
SWR	4	1	1	0.4
SER	1	1	0	0.0
OTH + U/K	0	2	15	—
NSW	60	100	369	6.1

TABLE 5

RESPONSE TO QUESTIONNAIRE ON SURVEILLANCE OF NON-NOTIFIABLE STDs.

1. Available from end July.
2. Laboratory reported data.
This replaces Table 11 in the March *Public Health Bulletin* (Volume 3, page 35).

AHS Disease	CSA	SSA	ESA	SWS	WSA + WEN	NSA	CCA	ILL	HUN	NCR	NER	OFR	CWR	SWR	SER
Sexual Health Centre in Area Health Service	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No
Notifiable STDs being notified from SHC?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-	-	-
Non-notifiable STDs notified from SHC?	No	No	Yes	No	Yes	Yes	Yes	No	Yes	No ¹	Yes	Yes	-	Yes ²	-

SEXUALLY TRANSMISSIBLE DISEASES — NON NOTIFIABLE NOTIFICATIONS OF NON-NOTIFIABLE SEXUALLY TRANSMITTED DISEASES RECEIVED IN JUNE 1992, BY AREA HEALTH SERVICE/REGION.

1. Data for May 1992.
2. Data for April 1992.
3. Data for June 1992.

AHS Disease	CSA	SSA	ESA ¹	SWS	WSA + WEN ²	NSA ¹	CCA ¹	ILL	HUN ¹	NCR	NER ³	OFR	CWR	SWR ³	SER
<i>Chlamydia trachomatis</i>			14		5	-	3		2		2			3	
Donovanosis			-		-	-	-		-		-			-	
Genital herpes			46		5	2	2		8		1			-	
Genital warts			94		31	2	-		20		3			-	
Non-specific urethritis			70		36	2	-		8		3			-	
<i>Lymphoma granuloma</i>			-		-	-	-		-		-			-	

Data obtained from the AIDS Register are based on date of diagnosis. If a notification is received from an Area or Region during 1992, it will not appear in the 1992 count if it had been notified before 1992. However, if the postcode differs from that of the earlier notification the postcode will be updated to the new one.

MALARIA

Illawarra PHU has received a notification of a death from *Plasmodium falciparum* malaria. The 43-year-old female returned from a diving holiday in the Solomon Islands and Papua and New Guinea in June.

DIPHTHERIA

The case of diphtheria notified for February by the North Coast PHU has been denotified as the bacteria were non-toxicogenic. Only one case of diphtheria has been notified in NSW in the period 1982-1992 (in 1987).

MEASLES

Fifteen of 16 Areas and Regions have notified measles cases during 1992. During June measles was notified by seven Areas and Regions.

For 1992, 144 notifications (79 per cent) were for children over the age of 12 months, and were therefore "preventable" through age-appropriate immunisation. For the month of June, 17 notifications (89 per cent) were for the same age groups. **Measles immunisation is recommended as a combined measles-mumps-rubella vaccine at the age of 12 months.**

Central Sydney Area Health Service notified six cases for a rate of 21.6 notifications per 100,000 population per year.

PERTUSSIS

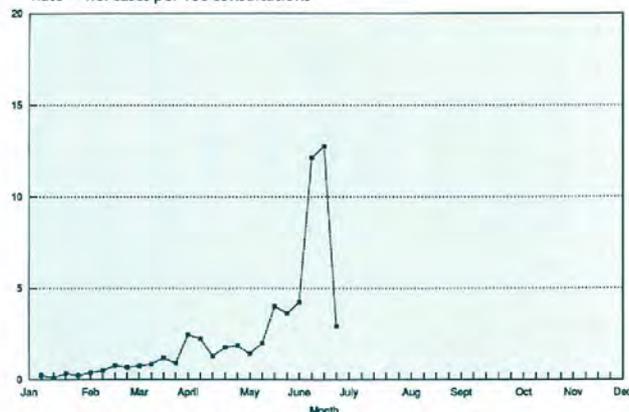
Nine Areas and Regions have notified cases of pertussis in 1992. The rate of notifications for this year is 1.9 per 100,000 per year compared with 0.8 in 1991 and 2.6 in 1990. **Pertussis immunisation is recommended for children at the ages of two, four, six and eighteen months of age.**

For 1992, 47 out of 54 notifications (87 per cent) were for people older than 18 months of age, and therefore "preventable".

