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THE HEALTH OF THE PEOPLE OF NSW – REPORT OF THE CHIEF HEALTH OFFICER 1997

Edited by Gerard Fitszimmons and Louisa Jorm,
Epidemiology and Surveillance Branch, Public Health Division,
NSW Health Department

The second report of the NSW Chief Health Officer will be released in January 1998. Like the first, the report gives a concise overview of the health status of the NSW population. However, both content and layout have been considerably improved, according to recommendations from the evaluation of the first report and requirements for publishing via the World Wide Web. Where possible, trend data for the past 10 years are presented, and breakdowns by Area Health Service are given for key health indicators. Each page of the report stands alone and contains a graph, a table of figures and commentary text, making it suitable for viewing on-line. An interactive version is planned for release in mid-1998.

The report has four sections: Patterns of health and illness, Determinants of health, Health inequalities and Health priority areas. Some of its major findings are reproduced here.

PATTERNS OF HEALTH AND ILLNESS

Demography

In 1996, approximately half the NSW population was aged 35 years or over. Because birth rates are expected to remain stable and migration at or below current levels, the population will gradually age. In 1996 a little more than 21 per cent of the NSW population spoke a language other than English at home.

Health of mothers and babies

In 1995 almost 88,000 births were registered in NSW. Between 1986 and 1995 the crude birth rate fell from 15.4 to 14.2 per 1,000 population, and the median age of mothers giving birth increased from 28.3 years to 29.1 years. Deaths from sudden infant death syndrome (SIDS) in NSW have fallen by around two-thirds over the 10 years, from 205 in 1986 to 72 in 1995.

Disability and self-assessed health

In 1995 fair or poor health was reported with similar frequency by men (17.5 per cent) and women (17.3 per cent). Self-reported health declined with age. In 1993 more than one million NSW residents had a disability. The prevalence of disability increased with age, to 65 per cent among people aged 75 years and over. Almost 80 per cent of people with a disability had a handicap which limited their ability to perform tasks associated with daily living.

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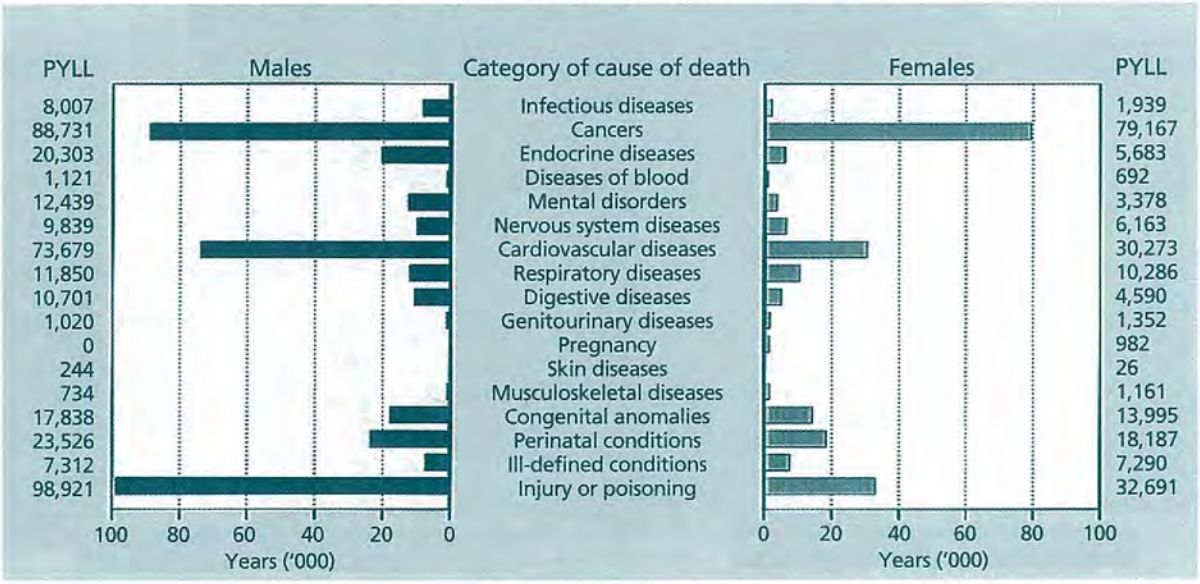
Correspondence

Please address all correspondence and potential contributions to:

The Editor,
NSW Public Health Bulletin,
Public Health Division,
NSW Health Department
Locked Bag No 961,
North Sydney NSW 2059
Telephone: (02) 9391 9191
Facsimile: (02) 9391 9232

FIGURE 1

POTENTIAL YEARS OF LIFE LOST (PYLL) BEFORE THE AGE OF 75, BY CATEGORY OF CAUSE OF DEATH, NSW 1994



Note: Cause-deleted potential years of life lost were calculated from the 1994 NSW current life table. Cause of death was classified according to ICD-9 chapter headings using the codes 000 to 799, or using the Injury/poisoning external cause codes E800-869, E880-929, E950-999.
Source: ABS mortality data (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

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Illness

In 1995 the recent health conditions most commonly reported by NSW residents were headache, arthritis, high blood pressure, asthma and common cold, while the long-term health conditions most commonly reported were vision problems, arthritis, hay fever, asthma, high blood pressure, sinusitis and deafness. In 1995-96, respiratory diseases, diseases of the gastro-intestinal system and cardiovascular diseases were the most common causes of hospitalisation in those aged 0-14 years, 14-65 years and 65+ years respectively (excluding pregnancy-related admissions).

Life expectancy

Between 1985 and 1994 life expectancy at birth in NSW increased steadily, from 72.2 to 75.1 years for males and from 78.8 to 80.9 years for females. In 1994 the expected age at death for those having reached the age of 65 years was 84.5 years for women and 81.0 years for men.

Deaths

In 1994 most deaths among children aged 0-14 years were due to perinatal conditions and congenital anomalies. The most important causes of death among people aged 15-64 years were cancer, circulatory diseases and injury and poisoning. Circulatory diseases were the most important causes of death in people aged 65 years and over. Potential years of life lost (PYLL) before age 75 is a measure of premature mortality. In 1994 breast cancer was the single largest cause of PYLL in females, followed by ischaemic heart disease, motor vehicle traffic accidents, lung cancer and suicide. Ischaemic heart disease was the single largest cause of PYLL in males, followed by suicide, motor vehicle traffic accidents, lung cancer and colorectal cancer.

