



THE INPATIENT STATISTICS COLLECTION AND HIB MENINGITIS

The NSW Health Department Inpatient Statistics Collection (ISC) has been used as a 'gold standard' to measure case ascertainment of bacterial meningitis^{1,2}. Other researchers have used more intensive methods to ascertain cases of *Haemophilus influenzae* type b (Hib) meningitis^{3,4}.

Peter McIntyre, Staff Paediatrician in Infectious Diseases at Westmead Hospital, has been undertaking Hib surveillance in children in the Sydney Statistical Division since 1985. The methods of case ascertainment used for 1985-87 have been detailed elsewhere³. Since 1989 active laboratory surveillance (ALS) has continued, but review of hospital records has not been maintained.

To assess the accuracy of the ISC for case ascertainment of Hib meningitis in children less than five years old, it was compared to ALS. The study period was January 1 to June 30, 1991. The Chandra Sekar and Deming method⁵ (CSD) was then used to estimate the number of cases not identified by either of these independent surveillance methods.

The results are displayed in Table 1. Of the five cases identified by ALS but not by the ISC, two were identified by the ISC as unspecified meningitis (ICD9-322.9) rather than Hib.

These results indicate that neither surveillance method is perfect. This analysis suggests that the ISC ascertained 84 per cent of cases of Hib meningitis in children under five years of age, while ALS ascertained 89 per cent. The ISC is a reasonable method for ascertaining cases of a condition that results in hospital admission, especially given the ease of access to the data.

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TABLE 1

CASES OF HIB MENINGITIS IN CHILDREN <5 YEARS OLD IN THE SYDNEY STATISTICAL DIVISION BY SURVEILLANCE METHOD, JANUARY 1-JUNE 30, 1991

| | | Cases detected by the ISC | | |
|-----------------------|-----|---------------------------|----|----|
| | | Yes | No | |
| Cases detected by ALS | Yes | 29 | 5 | 34 |
| | No | 3 | 1* | 4 |
| | | 32 | 6 | 38 |

* estimated by CSD method

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Public Health Abstracts

Infectious Diseases

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THE NSW PROGRAM FOR MAMMOGRAPHIC SCREENING

In NSW mammographic screening for the early detection of breast cancer is being phased in as a population-based program over a five-year period. The goal of the program is to reduce breast cancer deaths by 30 per cent in the target population which is all asymptomatic women aged 50-69 years. Swedish and other overseas trials have demonstrated an unequivocal benefit in reduced mortality in women in this age group. Women aged 40-49 years and 70-79 years who present for screening will be accepted in accordance with national policy, but active recruitment will be restricted to the 50-69 age group.

A previous article¹ stressed the importance of proceeding carefully through a pilot project stage because of the known pitfalls in mammographic screening: principally the need to recruit at least 70 per cent of the target population to regular screening; the need for adequately trained radiologists, radiographers and other service providers and the application of uniform standards and quality assurance measures.

In June 1991 the NSW Health Department agreed to participate in the National Program for the Early Detection of Breast Cancer. In June 1992, following approval of the five-year strategic plan for the NSW program, the Commonwealth and State signed a three-year performance and funding agreement for the first phase of the program. Commonwealth funds of \$13.5 million are being matched by the State for the financial years 1991-92, 1992-93 and 1993-94 to screen a cumulative total of 179,703 women.

The NSW Health Department has assigned responsibility for the implementation of the program to the NSW Cancer Council, and the State Planning and Co-ordination Unit has been set up under the auspices of the council for this purpose.

The Statewide program is being expanded in accordance with the strategic plan which was produced by the State Planning and Co-ordination Unit with the assistance of the Advisory Committee of the NSW Program for Mammographic Screening. The unit is working closely with the Chief Executive Officers of the Area Health Services and Directors of Health Regions for the Statewide development of the program.

The service delivery model for mammographic screening comprises a multidisciplinary assessment centre with a number of linked screening units. This entity, known as a screening and assessment service, has a defined geographic catchment area not confined to Health Area or Region boundaries. The available resources will be used to maximise the effectiveness of the program across the State.

The NSW plan provides for seven screening and assessment services in the first phase of the program. In addition to the two services based in the Central Sydney and Hunter Areas, three new services will be set up this financial year — expanding the program to the north, west and south west of the Sydney metropolitan area and the North Coast Region. In the 1993-94 financial year two more services will be set up, one in a rural area and the other in the metropolitan area.

The assessment centres being established this year will be at Royal North Shore Hospital in the Northern Sydney Area, Parramatta Hospital in the Western Sydney Area and Lismore in the North Coast Region. Dr Marjorie Kossof has been appointed Director in Northern Sydney, Mrs Beth Trevan in the North Coast and Dr John Boyages for the Western Sydney Service.

The major issues in the implementation of the five-year plan are:

- quality assurance including accreditation of screening and assessment services;
- monitoring effectiveness of the program;
- training of staff involved in screening and assessment;
- recruitment of women in the target age group; and
- providing services to meet the needs of women.

To qualify for funding, the assessment centres and their affiliated screening units must be accredited in accordance with the standards required by the national program. Responsibility for the accreditation process rests with the State Planning and Co-ordination Unit which is being assisted in the process by the Accreditation Sub-Committee of the Program Advisory Committee. The sub-committee includes representatives of the Colleges of Pathologists, Radiologists and Surgeons and is chaired by Professor Ken Donald, past president of the Australian Cancer Society.

Before gaining accreditation, screening and assessment services must pass a site inspection by a multi-disciplinary team, which includes at least one interstate assessor. An assessors' register has been set up by the national program to assist the States in forming the site inspection teams. The two existing services in the Central Sydney and Hunter Area Health Services have applied for accreditation and their site inspections were conducted in October 1992. The recommendations of the Accreditation Sub-Committee and the State Planning and Co-ordination Unit about these services were ratified by the National Accreditation Committee at its meeting in December. New services are required to undergo site inspections within two months of commencement of operation.

A State Mammographic Screening Register is being set up within the State Planning and Co-ordination Unit. The register will monitor crucial indicators of an effective program such as the participation rate of the target population, the results of screening mammography, the recall rate and the outcomes of the work-up procedures on recalled women. The screening and assessment services will be required to transmit data on each woman screened to the register in accordance with the National Minimum Data Set. Summary data will be transferred to the National Screening Register.

The State Planning and Co-ordination Unit has been developing a strategy to address the task of training for all clinical and non-clinical staff involved in the screening and assessment services.

To achieve the agreed screening targets, individual and general recruitment strategies will be used to encourage women aged 50-69 years to come forward for screening. Individual strategies include personalised letters of invitation using the electoral roll. General strategies are those which operate at population or community level and include the use of media and community action.

A recruitment package will be made available to the screening and assessment services to assist recruitment plans for their respective catchment areas. The package comprises three major documents: a summary of recruitment research in the Australian and overseas settings, a set of consumer-oriented standards and a case study of the implementation of recruitment strategies.