FIGURE 3

INFLUENZA-GENERAL PRACTITIONER SENTINEL SURVEILLANCE NETWORK, NSW 1992

Rate — no. cases per 100 consultations



Source: 8 PHUs — data as at 7 July 1992

INFLUENZA

Eight PHUs (CCA, C/SSA, CWR, ILL, ESA, NSA, SER and WSA) provide General Practitioner Sentinel Surveillance data on influenza. The rate of influenza-like illness (ILI), expressed as the number of cases per 100 consultations, for NSW in June ranged from fewer than five in the weeks beginning May 31 and June 21 to greater than 12 for the weeks beginning June 7 and June 14. The dramatic increase in the rate of ILI in mid-June was attributed to a regional outbreak of ILI in the CWR. The rate of ILI in CWR was greater than 50 cases per 100 consultations in mid-June. All other PHUs recorded rates fewer than 10 cases per 100 consultations for this period.

HAEMOPHILUS INFLUENZAE INFECTIONS

A total of 18 notifications was received for *Haemophilus influenzae* infections during June. This compares with 22 notifications received for the same period in 1991.

Continued on page 80 ►

CALL FOR CONFERENCE ABSTRACTS

Abstracts are invited for presentations at the first annual NSW Public Health Network Conference, to be held on November 23 and 24, 1992, at Westmead Hospital. The theme is Public Health In Action. The conference will provide a forum for presentation of the work of members of the Network (the Epidemiology Branch of the NSW Health Department, and Public Health Units). Staff of other public health organisations are encouraged to submit abstracts.

Suitable topics include investigation of clusters of disease (infectious or otherwise), development or evaluation of surveillance systems, evaluation of health services,

assessment of environmental health hazards, research on public health problems and implementation or evaluation of a public health program.

The deadline for submission of abstracts is September 30. Abstracts of conference presentations will be published as a supplement to the NSW Public Health Bulletin.

Registration fees will be in the order of \$100 (\$50 a day). Lunch and morning and afternoon tea will be provided. A conference dinner will also be held.

Please send requests for the registration and abstract forms to: PHN Conference Organiser, Epidemiology and Health Services Evaluation Branch, NSW Health Department, Locked Mail Bag 961, North Sydney 2059. Facsimile 391 9232 and telephone 391 9100.

TABLE 6

SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS JUNE 1992

CONDITION	Number of Cases Notified			
	Period		Cumulative	
	June 1991	June 1992	June 1991	June 1992
Adverse reaction	N/A	1	N/A	20
AIDS	25	2	184	60
Arboviral infection	11	1	436	234
Brucellosis	-	-	2	-
Cholera	-	-	-	1
Diphtheria	-	-	-	-
Foodborne illness (NOS)	241	3	1622	96
Gastroenteritis (insti)	2	22	29	171
Gonorrhoea	22	10	199	167
H influenzae epiglottitis	3	4	6	18
H influenzae B — meningitis	4	10	16	47
H influenzae B — septicaemia	1	2	3	13
H influenzae infection (NOS)	13	2	63	13
Hepatitis A	84	41	283	528
Hepatitis B	92	65	558	1048
Hepatitis C	39	109	143	1512
Hepatitis D	N/A	-	N/A	5
Hepatitis, acute viral (NOS)	42	-	229	12
HIV infection*	*83	*77	*403	*395
Hydatid disease	1	-	2	4
Legionnaires' disease	4	-	21	51
Leprosy	-	1	-	2
Leptospirosis	-	-	22	9
Listeriosis	-	1	-	7
Malaria	24	4	109	41
Measles	20	19	198	182
Meningococcal meningitis	3	4	14	17
Meningococcal septicaemia	1	1	8	2
Meningococcal infection (NOS)	5	-	19	4
Mumps	N/A	1	N/A	13
Mycobacterial tuberculosis	27	9	126	161
Mycobacterial — atypical	10	2	49	84
Mycobacterial infection (NOS)	14	6	93	36
Pertussis	1	1	25	54
Plague	-	-	-	-
Poliomyelitis	-	-	-	-
Q Fever	11	3	112	59
Rubella	6	-	17	23
Salmonella infection (NOS)	76	11	768	366
Syphilis	24	18	269	300
Tetanus	1	-	3	1
Typhoid & paratyphoid	2	1	35	15
Typhus	-	-	-	-
Viral haemorrhagic fevers	-	-	-	-
Yellow fever	-	-	-	-