DETERMINANTS OF HEALTH

Health-related behaviours

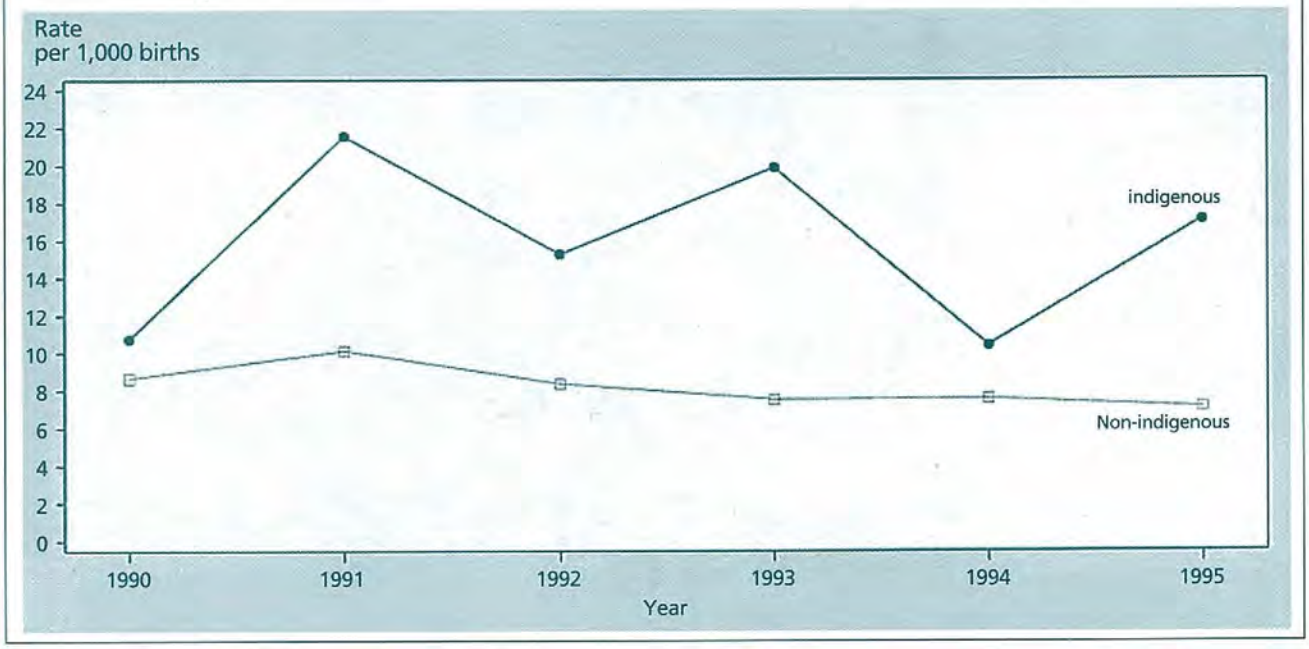
In 1996 only half of NSW adults expended enough energy on leisure-time activity for health benefit. Men (59 per cent) were more likely to report adequate levels of activity than women (42 per cent). In 1994 women were more likely to report using sunscreen and wearing sunglasses, while men were more likely to wear protective clothing or hats. In 1995 almost half of NSW men (47 per cent), and less than one-third of women (28 per cent) reported being overweight or obese. Men reported eating greater quantities of fatty foods. Smoking levels in NSW have declined by around one-third since 1977. In 1995, 27 per cent of men and 20 per cent of women reported current smoking. In the same year 10 per cent of men and 6 per cent of women reported drinking alcohol at medium- or high-risk levels.

Health and the environment

Concentrations of lead in ambient air in Sydney have been steadily declining in recent years. The number of days on which desired goals for atmospheric fine particles, nitrogen dioxide and ozone have been exceeded have also declined. Drinking water from Sydney and Hunter Water has complied with guidelines for coliforms, aluminium, lead and pesticides in recent years. Rural water supplies as a whole have also generally complied with guideline levels, but in

FIGURE 2

PERINATAL DEATHS, BY MOTHER'S INDIGENOUS STATUS, NSW 1990 TO 1995



Notes: Deaths within 28 days of birth were classified as perinatal deaths. Infants with birth-weight of 500 grams or more or, if birth-weight was unknown, of at least 22 weeks gestation, were included. Births for which mother's indigenous status was missing were classified as non-indigenous.
Sources: NSW Midwives Data Collection and ABS perinatal mortality data (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

three instances in the period 1994-1997, levels of pesticides exceeding guideline values were detected.

HEALTH INEQUALITIES

Health of Aboriginal and Torres Strait Islander peoples

Aborigines and Torres Strait Islanders comprised 1.3 per cent of the NSW population at the 1991 census and 2.3 per cent of the population at the 1996 census. Much of the increase was due to an increasing level of self-identification among indigenous people. In 1996 only 13 per cent of the indigenous population was aged 45 years or over (compared with 34 per cent of the total population). In the period 1990-1994 the perinatal mortality rate and the prematurity rate for babies of indigenous mothers were much higher than for other NSW babies. Less than half of deaths among indigenous people in NSW are recorded as such, making death data unreliable. Even though indigenous status is also under-reported in NSW hospital data, reported hospitalisation rates for indigenous people for cardiovascular diseases, diabetes mellitus, respiratory diseases, lung cancer and injury and poisoning are consistently around double those for non-indigenous people.

Country-of-birth differentials

In the period 1989-1993 NSW residents born in most overseas countries experienced lower death rates than for all NSW. Selection processes at least partly explain the low death rates among immigrants. People born in Malta, Lebanon, India (men), Italy (women) and the former Yugoslavia (women) have a higher death rate from diabetes than for NSW as a whole. Women born in Fiji and Vietnam experienced significantly higher incidence rates for cervical cancer than for all NSW women, while women born in the United Kingdom had significantly higher death rates from breast cancer.

Socioeconomic status and health

In the period 1990-1994 the NSW local government areas with the lowest socioeconomic status (SES) had the highest rates of premature death and hospitalisation. The association between low SES and premature death was observed for a range of causes, including cardiovascular diseases, injury and poisoning, respiratory diseases, lung cancer and cervical cancer. Premature deaths from breast cancer, prostate cancer and colorectal cancer showed virtually no correlation with SES.