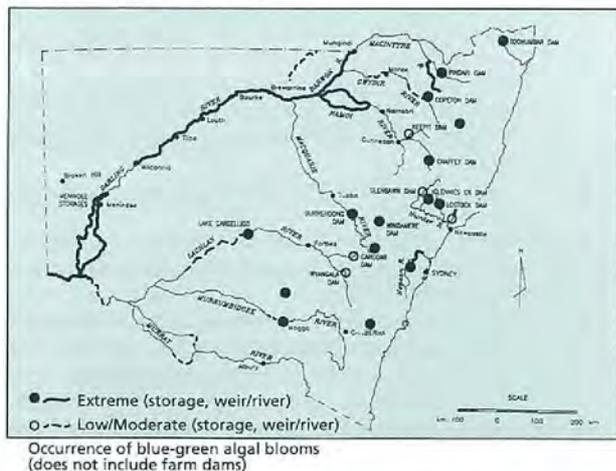
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INVESTIGATING HEALTH RISKS FROM RIVERINE BLOOMS OF BLUE GREEN ALGAE

In November 1991 the world's largest recorded riverine bloom of blue green algae occurred along 1000km of the Darling-Barwon river system (Figure 1). A state of emergency was declared to coordinate the provision of safe domestic water supplies for towns, Aboriginal communities and landholders.

FIGURE 1

**DARLING-BARWON ALGAL BLOOMS
NOVEMBER-DECEMBER 1991, NSW**



After potable water supplies had been secured for these communities, there were three outstanding public health issues:

- how many individuals did not have access to an uncontaminated drinking water supply;
- does filtration eliminate the cyanobacterial toxins from potable water, and if not what health risks are associated with drinking filtered water; and
- what are the health risks of recreational exposure to water contaminated with algal blooms.

The NSW Blue Green Algae Task Force Final Report identified a number of environmental conditions which favour the development of these blooms — high nutrient levels, nitrogen:phosphate ratios less than 29, water temperature above 20°C, high pH, abundant zooplankton, low water flows and reduced water turbidity. The task force concluded that:

"The Australian environment is characterised by many of these environmental conditions ... (there is) an existing and increasing potential for algal problems throughout most of western NSW and in many coastal rivers."

The likelihood of further outbreaks in the Darling-Barwon river system and elsewhere in NSW underscores the need for better information about the likely health effects of exposure to blue green algae.

In late October 1992 algal blooms had reappeared in the river between Louth and Culpaulin. The most common species found was *Anabaena*. This paper presents an assessment of options for future surveillance of illness related to algal blooms and the feasibility of more detailed epidemiological investigations of this problem.

BACKGROUND

Blue green algae (or cyanobacteria) are primitive photosynthetic organisms which are widely distributed in inland waterways. Two genera of these cyanobacteria dominate the records of nuisance blooms in NSW:

Anabaena and *Micro-cystis*¹. Deaths in livestock drinking contaminated water can be attributed to the neurotoxins and hepatotoxins produced by these algal species. Reports of adverse human health effects are inconsistent. Most commonly reported are eye, skin, gastrointestinal and respiratory symptoms following immersion in heavily contaminated blue green algal scum². Concerns have been raised about the possible long-term health effects of low levels of this toxin in potable water^{3,4}.

In collaboration with the South Australian Health Commission and the National Centre for Epidemiology and Population Health, a case definition for blue green algae-related illness was proposed (Table 2).

TABLE 2

CASE DEFINITION OF BLUE GREEN ALGAL-RELATED ILLNESS

One or more of the following symptoms

- conjunctivitis without discharge
- blisters on the lips or in the mouth
- myalgia with fever
- allergic respiratory symptoms: hayfever and asthma
- skin rash with/without itch
- gastroenteritis: nausea and/or diarrhoea and/or vomiting and/or abdominal cramps

Previous reports suggest that illness associated with blue green algae is most likely to occur within 24 hours for skin exposure and within 48 hours for consumption.

The design of meaningful epidemiological studies of illness related to this cyanobacterial bloom is severely constrained by the small populations involved and the remoteness of the affected communities. A case control study, using patients attending general practitioners in these communities as a source of both cases and control subjects, was planned. By the time this development work was completed in February 1992 the bloom had effectively receded.

INVESTIGATION

A preliminary visit was made to Wilcannia on November 2, accompanying the Royal Flying Doctor Service (RFDS) on one of its tri-weekly visits. It had the following aims:

- to conduct a pilot survey of people attending the RFDS clinic in Wilcannia which could:
 - identify possible cases of cyanobacterial-related illness
 - identify likely sources of exposure to contaminated water (either for drinking, bathing or swimming)

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Blue green algae

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- test the feasibility of conducting a case control study based on attendances at a general practitioner or RFDS clinics;
- to obtain qualitative information from RFDS, hospital and community health staff, school principals and school nurses in Wilcannia about possible cases of cyanobacterial-related illness occurring in recent weeks in the community and about likely routes of exposure to contaminated water and high-risk groups;
- to determine the best methods for surveillance of disease associated with blue green algae, including refinement of the case definition;
- to investigate avenues for future epidemiological studies; and
- to enlist cooperation for any future investigations from the staff of the RFDS, Wilcannia Hospital and the local schools.

General practitioners in other communities affected by the algal bloom were contacted to request information on any recent illness that might be associated with the algal bloom and to assess their willingness to participate in a case control study.

OUTCOME

Reports from the Department of Water Resources document the rise in the number of cyanobacterial organisms in the river at Wilcannia, between October and December (Figure 2).

On October 17, two teenage girls with gastroenteritis and myalgia were seen at Wilcannia Hospital. One required admission. Symptoms had appeared after both girls had swum in the Darling River. The symptoms resolved after 48 hours. Health professionals reported no apparent increases in the incidence of illness that might be associated with blue green algae. Some residents reported itchy skin rashes after showering, even after carbon filtration of the town water supply began on October 26.

Of the 26 patients surveyed at the Wilcannia Hospital Clinic on November 2, only one had symptoms that fitted

the case definition. The symptoms reported were conjunctivitis and allergic respiratory symptoms. This person reported no contact with any source of unfiltered water affected by blue green algae.

Most participants reported drinking town water (77 per cent) and/or rain water (30 per cent). Town water was used most frequently for bathing and showering. None of the survey respondents reported a history of swimming or participation in water sports in the previous 24 hours, and only 20 per cent had other contact with unfiltered water.

School nurses and hospital staff reported that the most likely groups at risk of exposure were:

- children over six years of age, especially those from the Aboriginal community, who swim in the river. The popularity of swimming in the river did not alter during algal blooms, and the closure of the municipal swimming pool had probably made recreational exposure to contaminated water more common;
- young adults who participate in water skiing along the river;
- those exposed to untreated town water used in the garden such as gardeners, and children who run under the sprinkler;
- all the townspeople who were exposed in the five-seven days between testing the river and the warnings given by the Department of Water Resources and the local shire;
- people in properties along the river that pump water directly from the river for consumption and bathing.

Many general practitioners in these remote communities expressed a reluctance to participate in a case control study because of time limitations and their perception that it was not a significant health problem.

CONCLUSION

The results of a pilot survey in Wilcannia would suggest that despite evidence of numerous opportunities for significant recreational exposure to algal contaminated water there was very little evidence of health problems occurring as a direct result of that exposure. There were two case reports of gastrointestinal illness in river swimmers. The only other reports of illness were some of minor skin irritation.