*Data to May only.

Infectious diseases

► Continued from page 79

A total of 59 notifications has been received for 1992. Seven of the 18 (39 per cent) received in June were for children aged between 18 months and five years of age, and therefore potentially preventable by the currently available vaccine.

LEPTOSPIROSIS

Leptospirosis is a zoonotic bacterial disease characterised by sudden onset of fever, headache, chills, severe myalgia (particularly the calves and thighs) and conjunctival suffusion. Patients with this disease are often misdiagnosed as meningitis. The mode of transmission is via contact of the skin (especially if abraded), or of mucous membranes, with water, moist soil or vegetation contaminated with urine of infected animals.

A 23-year-old male was admitted to Sutherland Hospital intensive care unit with multi-system failure in March. His serology confirmed leptospirosis. He had been camping in the Gerringong area two weeks before onset of illness.

The Central and Southern Sydney PHU contacted the Illawarra PHU to see if any cases of leptospirosis had been notified. At the same time a sentinel General Practitioner had returned his weekly data sheet noting that the local veterinary surgeons had reported an increase in leptospirosis in domestic dogs. The sentinel GP had notified other GPs in the area to observe for leptospirosis symptoms in their patients. The Illawarra PHU was able to alert local hospitals and pathology laboratories and was able to assist Central and Southern Sydney in their investigations.

SALMONELLA

Three hundred and sixty-six notifications of salmonella have been received by Public Health Units during 1992. For the same period Food Branch received 484 notifications (32 per cent more). This discrepancy will be addressed when PHUs receive a line listing of salmonella isolates from Food Branch. The salmonella database maintained by Food Branch recorded 332 isolates for the period January to June 1991 and 484 isolates for the comparable period in 1992 (46 per cent increase). See Table 13 on page 84.