HEALTH PRIORITY AREAS

Cardiovascular diseases

Deaths due to coronary heart disease (CHD) and stroke have been declining in NSW since the 1960s. Nevertheless, CHD caused 10,900 deaths (24 per cent of all deaths) in NSW in 1994 and stroke caused 4,820 deaths (11 per cent of all deaths). The declines have been accompanied by increases in hospitalisations for these conditions:

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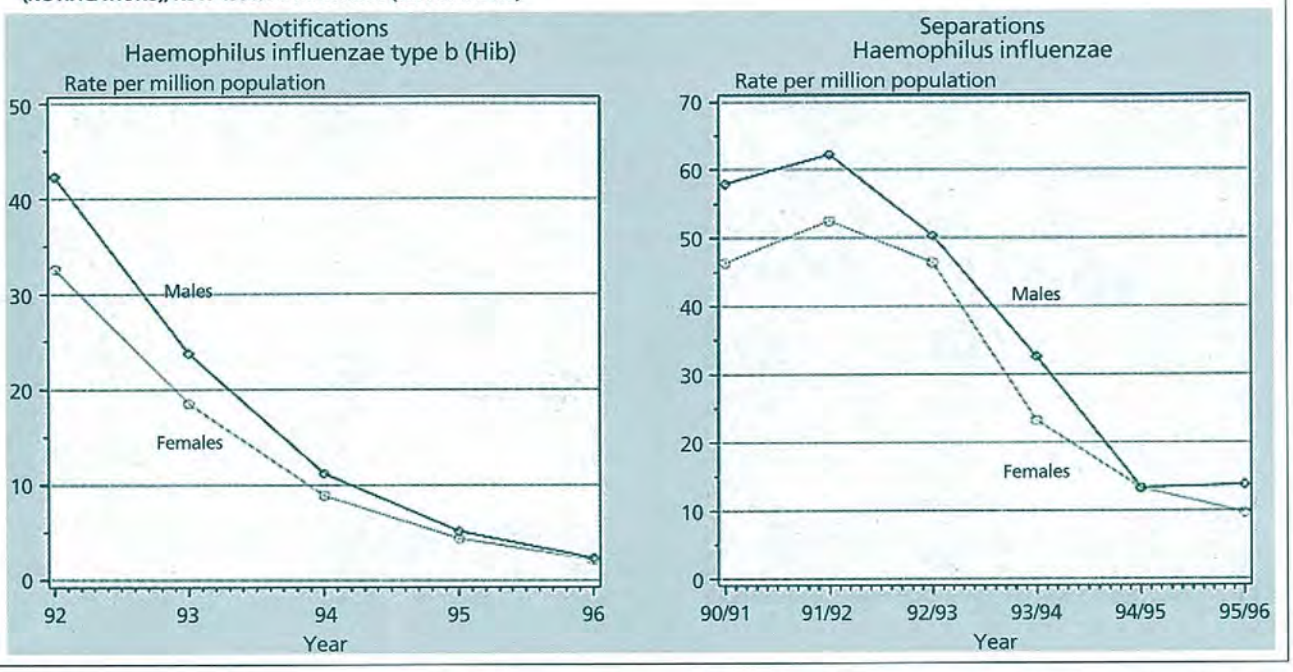
FIGURE 3

NOTIFICATIONS AND HOSPITAL SEPARATIONS FOR HAEMOPHILUS INFLUENZAE INFECTIONS, CHILDREN AGED 0-4 YEARS, NSW 1992 TO 1996 (NOTIFICATIONS), NSW 1990/91 TO 1995/96 (SEPARATIONS)



Note: Data were generated on October 15, 1997, and included children aged 0-4 years whose sex was unknown. Notification rates were age-adjusted using the Australian population as at June 30, 1991. Haemophilus influenzae separations were classified according to the ICD-9 codes 320.0 or 464.3. Haemophilus influenzae by type is not specified as an ICD-9 code. Hospital separation rates were age-adjusted using the Australian population as at December 31, 1991. Hospital separations in 1995-96 do not include NSW residents treated in Victoria, South Australia, Western Australia or Queensland.
Sources: NSW Health Department Infectious Diseases Surveillance System (IDSS) and Inpatient Statistics Collection (ISC) and ABS population estimates (HOIST), Epidemiology and Surveillance Branch, NSW Health Department.

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hospitalisations for CHD (mainly for non-infarct diagnoses) have increased by 44 per cent in the past seven years, while hospitalisation for stroke have increased by 12 per cent.

Diabetes mellitus

In 1994, 5 per cent of NSW adults reported being told by a doctor or nurse that they had high blood sugar or diabetes. Prevalence increased with age, to around 10 per cent for people aged 65 years or over. Deaths recorded as due to diabetes have been relatively stable in NSW in recent years, but diabetes is under-reported as a direct cause of death, and may be a contributory risk factor in many deaths ascribed to cardiovascular diseases.

Asthma

In 1994, 14 per cent of NSW adults reported ever having being diagnosed with asthma. Asthma prevalence was highest among adults aged 18-24 years. In the same year 9 per cent of NSW adults reported current asthma. The death rate from asthma in NSW has been declining gradually since 1989. There were 309 deaths from asthma in 1994.

Cancer

In 1994 cancer caused 11,502 deaths among NSW residents. Breast cancer was the most common malignant cancer, and the leading cause of cancer death in women. New cases of breast cancer have increased gradually in recent years (partly owing to increased screening and early detection) but death rates have remained stable. Lung cancer was the most common cause of cancer death in males and the second most common in females. Male death rates from lung cancer have declined in recent years, but female death rates continue to rise. Prostate cancer was the most common malignant cancer and the second most common cause of cancer death in men. The reported rate for new cases of prostate cancer has risen rapidly in recent years.

Injury and poisoning

In 1994 injury and poisoning caused 2,930 deaths among NSW residents. The major causes of injury death were suicide, road injury, falls, unintentional poisoning, homicide and unintentional drowning. The main causes of injury hospitalisation in 1995-96 were falls, road injury, sports injury and unintentional cutting and piercing injuries. In the same year 12,810 NSW children had a confirmed case of abuse or neglect reported to the Department of Community Services.

Mental health

Around 18 per cent of NSW children and adolescents meet criteria for mental health problems at some time during a six-month period. Delinquency, thought disorders, attention problems and social problems are the most common mental health problems among children. Nearly 30 per cent of NSW adults may have at least one mental health disorder at some time during a 12-month period. The most common mental disorders in adults are major depressive episode, simple phobia, social phobia and alcohol dependence. In 1994, 797 deaths in NSW were caused by suicide or self-inflicted injury. Most of these deaths were in males. Death rates from suicide among young men aged 15-24 years have risen steadily over recent years.