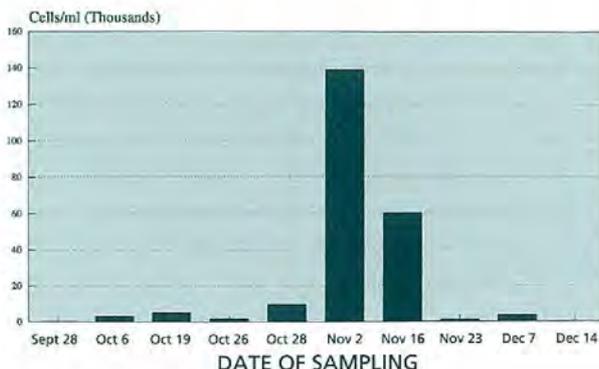
The information provided by this investigation may not give a complete picture of illness in the community and therefore cannot provide convincing evidence that blue green algae poses no significant health problems. Therefore concerns about the safety of water contaminated with blue green algae remain.

However, we concluded that a more detailed epidemiological study, such as a case control study of patients attending general practitioners, was not warranted or feasible at this time in the isolated communities along the Darling because:

- people living in remote areas may not seek medical advice for the minor ailments which exposure to blue green algae might cause; and
- some doctors and others in the community along the Darling River do not perceive illness related to blue green algae to be a health priority.

FIGURE 2

ANABAENA CELL COUNTS, DARLING RIVER, WILCANNIA, SEPTEMBER-NOVEMBER, 1992



Data: River Watch Program,
Western Total Catchment Committee
NSW Department of Water Resources

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Blue green algae

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The most promising avenue for future epidemiological research would be school-based studies. Children living along the Darling swim frequently in the river. School nurses are in a unique position to monitor even minor illness among these children. The most appropriate option for future surveillance of this potential public health problem would be to monitor continuously trends in blue green algae-related illnesses reported to school nurses in areas regularly affected by riverine blooms of blue green algae. Increases in the incidence of blue green algae-associated illnesses during or following algal blooms would indicate the need for further epidemiological study.

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Mammographic screening

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The satisfaction of women with the service provided at the time of the first screen will be an important influence on their decision to have future screens. A survey of women attending the screening and assessment services in the Central and Hunter Area Health Services was begun in June 1992. The results of the survey will be taken into account in the planning of the new services to ensure that service provision meets the perceived needs of women.

Printed materials about mammographic screening have been written in consultation with consumer representatives, health providers and educators and will be distributed by the services.

Community education is a major issue in developing public knowledge and acceptance of the mammographic screening program and fostering recruitment of the target population. Strategies to involve health promotion personnel in the broadest sense will be developed through a series of seminars about breast cancer and mammographic screening. The seminars will be developed on a consultative basis by the State Planning and Co-ordination Unit.

Ellen Ryan, Manager, State Planning and Co-ordination Unit for Mammographic Screening, NSW Cancer Council

- 1 Henry E. Bid to reduce breast cancer deaths. *NSW Public Health Bulletin*, May 1991. Volume 2, Number 5.

The following abstracts were prepared for the NSW Public Health Network Conference in Sydney in November. The presenting author's name is underlined.

BEHAVIOURAL/RISK FACTOR SURVEY IN A RURAL AREA

Three communities in the South West Region were surveyed using a telephone-based methodology. The aims of the survey were to pilot the use of telephone surveys in a rural area and to gather local behavioural/risk factor data. The survey employed random digit dialling and the random selection of household participants, over the age of 18 years, using Kish Grids. Questions were taken (or modified) from the National Health Survey and National Heart Foundation Risk Factor Survey or were developed locally following input from a community meeting. The survey included specific questions on injuries related to farm work as well as questions on the perceived major health problems in the communities surveyed.

Students from La Trobe University Albury/Wodonga campus were trained as interviewers. Interviews were conducted between 6.30pm and 8.30pm Monday to Friday for a period of three weeks with 480 interviews being completed. Despite intense and supportive local media coverage the response rate was 62 per cent. The cost per completed interview (not including data entry and analysis and questionnaire development) was approximately \$12. Analysis of the data is being undertaken. A major issue when conducting these surveys in rural areas is the lack of experienced interviewers.

Tony Kolbe, Kim Gilchrist, Elaine Clark and Neil Stubbs

THE SYDNEY AIR POLLUTION AND MORTALITY STUDY

There has been increasing community concern over visible air pollution in Sydney and its possible effect on health. This paper reports the results of an analysis of daily death counts and environmental variables in the Sydney area of NSW for the period 1986 to 1989. The study determines the association between daily air pollution (nitrogen dioxide, ozone and nephelometry, an indirect measure of particulates) and mortality.

All available air pollution data were obtained from the then State Pollution Control Commission from 1986 to 1989 for all sites in the Sydney area. Meteorological and mortality data were collected for the same time period and area. Multiple linear regression models were fitted to the dataset, with non-traumatic deaths as the outcome variable. Various techniques were used to account for autocorrelation. Separate models were fitted for seasons and additional analyses were performed using the alternative outcome variables of cardiovascular deaths and cancer deaths.

The base model found significant effects of temperature, nitrogen dioxide, day of week and seasons in predicting the number of non-traumatic deaths. The reduced model accounted for 38 per cent of the variability in daily non-traumatic deaths. An increase of one log unit of nitrogen dioxide is associated with an increase in daily deaths of two. An increase in nitrogen dioxide levels from 0.0 to 2.7 ppm would be associated with an extra two deaths on that day. If nitrogen dioxide levels increased by a further log unit, from 2.7 to 7.4 ppm, there would be a further two deaths.

Peter Lewis, John Wiodarczyk, Stephen Corbett and Tim Churches

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Public Health Abstracts

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PRACTICAL ASPECTS OF RISK COMMUNICATION WITH Hib

Haemophilus influenzae type b (Hib) is a common cause of serious and potentially fatal infection in young children, but until recently there appeared to be a lack of community awareness of the disease. When a case occurs in a community, the rapid and overwhelming nature of the infection can cause a high level of anxiety. As well as being responsible for the practical aspects of risk management, the Public Health Unit has an important role in risk communication.

The death of a child from Hib infection and subsequent community concern focused the attention of Northern Sydney Area PHU on the practical aspects of risk communication. When liaison with the child's school and the provision of information to the parents did not allay community anxiety, two members of the PHU went to the school to talk to parents and teachers. While the overwhelming nature of the disease had caused fear and anxiety in the community, it became apparent that conflicting advice about Hib and the need for antibiotic prophylaxis given to some parents by local doctors had helped to maintain rather than allay their fears.

As a result of this incident, we have instituted a number of measures to assist in accurate and consistent risk communication. These include: the notification of general practitioners when a case of Hib occurs in their locality; the preparation of draft media releases on the infection and its incidence in our Area; the review of information sheets for parents and schools; and the geographic mapping of all cases in our Area.

Provision of consistent, thorough and factual advice not only to the community but to primary care providers is essential. This should be coupled with willingness by PHU staff to talk to individual members of the community and to have adequate mechanisms in place to detect any related cases of the infection.