TABLE 7

**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	OTH	U/K	TOTAL
Adverse event after immunisation	3	3	-	-	-	-	-	1	-	1	4	5	-	-	-	3	-	-	20
AIDS infection	11	2	2	2	6	5	12	1	1	2	7	3	-	1	4	1	-	-	60
Arboviral infection	-	-	-	-	4	6	6	5	1	19	99	23	38	10	23	-	-	-	234
Cholera	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	1
Foodborne illness (NOS)	3	1	28	1	19	6	-	10	-	6	-	2	18	1	1	-	-	-	96
Gastroenteritis (instit)	10	1	8	-	4	2	-	-	-	51	1	92	2	-	-	-	-	-	171
Gonorrhoea infection	24	6	67	6	10	-	8	-	2	5	13	5	6	7	3	5	-	-	167
H. influenzae epiglottitis	-	2	1	1	2	1	1	-	1	4	2	2	-	-	1	-	-	-	18
H. influenzae meningitis	2	3	1	3	2	5	11	1	3	4	4	3	1	-	2	2	-	-	47
H. influenzae septicaemia	-	1	1	2	2	-	3	-	2	1	-	-	-	-	1	-	-	-	13
H. influenzae infection (NOS)	2	1	1	-	2	-	-	1	-	-	-	1	1	-	2	2	-	-	13
Hepatitis A - acute viral	66	25	86	17	32	5	65	2	17	24	53	91	29	3	6	4	-	-	525
Hepatitis A - unspecified	-	-	-	-	-	-	3	-	-	-	-	-	-	-	-	-	-	-	3
Hepatitis B - acute viral	1	2	30	4	4	2	4	1	5	1	7	2	16	1	-	1	-	-	81
Hepatitis B - unspecified	160	123	11	139	193	21	144	19	7	61	26	20	11	8	8	14	2	-	967
Hepatitis C - acute viral	-	1	3	14	7	1	3	1	2	-	9	4	4	1	-	1	-	-	51
Hepatitis C - unspecified	188	45	127	37	116	20	116	247	31	225	250	27	5	13	5	9	-	-	1461
Hepatitis D - unspecified	-	-	1	-	-	-	-	1	-	1	2	-	-	-	-	-	-	-	5
Hepatitis, acute viral (NOS)	-	-	-	4	1	-	-	-	-	-	-	1	2	2	1	-	-	-	12
HIV infection*	42	16	107	5	17	4	23	3	2	14	12	-	2	2	1	3	16	135	395
Hydatid disease	-	-	-	-	-	-	-	-	-	-	1	2	-	1	-	-	-	-	4
Legionnaires' disease	1	1	1	28	8	1	4	3	1	1	1	-	-	-	-	1	-	-	51
Leprosy	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1	-	-	-	2
Leptospirosis	-	1	-	-	-	-	-	-	-	-	1	2	-	5	-	-	-	-	9
Listeriosis	-	1	-	-	-	1	3	-	-	-	1	-	-	1	-	-	-	-	7
Malaria	5	5	6	2	2	-	7	-	2	2	2	1	1	2	2	-	-	-	41
Measles	17	7	5	13	19	5	16	6	9	39	16	10	8	5	-	7	-	-	182
Meningococcal meningitis	1	2	-	2	1	1	-	1	2	4	2	-	1	-	-	-	-	-	17
Meningococcal septicaemia	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Meningococcal infection (NOS)	-	-	-	-	-	-	1	-	1	-	-	2	-	-	-	-	-	-	4
Mumps	-	-	2	1	3	-	1	-	-	3	1	-	-	-	1	1	-	-	13
Mycobacterial atypical	15	8	19	-	15	2	13	-	1	11	-	-	-	-	-	-	-	-	84
Mycobacterial tuberculosis	18	13	18	27	23	3	33	6	4	1	5	6	-	-	-	4	-	-	161
Mycobacterial infection (NOS)	6	3	-	-	3	2	7	-	4	3	-	3	1	-	3	-	1	-	36
Pertussis	2	6	1	6	3	-	10	-	-	2	23	1	-	-	-	-	-	-	54
Q fever	-	-	-	-	1	1	-	1	-	4	24	12	12	2	2	-	-	-	59
Rubella	1	-	2	1	4	1	8	-	-	1	3	-	-	-	-	2	-	-	23
Salmonella bovis morificans	1	2	-	-	-	-	1	-	-	-	1	-	-	-	-	-	-	-	5
Salmonella typhimurium	3	13	2	4	3	-	16	3	4	13	2	2	3	-	3	-	-	-	71
Salmonella infection (NOS)	10	14	29	20	22	11	48	11	7	16	34	20	14	11	8	15	-	-	290
Syphilis infection	64	24	67	11	10	1	19	-	2	4	27	14	42	11	2	1	1	-	300
Tetanus	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Typhoid and paratyphoid	4	-	2	-	2	-	4	-	1	-	-	-	-	-	2	-	-	-	15

* Data to May only.

HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION

The cumulative total of HIV notifications for 1984-1992 reported in NSW is 10,956. Seventy notifications were received in June. For the preceding 12 months (June 1991 to May 1992) 841 positive diagnoses of infection were reported. There has been an improvement in the number of notifications coded for sex. Those with sex recorded (91 per cent) continue to be predominantly for males (723 male, 95 per cent; 38 female, 5 per cent; two transsexuals, 0.3 per cent). For 78 notifications (9.3 per cent) the sex was unknown.