Infectious diseases

Rates of *Haemophilus influenzae* type b (Hib) disease have declined substantially in NSW since the introduction of an effective vaccine in 1993. NSW has been in the grip of an extended outbreak of pertussis (whooping cough) since 1993. In late 1996 and early 1997 six NSW infants died of pertussis. Only 59.3 per cent of NSW children aged three months to six years were fully immunised in 1995. AIDS cases and deaths declined sharply in NSW in 1996; 338 new cases of HIV infection and 259 new cases of AIDS were reported in that year. Hepatitis C is the most commonly reported infectious disease in NSW, with 8,547 cases reported in 1996. The incidence of food poisoning in NSW appears to be increasing, with 1,248 reported cases of salmonella infection in 1996. Arboviral illness reports rose sharply in 1996, with 1,268 cases reported compared with 551 the previous year.

Dental health

In 1996 about two-thirds of NSW kindergarten children and 57 per cent of children in grade 6 had experienced no tooth decay. On average, the children had one decayed, missing or filled tooth. Hospitalisations for removal or restoration of teeth rose in all age groups over the period 1989-90 to 1995-96.

Contributors to the report (in alphabetical order) were: Jody Aiken, Bruce Armstrong, Rona Baruch, Adrian Bauman, Bill Bellew, Lucy Burns, Jennifer Chipps, Tim Churches, Glenn Close, Stephen Corbett, Christine Cowie, Kate Cunningham, Gerard Fitzsimmons, Roberto Forero, Shing Chung Fung, Devon Indig, Louisa Jorm, Ed Kraa, Margaret MacDonald, Edwina Macoun, Jeremy McAnulty, Rob Menzies, Helen Moore, Geoff Morgan, David Muscatello, Ru Nguyen, Hanna Noworytko, Michele Puech, Deborah Sinclair, Gavin Stewart, Beth Stickney, Lee Taylor, Pat Ward, Rob Weidenhofer, Kim White, Maxine Whitlock and Margaret Williamson.

Copies of the report will be available from the Better Health Centre, 162 Blues Point Road, North Sydney NSW 2060, Australia. Phone: (02) 9954 1193 Facsimile: (02) 9955 5196 or from the NSW Health Department Web site at http://www.health.nsw.gov.au/public-health/chorep/chorep.html

PROGRAM BUDGETING AND MARGINAL ANALYSIS IN NSW

Marion Haas, Gavin Mooney, Rosalie Viney and Lyn Cooper
Centre for Health Economics Research and Evaluation, University of Sydney

In a previous issue of the *NSW Public Health Bulletin*, we reported the establishment of pilot projects in the use of program budgeting and marginal analysis (PBMA) to assist resource allocation and priority setting in NSW Area health services[1]. This paper reports the results of these pilot projects.

The concept of measuring performance in terms of health outcomes and health improvement is widely understood and accepted in the health system. The challenge now is to use the concept of health improvement in practical planning of programs and services. This requires a focus on the process of planning and, in particular, priority setting.

In the past much of the emphasis in planning has been on identifying goals and targets and determining what the vision of the future is. While this is important, it tends to leave a gap between where we are now and achieving this vision. Service planning should be about judging where the service is, what the options are for change, what are the best options for change in terms of costs and benefits, and implementing change. One of the biggest challenges in this process is to link this with decisions about resource allocation and, in turn, to alter the balance of resources to achieve the optimal mix of services. It is resource allocation which drives our ability to deliver services, and changes in the delivery of services will only follow funding decisions. What economics contributes to planning is a focus on the role of resource allocation.

OVERVIEW OF PROGRAM BUDGETING AND MARGINAL ANALYSIS

Program budgeting and marginal analysis involves using principles of economics to assist the planning of services and the setting of priorities in resource allocation. It provides a framework for making decisions about how to shift resources and realign services to achieve health improvement and other potential benefits, while ensuring equitable access. It makes explicit the decisions about which services should be expanded and which contracted on the basis of what the effect of the altered pattern of services is on expected outcomes.

There are two stages. The first stage is the development of program budgets. These provide an information framework to allow the examination of the relationship between resource use, activities, outputs and objectives. A key feature of this framework is that programs are output and objective orientated rather than being focused on inputs and activities. For service planning, program budgeting is intended to answer the question "where are we now?".

Marginal analysis answers the question "what should we change?" In practice, the process involves developing and prioritising incremental and decremental "wish lists", i.e. activities which would be expanded if additional resources were available, and those which would be contracted if a budget cut were imposed.

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Program budgeting and marginal analysis

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Three aspects of the marginal analysis process should be highlighted:

- First, at this stage, it is a thought experiment. Although the budgetary expansion or contraction is hypothetical, thinking in these terms focuses the participants' minds on where the most benefit would arise from expansion, and where the least loss of benefit from contraction would occur.
- Second, thinking about contraction of services is as important a part of the process as thinking about expansion of services. If services are to be expanded, the resources must come from somewhere and the opportunity cost must be recognised. It is essential that the benefits gained from any possible expansion are greater than the benefits sacrificed elsewhere.
- Third, a crucial part of the process is identifying explicitly what these expansions or contractions mean in terms of the inputs (resources) used or freed up, the outputs gained or lost, and the outcomes achieved or forgone.

The principle underlying the marginal analysis process is simple. If the benefits achieved by expanding services in program A (identified by the hypothetical budget increase) are greater than the benefits forgone by contracting services in program B (identified by the hypothetical budget decrease) then resources should be shifted to allow this to take place, because it will result in a net gain overall.

PBMA has been used to assist priority setting in a number of health care settings overseas, and is being applied in South Australia. It had not previously been used in NSW[1]. The priority-setting challenges facing the NSW health system are the same as those elsewhere, and the principles of PBMA should be readily applicable to the NSW setting. However, given that the advantage of a PBMA framework lies in its capacity to bring economics and planning principles together at a local level, it must also be tested at a local level.

Overview of pilot projects

Early in 1995 the Centre for Health Economics Research and Evaluation began working with the NSW Health Department to establish pilot projects in which PBMA would be used by Area health services. The aim was to test the applicability of the framework over a range of settings and resource allocation issues. Three pilot projects were funded, which offered a range of complexity, size and geographical spread:

- dental services in the Central Coast Area Health Service;
- asthma services in the South West of NSW; and
- child, adolescent and family health services in Central Sydney Area Health Service.

The Central Coast Area Health Service provides basic dental treatment and oral health promotion to all school children, basic dental treatment to adults with health care cards, emergency dental health care to children and adults with health care cards and dentures to eligible clients (pensioners). The dental service personnel believed there was the potential to redeploy resources to improve outcomes for their clients. However, this required some assessment of the relative value of aspects of the service.

The Asthma Management Improvement Council was established for the South West of NSW in 1994, with responsibility for identifying prevention strategies and improving the health outcomes for people with asthma in the Area. One of the key components of this was the ability to link health outcomes decisions on resource allocation to asthma services across the area.