Helen Longbottom, Donald Holt, Gay Rixon and John Skinner

TEENAGE PREGNANCY IN THE SHOALHAVEN

Teenage pregnancy is associated with increased morbidity and mortality for mothers and their babies. The Illawarra Public Health Unit was requested by the Medical Superintendent of Shoalhaven Hospital to investigate the problem and develop strategies to reduce the morbidity from teenage pregnancy in the Shoalhaven. The magnitude of the problem was investigated using routinely collected data from several sources. A working party of interested health and education professionals was formed to identify areas that required further investigation. As a result, personal development and health education in Shoalhaven schools was reviewed, as well as availability of contraceptive facilities and pre- and post-natal programs for pregnant teenagers.

This information was used to construct goals and strategies that were adopted by a larger group of health and education professionals. Efforts to implement these throughout the region include a survey of adolescents' attitudes towards sex education, a number of smaller working parties looking at the issues of parental involvement and general practitioners' involvement in sex education. The group is also liaising with HIV/AIDS workers to help implement

strategies that will increase the availability of contraception to adolescents.

Cait Lonie and David Jeffs

ILLAWARRA GENERAL PRACTICE SENTINEL SURVEILLANCE OF ASTHMA

General practice sentinel surveillance networks provide listening posts for timely reporting of conditions not normally notifiable. They do not provide complete prevalence data but they can give an indication of changing patterns of disease and they do provide a valuable early warning system for health professionals.

The Illawarra Sentinel General Practice Network has been monitoring specified conditions on a weekly basis since June 1990. The network consists of 14 doctors between Helensburgh in the north to Gerringong in the south. During 1992 the sentinel network reported on presentations of influenza, upper respiratory tract infection, lower respiratory tract infection, asthma, influenza immunisation and measles.

Asthma has been one of the conditions under continual surveillance since the sentinel network was established in 1990. The asthma data collected from the sentinel network has been very useful to the Public Health Unit. It enables the unit to make yearly comparisons of the seasonal trends in presentations of asthma to general practitioners. It also allows for age and sex breakdowns of presentations. The sentinel data have been combined with asthma data collected from A&E departments and local pollution data. This allows for a better estimation of asthma in the community and shows if any increase in asthma occurs with high pollution levels. Sentinel surveillance of non-notifiable conditions has the potential to provide public health units with valuable information on public health and changing patterns of disease in their area.

Desolie Lovegrove

THE KJ METHOD

Much public health work is problem solving. How to do this and overcome a particular problem is often difficult. The typical response is to collect a great deal of numerical information. Professionals have received a great deal of training dealing with quantitative material, e.g. the use of tables and numerous regression techniques. There is less training and means of dealing with qualitative information. A typical practice is to develop scales and apply sophisticated multivariate techniques such as factor analysis or cluster analysis to bring together association. Alternative, less mathematical techniques are often called brainstorming sessions. However the importance of, and relationships between, suggested ideas is not clear and a possible solution to a problem not obvious from the many suggestions found in brainstorming sessions.

The Japanese quality management movement has invested extensively in devising methods to deal with problems where there is only qualitative material available. One such method is the KJ. It was developed by Jiro Kawakita, a Japanese anthropologist, as a means of summarising and characterising large quantities of anthropological data gathered during his expeditions. It has been found useful in situations where problems appear large and complex, information appears unorganised, unreal thoughts and ideas are needed, team consensus is essential for successful problem solving and the data are non-numeric or statistical techniques do not apply.

Robert Reznik

TRENDS IN LEUKAEMIA AND LYMPHOMA, NSW, 1972-1989

The percentage of total cancers attributable to environmental factors has been estimated to be between 80 and 90 per cent worldwide. The term "environmental" includes factors associated with human behaviour, lifestyle and external factors. These estimates are based on observed variations in cancer incidence geographically and over time, as well as the demonstration of causal links between particular cancers and environmental agents. Haematopoietic cancers show geographic and temporal variations and have been associated with exposure to radiation, medicines, industrial chemicals and infectious agents.

In NSW the Central Cancer Registry has collected data on haematopoietic cancers since 1972. The data from 1985-89 have only recently been published. This paper will describe the patterns of leukaemias and lymphomas in NSW between 1972 and 1989. This will include variations in incidence and mortality rates by age, gender and LGA over time. The increasing incidence, particularly in lymphomas in males, will be discussed.

Helen Moore and Stephen Corbett

DISINFECTION OF BIOMEDICAL WASTE BY MICROWAVE PROCESS

This paper will briefly describe the history of the disposal of biomedical wastes within the Hunter and the recent trial of a microwave unit at the John Hunter Hospital. The unit was imported from Germany by Cleanaway and a trial monitoring group was set up representing the Environment Protection Authority, specialist staff at the John Hunter Hospital, Cleanaway and the Newcastle City Council. The legislative requirements were identified and appropriate approvals were given by the council for the trial, together with the disposal of treated waste in a special landfill.

A particular advantage of this technology is the approximately 80 per cent reduction in waste volume and the avoidance of transport of biomedical waste on public highways from the Hunter to Sydney as currently occurs. The disinfection process will be described as well as the use of test organisms supervised by the Hunter Area Health Service Pathology Department. The trial has been successful in terms of the disinfection of waste and waste streaming within the hospital.

Occupational health issues are examined in relation to the management of contaminated waste by staff and issues such as the monitoring for microwave leakage for operators of the unit. It is expected that this technology may be more widely used in Australia. A copy of the report will be forwarded to the Standards Association and may lead to the development of an Australian standard.

John Stephenson

IS LIVING NEAR BURNS CREEK A HEALTH HAZARD?

Residents near Burns Creek in the Fairfield/Villawood area of Sydney were concerned that there were high rates of cancer in their community. They feared that over many years industrial waste discharged into the creek and regular flooding of their backyards had created an unhealthy environment. South West Sydney PHU worked with the community, collected information on cases of cancer from residents and reported back to residents at a public meeting.

We recognised that community reporting alone would miss many of the cancer cases. Permission was granted from the

NSW Central Cancer Registry for us to have access to data for the small area around Burns Creek. The study area was made up of four census "collection districts". New cases of cancer diagnosed in the study area from 1981-90 were examined. Ninety-six cases were recorded for the 10-year period compared to 112 expected cases (based on NSW age-specific incidence rates for 1986). The most common cancers were lung and breast. These are the most common cancers in NSW. The relative risk of cancer in the study area compared to the rest of Fairfield/Villawood was 1.14 (95% CI 0.93 to 1.39).

The key conclusion was that residents of the study area experience much the same rate and types of cancer as people in the rest of NSW. A report was written for the community and a public meeting planned to discuss the results.

Isla Tooth

PUBLIC HEALTH EDUCATION AND TRAINING

As the health system changes its focus to achieve improved health outcomes it will require increasingly sophisticated practitioners with sufficient skills to incorporate population health principles into their everyday practice.