Most of the notifications continue to occur in the 25-34 age group. In males 297 notifications (41 per cent), and in females 18 notifications (47 per cent) occurred in this group. For 133 notifications (16 per cent) no age was given.

Homosexual or bisexual exposure is the predominant source of infection. Three hundred and seventy notifications (44 per cent) were reported with this category of exposure. A similar number had no exposure reported (359, 43 per cent), which is larger than any of the other categories of exposure. Heterosexual exposure was reported for 45 notifications (5.3 per cent). Drug injectors accounted for 18 notifications (2.1 per cent); a further 23 (2.7 per cent) specified injecting drug use with homosexual/bisexual or heterosexual exposure.

TABLE 8

**NSW HIV POSITIVE TESTS EXCLUDING PREVIOUS POSITIVES
TO JUNE 30, 1992. TABLE OF RISK BY GENDER**

Risk Frequency	Gender				Total
	F	M	T	U	
Drug injector	3	15	-	-	18
Haemophilia	-	2	-	-	2
Heterosexual	10	34	-	1	45
Heterosexual + IDU	1	8	-	2	11
Homo/bisexual + IDU	-	11	1	-	12
Homo/bisexual	2	355	-	13	370
Not-Int	-	2	-	-	2
Other	-	4	-	-	4
Specified N.E.C.	1	1	-	1	3
Transfusion	2	2	-	-	4
Uncoded	1	5	-	-	6
Unknown	17	280	1	61	359
Vertical	1	4	-	-	5
Total	38	723	2	78	841

TABLE 9

**NSW HIV POSITIVE TESTS EXCLUDING PREVIOUS POSITIVES
TO JUNE 30, 1992. TABLE OF AGE GROUP BY GENDER**

Age Group Frequency	Gender				Total
	F	M	T	U	
01 (less than)	2	5	-	-	7
01-04	-	1	-	-	1
05-14	-	2	-	-	2
15-24	5	79	-	1	85
25-34	18	297	-	7	322
35-44	5	167	2	6	180
45-54	5	77	-	-	82
55-64	-	20	-	1	21
65 & over	1	7	-	-	8
Missing	2	68	-	63	133
Total	38	723	2	78	841

TUBERCULOSIS DATA UPDATE

The tuberculosis data reported in the 1991 *Infectious Disease Notifications* (Supplement to the June *Public Health Bulletin*) was an underenumeration due to late notification of cases. The Tuberculosis Register was also reviewed for missing data and updated. In addition nine records were denotified. This has resulted in a further 74 notifications for *Mycobacterium tuberculosis* and 35 atypical mycobacteria over those notifications reported in June 1992.

Total notifications for mycobacterial infection including tuberculosis and atypical mycobacterial infection increased from 530 in 1990 to 621 in 1991, a rise of 17 per cent. Tuberculosis notifications rose by 16 per cent for the same period, from 340 (1990) to 396 (1991). Eight reactivated cases of tuberculosis (2 per cent) were recorded in 1991 compared with seven reactivated cases in 1990.

For 1991 more than 25 new cases of tuberculosis were notified for each month, except from January to March. There is evidence of continued transmission of tuberculosis in NSW. The strongest indication of this is the high level of notifications in the 0-4 age group. There is a marked male predominance in new cases aged less than five.

All Areas and Regions reported notifications for 1991. Central Sydney and South Western Sydney Area Health Services reported the highest rates of new tuberculosis, with rates of 17/100,000 and 13/100,000 population respectively. The overall rate for NSW was 6.8/100,000. This compares with a rate of 5.7 per 100,000 for 1990.

Tuberculosis is strongly associated with ethnicity resulting from migration patterns to NSW from countries of high tuberculosis prevalence (Table 10).

TB-HIV coinfection rates have increased from 1 per cent in 1989 to 3 per cent in 1991 (Table 11). HIV status was recorded on 377 of the 396 tuberculosis notifications received for 1991 (95 per cent). The influence of HIV infection on tuberculosis notifications in NSW has not reflected overseas experiences, where coinfection rates have been reported to be as high as 22 per cent of tuberculosis cases having coexistent HIV infection.