In 1994 Central Sydney Area Health Service had begun a strategic planning process for its child, adolescent and family health services in conjunction with the development of the new paediatric and youth services required in the Area following the relocation of the Children's Hospital to Westmead. The planning process was based broadly on the National Health Goals and Targets for Australian Children and Youth[2]. PBMA was introduced after the planning process had begun as a way of addressing the resource allocation issues.

The projects have been described in detail in a report to the NSW Health Department[3]. Of the three, the Central Coast dental services project was the most successful. The project team used the approach to identify more clearly how resources were being allocated across the range of current activities. They then considered objectives in terms of highlighting gaps in service provision and the relative benefits of pursuing these different objectives. Resource shifts were then made. In addition, the Central Coast Area Health Service used the PBMA approach to provide a structure to help minimise the impact of a significant unanticipated budget reduction resulting from the changes in Commonwealth funding of dental services. In its ability to assist priority setting in the real world, the PBMA team here was the most enthusiastic about the merits and the success of the approach.

The South West asthma project was also successful. Here, PBMA was used to highlight the need for a better match between the resources devoted to particular subprograms, the objectives of these subprograms and the objectives of the asthma program overall. In particular, the PBMA approach revealed that most resources were devoted to acute treatment, and identified the need for resources to be shifted to education and prevention. It became clear that two things were needed:

- a clearer identification of the role and purpose of asthma education; and
- more and better evaluation of the effectiveness of these services.

As a result of the PBMA process, a review of possible models of asthma education across the service was undertaken, and a preferred model identified.

The Central Sydney project was less successful. The nature of the community services covered is more complex. Data collection and information systems for community health made it difficult to identify the relationship between activities and the objectives of programs. These problems were by no means insuperable but, more importantly, the strategic planning process already under way was based on a very different philosophy from that of PBMA, and it proved impossible to reconcile the two. In particular, the

first steps in PBMA involve an examination of how resources are being used to achieve objectives as a basis for guiding incremental change. In contrast, the first steps of the strategic planning process focused on goals for the future, and the resource implication issues were seen as secondary. Information about resource allocation, and a recognition that change involves incremental shifts from the current position, is fundamental to an economic approach to planning.

Conclusion

PBMA provides a framework to help to solve resource allocation problems in a systematic and explicit way. The pilot projects have shown it is a useful planning tool in the context of the NSW health system. They also highlighted a number of important issues in planning and priority setting, and it is worth noting the key lessons so far from the NSW experience.

First, committed leadership is vital to the success of PBMA, as it is to any planning process. PBMA was most successful where key managers understood the principles and were committed to the process.

Second, the NSW experience did reveal that the complexities of financial arrangements for health services, particularly Commonwealth-State overlap of responsibilities, present as many problems for PBMA as they do for other planning processes. For example, the asthma project team was frustrated by the limited scope to shift resources between subprograms because the Area does not control all the resources in the management of asthma.

Third, program budgeting often reveals a mismatch between the stated objectives of programs and the inputs, activity and outputs of the program. Explicit evaluation of resource allocation is in itself a very valuable process. It may also cause some discomfort, however, because it focuses attention on these mismatches.

Fourth, while information about costs and activity is important to planning, the collection of this information should not become the objective of the process. PBMA can be hindered by the complexities and lack of consistency in financial and activity reporting. Across and within Area health services, there is still considerable variation in the level of detail in reporting, but this is not a major barrier. A realistic picture of how resources are deployed is a vital starting point to planning processes, and no planning process can be effective without this information. However, the picture does not have to be very precise and a "broad brush" approach will suffice. Where greater precision is appropriate is in evaluating the costs (and benefits) of proposed shifts from the current position.

Finally, a planning process which aims to achieve better use of resources must start from the basis of how resources are being used and from an understanding of the objectives of the service. It is tempting to see strategic planning as a "visioning exercise", looking only to the future shape of services and to future targets for health outcomes. This leaves a gap between planning and implementation.

PBMA is now being used or considered for use in NSW by a number of Area health services, including the Central Coast Area Health Service, Central Sydney Area Health Service, the Greater Murray Area Health Service, Macquarie Area Health Service and South West Sydney Area Health Service.

Acknowledgment

This project was funded by the NSW Health Department.

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2. Health goals and targets for children and youth. Adelaide: Child, Adolescent and Family Health Service, 1992.

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Public health editorial staff

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

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Telephone: (02) 9954 1193, Facsimile (02) 9955 5196.

NORMAL IMMUNOGLOBULIN (HUMAN): INDICATIONS AND SAFETY

Margaret Ashwell
AIDS / Infectious Diseases Branch,
NSW Department of Health

Human normal immunoglobulin (NIGH) refers to the antibodies in pooled plasma which, injected, can be used as a form of passive immunisation to boost the immunoglobulin G (IgG) of patients and therefore temporarily increase immunity against common infections.

Samples are not tested for the amount or type of IgG present. It is assumed that pooled plasma from blood donors contains high levels of antibodies specific to infections found in that population. If an infection is not common in Australia, the antibody level in pooled plasma is low or negligible, so an injection of NIGH would not prevent or modify the infection. If the infection is common, the antibody level is high. For example, measles and hepatitis A are common diseases, so antibody levels should be high and immunisation will be effective[1]. Typhoid and cholera are uncommon, so the immunoglobulin from the Commonwealth Serum Laboratories Limited (CSL), which is taken from the Australian donor pool, would not be useful in prevention.

Human immunoglobulin does not appear to protect a recipient against hepatitis C. In any case, anti-hepatitis-C-positive blood is excluded from the pool.

Where an infection is common, protection is immediate[1]. For immunisation given intramuscularly at the recommended dosage, antibodies usually remain at protective levels for four to six weeks, and longer for hepatitis A[2].

Two specific forms of immunoglobulin are prepared – one for intramuscular and the other for intravenous use. The intramuscular form is the more common.

INTRAMUSCULAR IMMUNOGLOBULIN

Intramuscular immunoglobulin may be used as prophylaxis for susceptible contacts if given early in the infection. The optimal timing depends on the disease.

The NSW Health Department recommends intramuscular immunoglobulin for the following non-immune contacts of people with hepatitis A as soon as possible, but within two weeks of exposure:

- household or sexual contacts;
- staff and children in an associated day-care centre; and
- food handlers in an associated catering establishment.

The department recommends intramuscular immunoglobulin for infants (children under one year of age) within six days of first exposure to measles.