There have been a number of important training and industrial initiatives which should inform the development of a strategy for public health training in NSW. Issues include a review of public health tertiary programs currently available and planned, the development of training programs for health staff in NSW and the implementation of the structural efficiency principle in health services. Organisations involved or interested include the Public Health Association, the Department of Employment, Education and Training, the Australian Institute of Training and Development, the Commonwealth Department of Health and Community Services, professional bodies, unions and various State Government bodies, including the NSW Health Department.

This paper considers which of the various issues might be most significant for the Public Health Division of the Health Department. It will suggest some important further steps in the development of a coordinated strategy for public health training and education in NSW.

Lyn Stoker and Marion Haas

APPLICATION OF THE MEDIAN POLISH TECHNIQUE TO DEMONSTRATE A BIRTH COHORT EFFECT

Peptic ulcer disease is the cause of substantial morbidity and mortality in a number of countries including Australia. Despite diagnostic and treatment advances, peptic ulcer mortality in women is increasing. To understand this problem a birth cohort analysis using the Median Polish Technique (MPT) was performed on 36 years, 1953-1989, of female peptic ulcer (PU) mortality data from NSW. The MPT allows cohort effects to be quantified, yet has rarely been applied to mortality data. Birth cohort effects detected using graphical presentation of mortality data for duodenal (DU) and gastric ulcers (GU), were supported by the results obtained using the MPT.

DU mortality rates for females increased significantly over the 36-year period. This increase can be explained by the presence of a birth cohort effect, with women born between 1898 and 1913 having a greater risk of dying from DU than preceding or subsequent generations. Cohort effects in GU

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INFECTIOUS DISEASES

TIMELINESS AND COMPLETENESS OF REPORTING

The following table lists the number of weekly reports made to the Epidemiology and Health Services Evaluation Branch in the past two months, i.e. from Epiweek 01 to Epiweek 07.

TABLE 3

NUMBER OF WEEKLY REPORTS MADE TO EPIDEMIOLOGY BRANCH: JANUARY-FEBRUARY 1993

| Public Health Unit | Number | Status |
|---------------------------|--------|----------|
| Central / Southern Sydney | 6 | Complete |
| Eastern Sydney | 6 | Complete |
| South Western Sydney | 5 | Complete |
| Western Sector | 6 | Complete |
| Northern Sydney | 6 | Complete |
| Central Coast | 1 | Complete |
| Illawarra | 4 | Complete |
| Hunter | 5 | Complete |
| North Coast | 5 | Complete |
| New England | 4 | Complete |
| Orana and Far West | 5 | Complete |
| Central West | 6 | Complete |
| South-West | 6 | Complete |
| South-East | 6 | Complete |

ACQUIRED IMMUNODEFICIENCY SYNDROME

Eight hundred and twenty-five people were living with AIDS at November 1, 1992. This compares with 674 for the previous year. This figure is expected to continue to rise in the next few years, as we estimate that only about 20 per cent of those who are infected with HIV have progressed to AIDS. Improvements in treatment can also be expected to cause increases in subsequent AIDS case counts by continuing to improve the life expectancy of people with AIDS.

MALARIA INVESTIGATION IN NEW ENGLAND REGION

Five cases of malaria were notified to the New England Region Public Health Unit in January. The cases were from a group of 24 people who had visited Papua New Guinea.

The group was heavily exposed to malaria, some travelling down the Sepik River during the trip.

The five individuals were infected with *Plasmodium vivax* (benign tertian malaria). The group went to the Morobe and Madang provinces, areas of high malaria prevalence.

All members of the group were taking anti-malarial prophylaxis. Most were on doxycycline 100mg daily; several were taking maloprim one tablet weekly and/or chloroquine 300mg weekly. Four of the cases were on doxycycline, the fifth was on chloroquine alone. Other preventive measures that can be taken include:

- staying indoors between dusk and dawn;
- wearing long-sleeved clothing and long trousers made of light-coloured material;
- using insect repellent that contains either N,N-diethyl-m-toluamide (DEET) or dimethyl phthlate on all exposed skin; and
- using a mosquito net impregnated with permethrin or deltamethrin over sleeping mats/beds.

Recommendations

- While the use of doxycycline for prevention of the *P falciparum* malaria is appropriate, the addition of another anti-malarial is advised for the prevention of primary infections with *P vivax*. For example, individuals heavily exposed to *P vivax* should consider an eradication course of primaquine on their return to prevent delayed primary infections or relapses.
- A malaria prevention action plan should be designed for the individual traveller, taking into account age, sex, destination and planned activities.
- Advice from available sources of travel health information differs on the preferred medication. The World Health Organisation recommends mefloquine, or doxycycline, or chloroquine and proguanil. The Commonwealth Department of Health, Housing and Community Services Travel Health Info-Line recommends mefloquine, while the MASTA system recommends doxycycline.

Peter Massey

Public Health Nurse, New England Region Public Health Unit

TABLE 4

PERCENTAGE OF NOTIFICATIONS WITH INCOMPLETE INFORMATION BY VARIABLE AND PUBLIC HEALTH UNIT, JANUARY-FEBRUARY 1993.

| PUBLIC HEALTH UNIT | AGE | SEX | ABORIGINALITY | ETHNICITY* |
|----------------------|----------|----------|---------------|------------|
| Central Sydney | Complete | Complete | Complete | Complete |
| Southern Sydney | Complete | Complete | 22.2 | 22.2 |
| Eastern Sydney | 3.1 | 6.2 | Complete | 58.3 |
| South Western Sydney | Complete | 2.5 | 3.6 | 64.3 |
| Western Sydney | Complete | Complete | 7.7 | 3.8 |
| Wentworth | Complete | Complete | Complete | 7.1 |
| Northern Sydney | 5.3 | Complete | Complete | 89.5 |
| Central Coast | Complete | 3.0 | Complete | Complete |
| Illawarra | Complete | Complete | Complete | 93.3 |
| Hunter | 5.0 | 1.0 | Complete | 82.4 |
| North Coast | 0.9 | 3.6 | 16.7 | 33.3 |
| New England | Complete | 3.7 | 33.3 | 33.3 |
| Orana and Far West | 4.7 | Complete | 46.9 | 25.0 |
| Central West | 61.8 | 58.8 | 3.3 | 76.7 |
| South-West | 5.2 | Complete | Complete | 50.0 |
| South-East | Complete | Complete | Complete | 33.3 |

*Reportable only from medical practitioners and hospital Chief Executive Officers.

WORLD CONGRESS ON TOURIST MEDICINE AND HEALTH, SINGAPORE 1993

The key points from the conference were:

- the effectiveness of pre-travel health advice should be evaluated;
- collaboration between health professionals and the travel industry is imperative if more travellers are to have access to travel advice; and
- a personal health record should be part of a traveller's documentation.

Malcolm Rae

Public Health Nurse, Hunter Area Public Health Unit

ANTIBIOTIC SENSITIVITY OF GONOCOCCAL ISOLATES, SYDNEY, JULY-SEPTEMBER 1992

One hundred and eighty isolates of *Neisseria gonorrhoeae* were examined in this quarter. Only 23 of the strains were from females; the male:female ratio of infections was 6.8:1.

Twenty six isolates (14 per cent) were penicillin resistant – 16 by penicillinase production and 10 through intrinsic mechanisms.