HIV coinfection is reported in notifications for atypical mycobacteria — 49 per cent of notifications were HIV positive in 1991 (Table 12).

TABLE 10

TUBERCULOSIS NOTIFICATIONS BY ETHNIC GROUPING, NSW, 1989-1991

Ethnic Grouping	1989	1990	1991
Aboriginal Australian	4	3	1
Non-Aboriginal			
Australian	93	95	106
Asian	140	151	184
European	44	52	51
Pacific Islander	13	14	15
Other	17	25	20
Total	311	340	377*

*19 notifications — ethnicity not known.

TABLE 11

TUBERCULOSIS NOTIFICATIONS BY HIV STATUS, NSW, 1989-1991

	1989	1990	1991	Total
HIV+	4	3	10	17
HIV-	307	337	367	1011
Total	311	340	377*	1028*

*19 notifications — HIV status not known.

TABLE 12

NOTIFICATIONS OF ATYPICAL MYCOBACTERIAL INFECTION BY HIV STATUS, NSW, 1989-1991

	1989	1990	1991	Total
HIV+	91	113	114	318
HIV-	78	77	108	263
Total	169	190	222*	581*

*3 notifications — HIV status not known.

PUBLIC HEALTH EDITORIAL STAFF

The Bulletin's editorial advisory panel is as follows:

Dr Sue Morey, Chief Health Officer, Department of Health; Professor Stephen Leeder, Professor of Community Medicine, University of Sydney; Professor Geoffrey Berry, Professor of Epidemiology & Biostatistics, University of Sydney; Professor Ian Webster, Professor of Community Medicine, University of NSW; Dr Christine Bennett, Associate Director, Services Planning, NSW Health Department; Dr Michael Frommer, Epidemiologist, Epidemiology & Health Services Evaluation Branch; Ms Jane Hall, Research Officer, Department of Community Medicine, Westmead Hospital; and Mr Michael Ward, Acting Director, Strategic Marketing, NSW Health Department.

The editor is Dr George Rubin, Director, Epidemiology and Health Services Evaluation Branch, NSW Health Department.

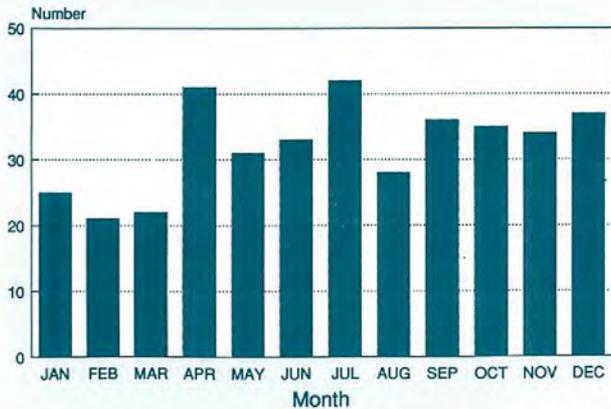
The Bulletin aims to provide its readers with population health data and information to motivate effective public health action. Articles, news and comments should be 1,000 words or less in length and include the key points to be made in the first paragraph. Please submit items in hard copy **and** on diskette, preferably using WordPerfect 5.1.

Please send to **The Editor, Public Health Bulletin, Locked Mail Bag 961, North Sydney NSW 2059**, Fax (02) 391 9232

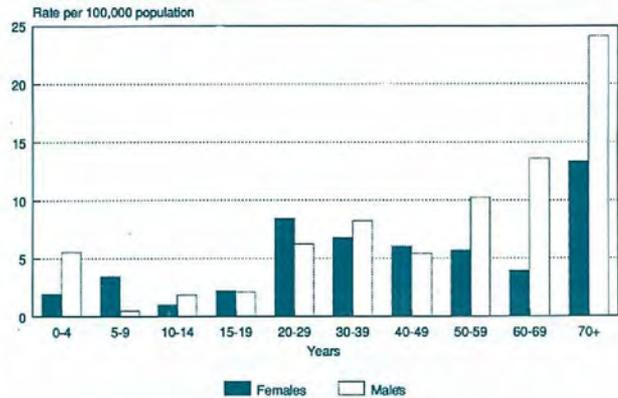
Design — Health Public Affairs Unit, NSW Health Department.