Intramuscular immunoglobulin is also useful for:

- travellers to areas endemic for hepatitis A[2] for whom hepatitis A vaccine is not practicable;
- treatment of patients with abnormal antibody production[1,2]; and
- prophylaxis for certain contacts of cases of poliomyelitis, varicella–zoster etc[2].

The following specific-use intramuscular immunoglobulins are available: tetanus, zoster, hepatitis B and Rh(D) immunoglobulins.

The intramuscular form must not be given intravenously, as it may cause severe adverse reactions[1].

Preparation of the intramuscular form

The Commonwealth Serum Laboratories prepare immunoglobulin from blood obtained from volunteer blood donors in Australia. Australian Red Cross blood transfusion services screen the blood for evidence of active infection with hepatitis B virus (HbsAg), hepatitis C virus (anti-HCV), human immunodeficiency virus 1 and 2 (anti-HIV1, anti-HIV2), human T cell lymphotropic virus type 1 (anti-HTLV-1) and syphilis[4].

The plasma is extracted and treated with the Cohn cold-ethanol fractionation process. Thiomersal is added as an antimicrobial agent.

INTRAVENOUS IMMUNOGLOBULIN

Intravenous immunoglobulin is prepared differently from the intramuscular form. It may be used for:

- treatment of congenital or acquired primary hypogammaglobulinaemia[2,3];
- prophylaxis for infection in patients with secondary immunodeficiency[2,3]; and
- treatment of autoimmune disorders[3].

Specific intravenous tetanus and cytomegalovirus immunoglobulins are available for use in certain cases[2].

SAFETY

There are no known reports of transmission of infectious diseases from NIGH manufactured by CSL in Australia[1,2].

Blood donors are screened in a process designed to select those who are unlikely to carry infection. First, volunteer donors are considered to offer a lower risk of infection than paid donors or donors from institutions such as prisons[5]. Donors complete and sign a questionnaire about their medical history and health risks. Any donor with declared risk factors or a history of hepatitis or HIV is not accepted. Only blood negative for syphilis, hepatitis B surface antigen, antibody to hepatitis C, antibody to HIV-1, antibody to HIV-2 and antibody to HTLV is used[4]. However, blood taken during the incubation periods of these infections, when the virus is multiplying but the antibodies have not reached detectable levels (window period), would be accepted unwittingly. Transmission of the virus during this stage should be reduced by following the inactivation procedure.

Cohn cold-ethanol fractionation has been shown to inactivate viruses – especially HIV, which is relatively fragile[5]. The addition of thiomersal prevents bacterial contamination after the procedure.

These measures reduce the risk of infections transmitted by the blood product, but the possible transmission of known or unknown blood-borne diseases cannot be ruled out.

Experiments have shown that the standard Cohn cold-ethanol fractionation procedure reduces hepatitis B virus and HIV indicators in the final product to negligible levels[7], but not necessarily for hepatitis C virus[8]. However, the reduction in risk would depend on the viral load in the initial plasma[7].

Any alteration in the Cohn cold-ethanol procedure could alter its effectiveness[6]. The inactivation of viruses by ethanol is dependent on the concentration of ethanol used and temperature at which the process is carried out.

Since the introduction of routine HBsAg screening of donated blood in the 1970s and anti-HIV screening in the mid-1980s, no cases of hepatitis B or HIV transmitted by immunoglobulin products have been reported in Australia[3]. In the United States and Europe there have been reports of transmission of non-A, non-B hepatitis or hepatitis C – all arising from intravenous preparations. In most cases the preparation method deviated from the Cohn cold-ethanol fractionation process – because the product was new to the market or experimental, or the procedure itself had been altered[3,9-12]. One product was responsible for 200 cases of hepatitis C, despite screening for hepatitis C with EIA-2, and was withdrawn from the market[13]. No other viruses appear to have been transmitted by immunoglobulins3.

In the US the residual risk of developing viral infections from intravenous immunoglobulins has been estimated to be 1 in 420,000 for HIV, 1 in 250,000 for hepatitis B (less than in the general population) and 1 in 100,000 for hepatitis C[5]. In Australia there have been no recorded cases of transmission[2].

CONCLUSION

The mortality rate for hepatitis A is 1 in 1,000 for the population in general, and 27 in 1,000 for people over 50 years of age. Measles has a mortality rate of 2-3 per 1,000[14] and has serious sequelae. The use of NIGH as recommended can prevent the morbidity and mortality of these common infections.

It must be remembered that immunoglobulin is a human product and so the risk of the disease being prevented must be weighed against the risk of iatrogenic disease.

Health care workers should advise patients that human immunoglobulin is safe, but cannot be guaranteed to be 100 per cent safe. The patient (or the patient's guardian) should make an informed decision whether to receive this form of treatment.

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CHANGES TO THE NSW PUBLIC HEALTH ACT 1991 – REPORTING OF BIRTH DEFECTS

In NSW from January 1, 1998, birth defects detected during pregnancy or in a child under one year of age will be notifiable to the NSW Health Department under the Public Health Act 1991.

All births in NSW have been notifiable to the NSW Health Department since 1991. Information on these births, including information on defects detected at birth, is collated by the NSW Midwives Data Collection. The NSW Birth Defects Register was established in 1990 and collates information on birth defects from the Midwives Collection and information provided voluntarily from clinicians, hospitals and laboratories.

It is anticipated that the change in legislation will provide a uniform basis for Statewide reporting and result in more reliable information for service planning purposes and for the evaluation of real and apparent clusters of birth defects.

The changes to the law will also allow information on full name and address to be collected, so the confidentiality of such information is explicitly protected by law. These details allow information for one person to be matched when information comes from more than one hospital or doctor. Paper forms are shredded and personal information such as name and address are removed from the computer database after five years.

Birth defects include structural malformations such as cleft lip and neural tube defects, and four medical conditions: cystic fibrosis, thalassaemia major, phenylketonuria and hypothyroidism. Congenital infections, cysts and tumours are not defined as structural malformations. Isolated talipes and undescended testis not requiring surgical intervention are also not notifiable.

New notification kits will be distributed to hospitals, general practitioners, obstetricians, paediatricians and pathology laboratories in December 1997. In the case of children, it is recommended that a copy of the notification form is placed in the Personal Health Record (Blue Book) in order to avoid duplication of notifications.

Any inquiries about the changes may be made to Dr Lee Taylor, Epidemiology and Surveillance Branch, NSW Health Department, telephone (02) 9391 9223 or facsimile (02) 9391 9232. The Manager of the NSW Birth Defects Register is Ms Susan Travis, telephone (02) 9351 7747 or facsimile (02) 9351 7742.