In earlier summaries the presence of a clone (Wt/IB2) of fully sensitive gonococci, which accounted for a large proportion of all isolates in Sydney, was noted. Strains fully sensitive to penicillin again increased in absolute and relative terms in this quarter and comprised 37 per cent of the isolates examined. However, the rate of isolation of these strains, while particularly high early in the quarter, decreased later in the period under review. Again it was noted that infections with this clone were virtually restricted to male patients.

Little resistance to other antibiotics used in anti-gonococcal therapy was encountered in this quarter. All isolates were sensitive to spectinomycin and ceftriaxone. One strain, acquired in the Philippines, showed high level quinolone resistance and another (of unknown origin) decreased sensitivity to these agents. Six strains had high levels of tetracycline resistance (TRNG) and were acquired overseas, another two were probably imported, one was acquired locally and details were unavailable for the other case.

John Tapsall, Edna Limnios and Tracey Leslie, Prince of Wales Hospital

INFLUENZA SURVEILLANCE 1993

Sentinel surveillance for influenza will be conducted by all 14 Public Health Units this "flu season" using a combination of general practitioner (GP) networks, school-based surveillance, work absentee rates and laboratory surveillance. Thirteen will be using GP networks, while school absentee rates will be monitored by seven PHUs, and laboratory and workplace absentee rates in one.

Surveillance is being carried out in six Areas or Regions and the rest will begin in April/May.

INFLUENZA VACCINE

Influenza vaccine for 1993 is now available through retail pharmacies. All three components of the vaccine differ from that of previous years, namely:

- A\Shanghai\24\90 like H₃N₂
- A\Texas\36\91 like H₁N₁
- B\Panama\45\90

The National Health and Medical Research Council recommends influenza immunisation for individuals at particular risk of complications. They are:

- adults and children with chronic debilitating disease, especially those with chronic cardiac, pulmonary, renal and metabolic disorders;
- people over 65 years of age;
- residents of nursing homes and other chronic care facilities; and
- people receiving immunosuppressive therapy.

People engaged in medical and health services and essential public utilities should also be immunised if they are not at increased risk owing to medical disorders such as those above. In the event of a pandemic or other major outbreak, advice should be given about vaccination of staff particularly liable to exposure.

Individuals in the first three categories are at greater risk of complications or death from influenza than other members of the population.

Medical practitioners are encouraged to review the status of all immunisations when recommending influenza vaccine. This is particularly important for tetanus immunisation.

SENTINEL SCHOOL SURVEILLANCE OF INFLUENZA

Introduction

Influenza is not a notifiable disease and therefore other methods of surveillance need to be used to estimate the incidence of influenza activity in the community. Sentinel surveillance networks offer a mechanism for collecting relevant data. The function of influenza sentinel surveillance networks is to provide a "listening post" for timely reporting of increases of activity.

Influenza surveillance networks collect data from a variety of sources including general practitioners, laboratories, hospital A&E attendances and hospital admissions, absentee rates from industries and schools and mortality rates for pneumonia and influenza.

Illawarra sentinel school surveillance

The Illawarra Public Health Unit has been collecting weekly data on influenza from sentinel general practitioners since 1990. In July 1992 this surveillance was extended to include weekly absentee rates from selected schools. School-based surveillance has been found to be more sensitive to influenza epidemics than primary health care provider surveillance.

Four schools were chosen to be sentinel schools for their area. They were a primary school from the northern area, a high school from the central area, a primary school from the western area and a primary school from the southern Illawarra area. Weekly absentee figures were obtained from each school for the months of August, September and October.

Conclusion

It is difficult to assess how useful school absentee numbers are in estimating influenza activity because the school data were collected only during August, September and October when influenza activity was declining.

Comparing the two sets of data for August, September and October it appears that school absentee rates are not all that sensitive in estimating influenza activity. School absentee rates reflect a variety of situations and not all of them relate to infectious conditions. During October, when influenza activity was very low, the school absentee rates remained constant with the previous months' rates.

RUBELLA

The national rubella epidemic is reflected in NSW notification rates. The epidemic began in NSW in September 1992.

Twelve Areas/Regions have notified rubella in 1993. The notification rate for NSW is 5.4 notifications per 100,000 population. This compares with a rate of 1.4 notifications per 100,000 population for the same period in 1992. Northern Sydney reported a rate of 11.5 notifications per 100,000 population and North Coast Region notified at a rate of 12.6 per 100,000 population.

The highest attack rates are for males aged 15-24 years. Ten notifications have been received for females between the ages of 15-45 years. During 1992, Eastern Sydney reported the highest rates for rubella notification in 15-45-year-old females. (Figure 3.)

LEGIONNAIRES' DISEASE

Four cases of Legionnaires' disease have been notified in 1993. Three notifications have been received from Central Sydney Area Health Service. No common exposures have been found.

Three major outbreaks of Legionnaires' disease have been identified in NSW. Each occurred in April (1987, 1989 and 1992). The following steps will help to minimise the impact of Legionnaires' disease:

- local government should ensure that "approved" systems are registered, as required by the Public Health Act 1991;
- building owners should ensure that their air-conditioning plants are maintained to the required standards;
- Public Health Units should familiarise themselves with the *Legionnaires' disease Emergency Management Plan*;
- hospital staff should notify any unusual cluster of atypical pneumonia to their local PHU; and
- medical practitioners should be aware of the presentation of Legionnaires' disease and its early treatment with erythromycin.

WHOOPING COUGH (PERTUSSIS)

Whooping cough continues to be notified at a rate exceeding 1992 levels - 5.3 and 2.1 per 100,000 population respectively.

Northern Sydney has a notification rate of 14.7 per 100,000 population for 1993.

Seventy-nine per cent of notifications were received for people over the age of two years.

MEASLES

Eleven Areas and Regions have notified cases of measles during 1993. The notification rate for the State is 9.5 per 100,000 population. This compares with a rate of 8.9 per 100,000 population for the same period in 1992. Orana and Far West Region received notifications at a rate of 77.0 per 100,000 population.

Eighty-two per cent of measles notifications were for people older than 12 months. As measles immunisation is recommended at this age, the vast majority of cases in NSW could have been prevented by adherence to the NHMRC immunisation schedule. Only 14 per cent occurred after the age of 12 years, the recommended age of measles revaccination from 1994.