Suggestions for improving the content and format of the Bulletin are most welcome.

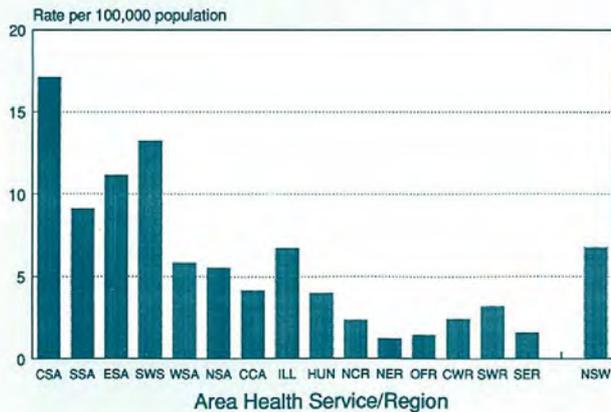
NEW TUBERCULOSIS NOTIFICATIONS BY MONTH, NSW, 1991



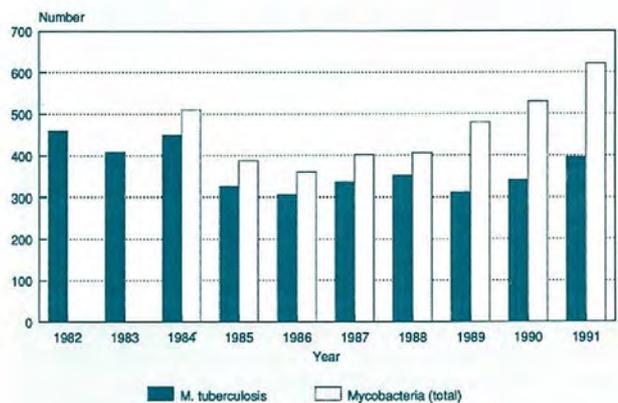
NEW TUBERCULOSIS NOTIFICATION RATE BY AGE AND SEX, NSW, 1991



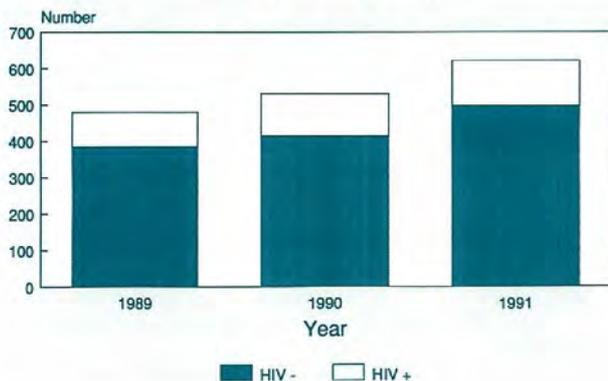
NEW TUBERCULOSIS NOTIFICATION RATE BY AHS/REGION, NSW, 1991



MYCOBACTERIAL INFECTION NOTIFICATIONS NSW, 1982-1991



MYCOBACTERIAL AND HIV COINFECTION NSW, 1989-1991



MYCOBACTERIAL AND HIV COINFECTION NSW, 1989-1991

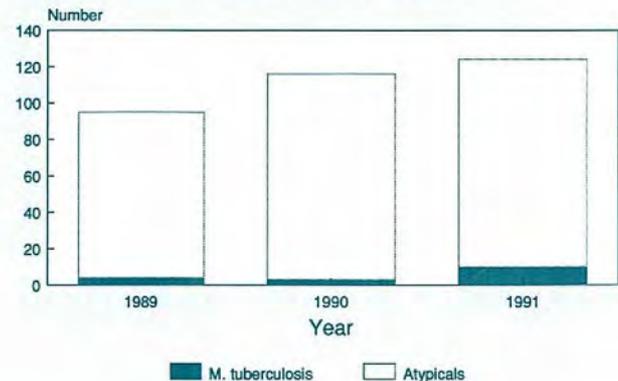


TABLE 13

SALMONELLA NOTIFICATIONS 1991

ORGANISM	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<i>S. aberdeen</i>		1											1
<i>S. adelaide</i>		4		1		1	1		1	3	2		13
<i>S. agona</i>		1			1	3		1			6		12
<i>S. anatum</i>		3		1	1			1	4	1			11
<i>S. arizonae</i>									1	2	1		4
<i>S. berta</i>	2									1	1		4
<i>S. birkenhead</i>												1	1
<i>S. blockley</i>				1					1				2
<i>S. bovis morbificans</i>	6	31	4	4	13	6	8	2	3	1	7	4	89
<i>S. braenderup</i>	1												1
<i>S. brandenburg</i>	2												2
<i>S. bredeney</i>							1						1
<i>S. cerro</i>					2	6	4	1	4	8	1		26
<i>S. charity</i>									1				1
<i>S. chester</i>	1	2	1		1			1	1			2	9
<i>S. cubana</i>		1											1
<i>S. derby</i>		1					1	3		2	1	3	11
<i>S. eastbourne</i>	1								1				2
<i>S. emek</i>	1					1						1	3
<i>S. enteritidis</i>		1	1		3	1			1		1	1	9
<i>S. eppendorf</i>												1	1
<i>S. give</i>	1				1	2		2					6
<i>S. hadar</i>	1				1			2		2	1		7