SOUTH EASTERN SYDNEY PUBLIC HEALTH UNIT

The South Eastern Sydney Public Health Unit has been working from two sites – one at St George Hospital and the other at Zetland. It is now consolidating at one site at Zetland. The director is Dr Mark Ferson.

The new contact numbers are:
Telephone: (02) 9382 8333
Facsimile: (02) 9382 8334

INFECTIOUS DISEASES – OCTOBER 1997

TRENDS

In August, reports of **pertussis** continued at twice the expected number (see the *NSW Public Health Bulletin*, September-October 1997) and reports of **meningococcal disease** also remained relatively high for this time of year (Figure 4).

MENINGOCOCCAL DISEASE

Three related cases of serogroup C meningococcal disease (SCMD) among students at the Kensington Colleges at the University of NSW were reported in August 1997. In early October, two SCMD cases were reported among students who attended the Intervarsity Rowing Games at Penrith. One of these students also attended the Kensington Colleges, and the other the University of Western Australia. Meanwhile, an unrelated cluster of three SCMD cases was reported at Chevalier College in Bowral in early October. As a precaution, vaccination was offered to students at the Kensington Colleges and Chevalier College.

DNA fingerprinting studies indicated that the strain of bacteria that caused SCMD in the rowers who attended the games was slightly different from that which caused the earlier Kensington Colleges cases.

Meningococcal disease is caused by a bacterial infection. Symptoms include the sudden onset of fever, headache, stiff neck, nausea, weakness, drowsiness and a rash. The disease is spread directly from person to person by droplets or discharges from the nose or throat of a person carrying the bacteria. The bacteria can be carried by some people in their throat without causing illness. The incubation period (time between infection and illness) is usually 3-4 days, but is sometimes up to 10 days. The illness is effectively treated with intravenous antibiotics in hospital.

All cases of meningococcal disease are reportable in NSW. Public Health Units routinely identify those at risk of infection and provide antibiotics and information to close contacts to prevent the further spread of the disease. While the disease is uncommon, early treatment is important, so people are encouraged to watch for the symptoms, and to see a doctor if they occur. Doctors should treat suspected cases with intravenous antibiotics urgently.

Vaccination against meningococcal disease is recommended only in special circumstances – for example, travellers to countries where the disease is common, and for patients with uncommon medical conditions, such as absence of a functional spleen. It provides short-term (about three years) protection against disease caused by serogroups A, C, W135 and Y. The vaccine is not effective against one type of meningococcal bacterium (serogroup B), which accounts for about half of all the NSW cases. It is not very effective in children under two years of age (who have the highest risk of disease).

Enhanced media interest has led to publicity about several additional unrelated cases of meningococcal disease. These included infants from Wagga Wagga and Gosford. In late winter and early spring, between 5 and 10 cases of this disease would be expected to be reported each week in NSW. There were 165 cases of meningococcal disease reported in NSW in 1996. To the end of October 1997, 167 cases had been reported.

MEASLES: ON THE BRINK?

On October 1, 1997 the New England PHU reported that two 10-year-old children had been clinically diagnosed with measles. Both experienced the onset of their illness about September 25; however, they attended different schools. Both had been on the same school excursion to Canberra in the week September 14-19. One of the cases (while infectious) then attended a pony camp in Wee Waa with 120 other children during the school holidays. On October 2, Western Sector PHU reported an 11-year-old girl with the onset of clinically diagnosed measles on September 24 (rash onset September 27) who went on a school camp to Canberra from September 15-17.

Central Queensland PHU reported on October 3 that a student from there had visited Canberra from September 13-19 while infectious with measles. Central Queensland has had an outbreak of measles involving more than 60 children in recent weeks.

Measles is caused by a virus. Symptoms include a cough, runny nose and sore eyes, followed by a generalised rash. It is not a harmless childhood disease; it can sometimes have serious complications including ear infections, pneumonia and brain damage, and can cause death. Measles is highly infectious. Those who contract the disease will require time off school or work while they are sick. A large epidemic of more than 1,000 measles cases has occurred in New Zealand in 1997.

Measles-mumps-rubella (MMR) vaccine will protect children against measles, as well as mumps and rubella. There is no harm in children receiving more than one dose of this vaccine. In addition to routine immunisation at 12 months of age, since 1994 it has been recommended that all children have a booster MMR vaccination between 10 and 16 years of age. People with measles should stay at home until fully recovered, and for at least four days after onset of the rash. Suspect cases should call the doctor before visiting the surgery, so the doctor can make special arrangements to ensure other people in the waiting room are not infected.

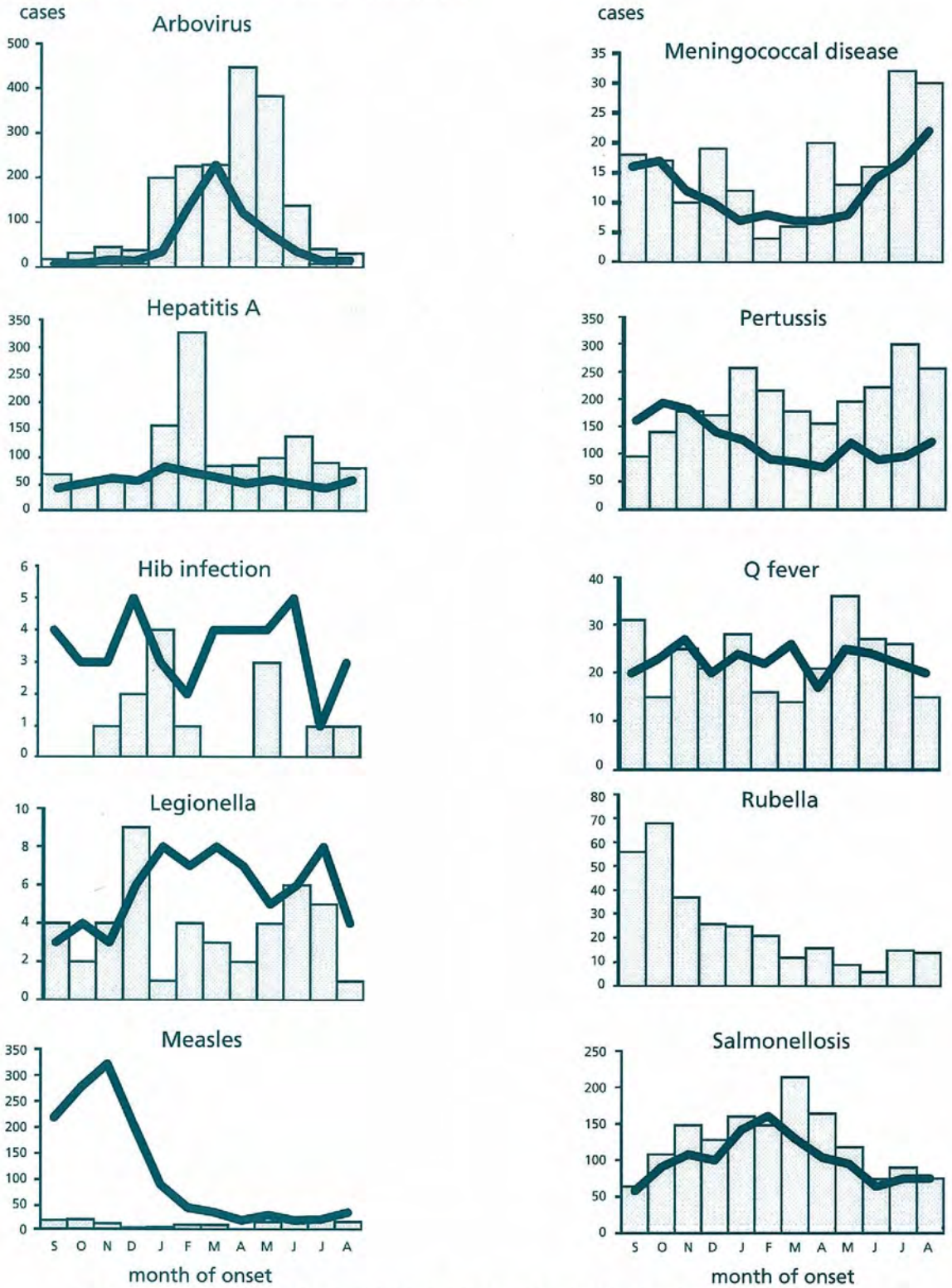
On October 3, New England PHU held immunisation clinics for children who had attended the pony camp at Wee Waa and later for other school students. The PHU also sent information to parents about measles and its prevention, encouraging two doses of vaccine.