FIGURE 3

RUBELLA NOTIFICATIONS, NSW 1992
FEMALES 15-45 YEARS, BY AHS/REGION

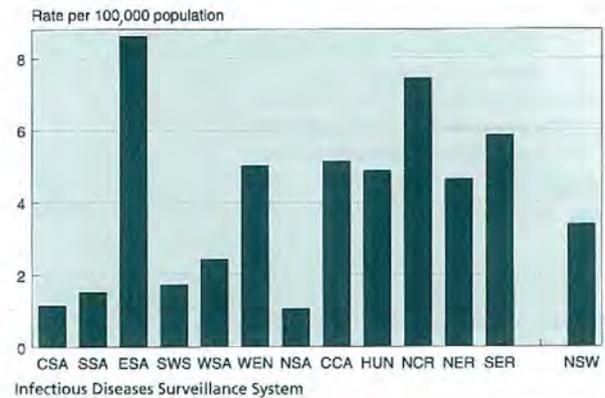


TABLE 5

SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS
FEBRUARY 1993

| Condition | Number of cases notified | | | |
|-------------------------------|--------------------------|----------|------------|----------|
| | Period | | Cumulative | |
| | Feb 1992 | Feb 1993 | Feb 1992 | Feb 1993 |
| Adverse reaction | 8 | 2 | 12 | 3 |
| AIDS | 15 | 4 | 42 | 14 |
| Arboviral infection | 42 | 35 | 56 | 69 |
| Brucellosis | - | - | - | - |
| Cholera | - | - | - | - |
| Diphtheria | - | - | - | - |
| Foodborne illness (NOS) | 25 | - | 80 | 2 |
| Gastroenteritis (inst.) | 7 | - | 95 | 23 |
| Gonorrhoea | 22 | 16 | 55 | 34 |
| H influenzae epiglottitis | 1 | 2 | 5 | 3 |
| H influenzae B - meningitis | 9 | 1 | 15 | 4 |
| H influenzae B - septicaemia | 1 | 1 | 3 | 1 |
| H influenzae infection (NOS) | 2 | 2 | 7 | 5 |
| Hepatitis A | 98 | 19 | 214 | 64 |
| Hepatitis B | 191 | 35 | 490 | 220 |
| Hepatitis C | 262 | 87 | 515 | 339 |
| Hepatitis D | - | - | 1 | - |
| Hepatitis, acute viral (NOS) | 3 | 1 | 3 | 1 |
| HIV infection | 74 | 26 | 169 | 74 |
| Hydatid disease | - | - | 2 | - |
| Legionnaires' disease | 11 | - | 13 | 4 |
| Leprosy | 1 | - | 3 | - |
| Leptospirosis | 2 | - | 5 | 1 |
| Listeriosis | 1 | - | 2 | 4 |
| Malaria | 5 | 3 | 18 | 4 |
| Measles | 31 | 24 | 88 | 93 |
| Meningococcal meningitis | 3 | 1 | 3 | 4 |
| Meningococcal septicaemia | - | 2 | 3 | 2 |
| Meningococcal infection (NOS) | 2 | - | 4 | - |
| Mumps | 5 | - | 8 | - |
| Mycobacterial tuberculosis | 31 | 3 | 127 | 7 |
| Mycobacterial - atypical | 33 | - | 67 | 2 |
| Mycobacterial infection (NOS) | 5 | - | 10 | 7 |
| Pertussis | 15 | 9 | 21 | 52 |
| Plague | - | - | - | - |
| Poliomyelitis | - | - | - | - |
| Q fever | 12 | 2 | 25 | 13 |
| Rubella | 7 | 3 | 14 | 54 |
| Salmonella infection (NOS) | 81 | 26 | 203 | 109 |
| Syphilis | 85 | 7 | 140 | 50 |
| Tetanus | - | - | 1 | 2 |
| Typhoid and paratyphoid | 4 | - | 10 | 7 |
| Typhus | - | - | - | - |
| Viral haemorrhagic fevers | - | - | - | - |
| Yellow fever | - | - | - | - |

TABLE 6

**INFECTIOUS DISEASE NOTIFICATIONS
BY HEALTH AREA AND REGION
CUMULATIVE 1993**

| Condition | CSA | SSA | ESA | SWS | WSA | WEN | NSA | CCA | ILL | HUN | NCR | NER | OFR | CWR | SWR | SER | U/K | Total |
|----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| Adverse event after immunisation | 1 | - | - | - | - | - | - | - | - | 1 | 1 | - | - | - | - | - | - | 3 |
| AIDS | - | - | 5 | - | - | - | 3 | - | - | - | 1 | 1 | 1 | 1 | 3 | - | - | 14 |
| Arboviral infection | - | - | - | - | - | - | 1 | - | - | 2 | 3 | - | 3 | - | 60 | - | - | 69 |
| Foodborne illness (NOS) | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 2 |
| Gastroenteritis (institt) | - | - | - | - | 2 | - | - | - | - | - | - | - | 1 | 20 | - | - | - | 23 |
| Gonorrhoea | 1 | - | 18 | - | 4 | - | 3 | - | - | 2 | 1 | 4 | 1 | - | - | - | - | 34 |
| H. Influenzae epiglottitis | - | - | 1 | - | - | - | 1 | - | - | 1 | - | - | - | - | - | - | - | 3 |
| H. Influenzae meningitis | - | 1 | - | - | - | 1 | - | - | 1 | - | 1 | - | - | - | - | - | - | 4 |
| H. Influenzae septicaemia | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | 1 |
| H. Influenzae infection (NOS) | - | - | - | - | 1 | 1 | - | 1 | - | - | - | 2 | - | - | - | - | - | 5 |
| Hepatitis A — acute viral | 4 | 3 | 3 | 5 | 26 | 2 | 6 | 1 | 2 | 1 | 7 | - | 2 | 1 | - | 1 | - | 64 |
| Hepatitis B — acute viral | - | - | - | - | - | - | - | - | - | - | 5 | - | - | - | - | - | - | 5 |
| Hepatitis B — unspecified | 48 | 28 | 1 | 28 | 53 | 2 | 33 | 1 | 5 | 5 | 5 | - | 5 | - | - | 1 | - | 215 |
| Hepatitis C — acute viral | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 |
| Hepatitis C — unspecified | 61 | 21 | 43 | 11 | 24 | 3 | 29 | 20 | 7 | 52 | 42 | 7 | 3 | 2 | 10 | 3 | - | 338 |
| Hepatitis, acute viral (NOS) | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | 1 |
| HIV | 6 | 1 | 31 | - | 1 | 1 | 3 | 2 | - | - | 2 | - | - | - | - | - | 27 | 74 |
| Legionnaires' disease | 3 | - | - | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | 4 |
| Leptospirosis | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 1 |
| Listeriosis | 2 | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | - | - | 4 |
| Malaria | - | - | - | - | - | - | 2 | - | - | - | - | 2 | - | - | - | - | - | 4 |
| Measles | 13 | 2 | - | 21 | 9 | 10 | 1 | 1 | 2 | 3 | 13 | - | 18 | - | - | - | - | 93 |
| Meningococcal meningitis | - | - | - | 1 | - | - | 1 | - | - | - | 1 | - | - | - | 1 | - | - | 4 |
| Meningococcal septicaemia | - | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - | 1 | - | 2 |
| Mycobacterial atypical | - | - | - | - | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 2 |
| Mycobacterial tuberculosis | 3 | 1 | - | - | 2 | 1 | - | - | - | - | - | - | - | - | - | - | - | 7 |
| Mycobacterial infection (NOS) | 5 | - | - | - | - | - | 1 | - | - | 1 | - | - | - | - | - | - | - | 7 |
| Pertussis | - | 1 | 1 | 2 | - | 9 | 22 | 1 | 1 | 3 | 2 | 1 | 2 | 7 | - | - | - | 52 |
| Q fever | - | - | - | - | 1 | - | - | - | - | 1 | 6 | - | 5 | - | - | - | - | 13 |
| Rubella | 2 | 7 | 3 | - | 8 | 2 | 14 | 2 | - | 3 | 8 | 1 | - | 1 | - | 3 | - | 54 |
| Salmonella bovis morbificans | - | 1 | - | - | - | - | 1 | - | - | 6 | - | - | - | - | - | - | - | 8 |
| Salmonella typhimurium | - | 2 | 1 | 2 | - | - | 3 | - | - | 7 | - | - | 6 | - | - | - | - | 21 |
| Salmonella (NOS) | 2 | 8 | 12 | 4 | 5 | 2 | 8 | 6 | - | 12 | 4 | 6 | 5 | - | 3 | 3 | - | 80 |
| Syphilis | 5 | 1 | 9 | 5 | 2 | - | 2 | - | - | 1 | - | 10 | 3 | 11 | 1 | - | - | 50 |
| Tetanus | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | - | 2 |
| Typhoid and paratyphoid | 1 | - | - | - | - | 2 | 2 | - | - | - | 2 | - | - | - | - | - | - | 7 |