<i>S. hamburg</i>									1				1
<i>S. havana</i>	2	1			1				1	2	1		8
<i>S. heidelberg</i>	5	11		4	2	2	1	1	4	1	2	4	37
<i>S. hindmarsh</i>		1											1
<i>S. ibadan</i>						1							1
<i>S. idikan</i>		1											1
<i>S. infantis</i>	1	4		1	2	2	1	2	1		1		15
<i>S. java bioaser</i>	1	2						1	1		1	1	7
<i>S. kottbus</i>		3	2			1	1			1			8
<i>S. krefeld</i>						1							1
<i>S. lagos</i>	1												1
<i>S. lexington</i>						1							1
<i>S. mbandaka</i>						1		1					2
<i>S. meleagridis</i>									1		1		2
<i>S. montevideo</i>	1							1					2
<i>S. morehead</i>												1	1
<i>S. muenchen</i>	1	1	2		1			1				2	8
<i>S. newport</i>						1		1			1		3
<i>S. ohlstedt</i>									1				1
<i>S. oranienburg</i>												1	1
<i>S. orion</i>			2										2
<i>S. paratyphi A</i>		2									1		3
<i>S. rissen</i>					1								1
<i>S. saint paul</i>		2	1		1		1	1	1	3		3	13
<i>S. schwerzeng</i>	2		1										3
<i>S. senftenberg</i>	1				1					1			3
<i>S. singapore</i>	2	1	1	2		2			1				9
<i>S. species untyped</i>			2	7	2	2	9	2	3	8	7	8	50
<i>S. sofia</i>											1		1
<i>S. stanley</i>									1		1	2	4
<i>S. tennessee</i>	1	1	1	1						1		1	6
<i>S. thompson</i>							1						1
<i>S. typhi</i>											4		4
<i>S. typhimurium</i>	25	28	7	10	18	22	23	19	18	28	41	21	260
<i>S. virehow</i>												1	1
<i>S. wandsworth</i>	1							1		1			3
<i>S. wangata</i>								1	1				2
<i>S. waycross</i>	2	1						1			1		5
<i>S. welikade</i>									1		1		2
<i>S. weltevreden</i>											1		1
Total	62	104	26	32	52	56	52	46	54	66	86	58	693