The NSW Health Department issued a press release alerting the public that a measles epidemic may be beginning and urging all parents to ensure their children were fully immunised, with at least one dose of MMR vaccine by the age of 12 months, and two doses by the age of 12 years.

The alert was aimed at children who had visited Canberra in the week of September 13-19, and encouraged those who might have measles to stay at home until at least four days after the rash appeared. It also warned parents of others to ensure their children were fully vaccinated.

FIGURE 4

REPORTS OF SELECTED INFECTIOUS DISEASES, NSW, 12 MONTHS TO AUGUST 1997, BY MONTH OF ONSET (WITH HISTORICAL COMPARISON)



Because of data collation problems, historical rubella figures are unavailable.

Sep 96 - Aug 97 / Mean Sep 93 - Aug 96

TABLE 1

INFECTIOUS DISEASE NOTIFICATIONS FOR NSW RECEIVED IN SEPTEMBER 1997 BY AREA HEALTH SERVICES

Condition	Area Health Service																	Period	
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	Total for Sep**	Total to date**
Blood-borne and sexually transmitted																			
AIDS	–	2	–	–	–	–	–	1	2	–	–	–	–	–	–	–	–	5	178
HIV infection*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	211
Hepatitis B – acute viral*	–	–	1	–	–	–	–	–	1	–	–	–	–	–	–	–	–	2	43
Hepatitis B – other*	39	21	–	–	–	1	3	6	34	1	1	6	–	5	–	–	–	117	2,671
Hepatitis C – acute viral*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	9
Hepatitis C – other*	45	35	1	–	–	13	37	19	64	28	11	12	4	16	1	9	10	305	5,930
Hepatitis D – unspecified*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	6
Hepatitis E	–	–	–	–	–	–	–	–	1	–	–	–	–	–	–	–	–	1	7
Hepatitis, acute viral (NOS)	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Gonorrhoea*	3	2	–	–	–	–	2	–	27	–	1	2	–	–	–	1	–	38	469
Syphilis	3	2	–	–	–	–	–	–	2	–	–	–	–	–	3	–	–	10	401
Vector-borne																			
Arboviral infection*	–	3	–	2	–	–	3	2	2	3	4	1	–	–	–	6	1	27	1,751
Malaria*	1	5	–	–	–	–	–	–	–	–	–	1	–	–	–	–	–	7	127
Zoonoses																			
Brucellosis*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Leptospirosis*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	22
Q fever*	1	–	–	–	–	–	–	–	–	–	1	3	1	–	1	2	–	9	203
Respiratory/other																			
Legionnaires' disease	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	34
Meningococcal (invasive) infection	3	1	5	1	–	1	2	2	1	–	1	2	–	–	1	–	–	20	151
Leprosy	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1
Mycobacterial tuberculosis	–	3	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	5	258
Mycobacteria other than TB	15	2	–	–	–	–	1	–	3	–	–	1	–	–	–	–	–	22	265
Vaccine-preventable																			
Adverse event after immunisation	1	–	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2	34
H.influenzae B (invasive) infection	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	1	1	12
Measles	–	1	1	1	–	–	2	1	–	–	–	–	–	–	–	–	–	6	142
Mumps*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	22
Pertussis	20	17	18	8	2	–	33	13	19	6	2	1	2	6	–	4	15	166	1,983
Rubella*	–	–	2	2	–	–	–	–	1	–	–	–	–	–	–	–	–	5	128
Tetanus	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	3
Faecal-oral																			
Cholera*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	2
Foodborne illness (NOS)	–	–	1	–	–	–	–	–	–	3	–	–	–	–	3	–	–	7	76
Gastroenteritis (instit)	–	–	–	–	–	–	–	–	–	–	–	–	1	–	–	–	–	1	601
Hepatitis A	8	6	1	–	1	1	6	–	3	7	1	3	2	2	–	–	–	41	1,131
Listeriosis*	–	–	–	–	–	–	1	–	1	–	–	–	–	–	–	–	–	2	17
Salmonellosis (NOS)*	9	6	4	2	–	–	6	4	12	9	2	1	2	1	1	–	2	61	1,156
Typhoid and paratyphoid*	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	18

* lab-confirmed cases only
** includes cases with unknown postcode

Abbreviations used in this Bulletin:
CSA Central Sydney Health Area, SES South 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, NRA Northern Rivers Health Area, MNC Mid North Coast Health Area, NEA New England Health Area, MAC Macquarie Health Area, MWA Mid West Health Area, FWA Far West Health Area, GMA Greater Murray Health Area, SA Southern Health Area, 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.