TABLE 7

**NOTIFICATIONS OF NON-NOTIFIABLE
SEXUALLY TRANSMITTED INFECTIONS
JANUARY-FEBRUARY 1993
(Clinical diagnoses from sexual health centres unless otherwise stated in footnote)**

¹ 01/01/93-31/01/93
² 01/01/93-31/01/93
³ 01/01/93-31/01/93
⁴ No SHC in Region, data from GP network, 01/01/93-21/02/93

| AHS Infection | CSA | SSA | ESA | SWS | WSA + WEN | NSA ¹ | CCA | ILL | HUN | NCR ² | NER | OFR ³ | CWR | SWR | SER ⁴ |
|--------------------------|--------------|-----|-----|-----|-----------|------------------|-----|-----|-----|------------------|-----|------------------|-----|-----|------------------|
| Chlamydia trachomatis | Male | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Female | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Total | - | - | - | - | - | - | - | - | - | - | - | - | - | 1 |
| Donovanosis | Male | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Female | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Total | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Genital herpes | Male | - | - | - | - | 2 | - | - | - | 1 | - | - | - | - | - |
| | Female | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Total | - | - | - | - | 2 | - | - | - | 1 | - | - | - | - | - |
| Genital warts | Male | - | - | - | - | 7 | - | - | - | 2 | - | 1 | - | - | - |
| | Female | - | - | - | - | 5 | - | - | - | - | - | - | - | - | - |
| | Total | - | - | - | - | 12 | - | - | - | 2 | - | 1 | - | - | 4 |
| Non-specific Urethritis | Male | - | - | - | - | 2 | - | - | - | 1 | - | 2 | - | - | - |
| | Female | - | - | - | - | 1 | - | - | - | - | - | - | - | - | - |
| | Total | - | - | - | - | 3 | - | - | - | 1 | - | 2 | - | - | - |
| Lymphogranuloma Venereum | Male | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Female | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | Total | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

TABLE 8**VACCINE PREVENTABLE DISEASE NOTIFICATIONS
BY HEALTH AREA AND REGION
CUMULATIVE 1993**

| Condition | CSA | SSA | ESA | SWS | WSA | WEN | NSA | CCA | ILL | HUN | NCR | NER | OFR | CWR | SWR | SER | Total |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| Measles | 13 | 2 | - | 21 | 9 | 10 | 1 | 1 | 2 | 3 | 13 | - | 18 | - | - | - | 93 |
| Pertussis | - | 1 | 1 | 2 | - | 9 | 22 | 1 | 1 | 3 | 2 | 1 | 2 | 7 | - | - | 52 |
| Rubella | 2 | 7 | 3 | - | 8 | 2 | 14 | 2 | - | 3 | 8 | 1 | - | 1 | - | 3 | 54 |
| Tetanus | - | - | - | - | - | - | - | - | - | - | 1 | - | 1 | - | - | - | 2 |

TABLE 9**RARELY NOTIFIED INFECTIOUS DISEASES
BY HEALTH AREA AND REGION
CUMULATIVE 1993**

| Condition | CSA | SSA | ESA | SWS | WSA | WEN | NSA | CCA | ILL | HUN | NCR | NER | OFR | CWR | SWR | SER | Total |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| Leptospirosis | - | - | - | - | - | - | - | - | - | - | 1 | - | - | - | - | - | 1 |
| Listeriosis | 2 | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | - | 4 |

Abbreviations used in this Bulletin:

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

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

Public health abstracts**► Continued from page 31**

were also present. The results support the findings from other studies of birth cohort effects in peptic ulcer mortality data from England, Europe and Japan, and provide support for the existence of environmental factors operating internationally which resulted in increased peptic ulcer mortality among specific birth cohorts.

Hypotheses regarding the causes of these cohort effects are presented. Birth cohort analysis provides a useful approach to examine trends in mortality, permits predictions about future mortality patterns to be made, highlights cohorts who may be at risk and provides some insight into the aetiology of diseases.

Johanna Westbrook and Louise Rushworth

HANDLING DATA DEFICIENCY IN ECONOMIC EVALUATION

There is increasing pressure to justify health care budget allocations by economic appraisal. Of concern to those seeking to evaluate the efficiency of programs is the deficiency of data in key areas, such as the measurement of final outcomes (changes in health state), attributing

changes in final outcome to particular programs and the identification of program costs.

The importance of data deficiency to the use of economic evaluation is addressed in this paper, with respect to road safety education (RSE). The approach to the problem of evaluating such a preventative program has been to make gross assumptions where the absence of data would otherwise prevent any rational consideration of its economic merits. The advantage of this approach is to make explicit, and therefore subject to examination, the value judgments which would otherwise influence decision making. Should they become available, better data can easily be substituted for assumptions which are rendered invalid.

The results represent a crude attempt to evaluate the cost utility of RSE. The results are sensitive to the method used to value health states and to the assumptions used to overcome deficiencies of data. The first of these is not of immediate concern, as cost utility analysis is still in its infancy and there is a considerable research agenda to complete before utility values will become operational. The second will be overcome in time as better data become available. The results suggest that one need not be paralysed by the difficulty of evaluating health-promoting activities.

Richard D Smith

PUBLIC HEALTH EDITORIAL STAFF

The Bulletin's editorial advisory panel is as follows:

Dr Sue Morey, Chief Health Officer, Public Health Division, NSW Health Department; Professor Stephen Leeder, Director, Department of Community Medicine, Westmead Hospital; Professor Geoffrey Berry, Head, Department of Public Health, University of Sydney; Dr Christine Bennett, General Manager, Royal Hospital for Women; Dr Michael Frommer, Deputy Director, Epidemiology and Health Services Evaluation Branch, NSW Health Department; Ms Jane Hall, Director, Centre for Health Economics Research and Evaluation; and Mr Michael Ward, Manager, Health Promotion Unit.

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, to the editor, Public Health Bulletin, Locked Mail Bag 961, North Sydney 2059. Facsimile (02) 391 9232.

Design — Health Public Affairs Unit, NSW Health Department. Suggestions for improving the content and format of the Bulletin are most welcome.

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