



## NEW PUBLIC HEALTH LEGISLATION IN NSW

**T**he new Public Health Act and Regulation 1991 replaced a system of public health controls which had operated in NSW since 1902. Over the past 90 years the health issues of concern to legislators have altered significantly. The changing face of Government throughout the 20th century has witnessed myriad legislative and regulatory controls on issues relating to public health, not all of which have been administered by the Health Department. Other bodies such as local governments have taken on certain public health functions and in many cases the duplication which occurred has been administratively cumbersome and has also detracted from the objective of effective public health control.

Advances in health care and technology have eliminated or contained many problems, such as plague and smallpox, which were of concern in 1902. However despite this progress a variety of issues — for example AIDS, Legionnaires' disease and the sale of tobacco products — still requires a framework of legislative and regulatory controls which addresses genuine community concerns and provides precautions against the spread of communicable diseases.

The Public Health Act and Regulation 1991 has:

- modernised the way in which public health risks are to be managed;
- eliminated duplication with other Government requirements; and
- sought to encourage the public's involvement in maintaining acceptable public health standards.

To support this approach the Health Department has published two sets of guidelines and a code of practice which provide details of how certain requirements of the Public Health Act and Regulation 1991 are to be achieved.

The following is a summary of the areas covered by the new Act and Regulation, and reference is made in each part to the relevant provisions and guidelines, where appropriate. The summary does not reproduce the exact text of the Act or Regulation and is intended only as an outline of the main provisions.

### HEALTH RISKS

#### Act — Part 2

The Act provides the Minister and Director-General of the Health Department with powers to deal with situations which pose a significant risk to public health. These situations include public health risks arising under a state of emergency, and the powers extend to closing contaminated water supplies and ordering the disinfection

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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) 391 9218  
Facsimile: (02) 391 9232

## New public health legislation in NSW

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or destruction of contaminated articles. There are also powers to direct other public authorities to exercise their functions, or to rectify action already taken, where a public health risk has arisen as a result.

### SCHEDULED (NOTIFIABLE) MEDICAL CONDITIONS Act – Part 3, Regulation – Part 2

A series of Schedules in the Act list medical conditions which are required to be notified to the Health Department. The term “medical condition” has been used as not all the contents of the Schedules are “diseases” e.g. birth, sudden infant death syndrome (SIDS) and “adverse event following immunisation”.

The Schedules are divided into categories according to who is required to notify. Different conditions are notifiable by:

- medical practitioners (Schedule 1, category 2);
- laboratories (Schedule 1, category 3); and
- hospitals (Schedule 3).

“Hospital” is defined by the Act for notification purposes to include:

- Second, Third and Fifth Schedule public hospitals;
- hospitals under the control of an Area Health Service;
- hospitals within the meaning of the Mental Health Act 1990;
- private hospitals; and
- nursing homes.

The notification forms and particulars relevant to certain conditions are contained in clauses 5 and 81 of the Regulation. The new notification forms in a reply-paid aerogram style are available from Public Health Units (see appendix page 58).

These parts of the Act and Regulation also provide for:

- information which doctors are to supply to patients with sexually transmitted diseases (clause 4 of the Regulation);
- protection of identity for people with AIDS or HIV (section 17 of the Act); and
- the framework for the making of public health orders (sections 21-36 of the Act).

A public health order can be made where a person with leprosy, tuberculosis, AIDS or HIV (i.e. a category 4 or 5 medical condition) is behaving in a way that is likely to endanger the health of the public. Among other things an order can require a person to refrain from certain conduct, have treatment or, in relation to AIDS or HIV (category 5), be detained while the order is in force (up to 28 days). In the case of HIV or AIDS the order must be confirmed by the Local Court within three days of being made and there is provision for the District Court to continue any order for up to six months in certain circumstances.

### SKIN PENETRATION

#### Regulation – Part 3 and Skin Penetration Guidelines

Regulations governing skin penetration procedures, including tattooing, ear piercing and acupuncture had been couched in “legalese” and were available to the public only in the regulation form.

While there is no specific reference to skin penetration in the Act, Part 3 of the new Regulation and the Skin Penetration Guidelines provide readily accessible, easy-to-read guidance on how infections can occur during skin penetration procedures and the most effective methods of preventing the spread of such infections.

Operators of businesses carrying out skin penetration procedures, and workers in this area, have responded positively to the changes, calling them far more effective in achieving the Department’s public health objectives. Continuing dialogue between interested parties and the Department will ensure the technical information remains up-to-date and of practical use for skin penetration operators.

In addition, while operators are still required to notify their business addresses to local councils, the need for operators to be licensed has been abolished. Environmental Health Officers from Public Health Units and councils will continue to visit premises where procedures are carried out. The emphasis of these visits is no longer on “inspection and prosecution” but on education and positive support in assisting business operators and their workers to maintain acceptable public health standards.

### PUBLIC SWIMMING POOLS AND SPAS

#### Regulation – Part 4 and Guidelines for Disinfecting Public Swimming Pools and Spas

As with the approach to skin penetration, Part 4 of the new Regulation combines with the Guidelines for Disinfecting Public Swimming Pools and Spa Pools to provide up-to-date information and requirements for the maintenance of water quality in public swimming pools and spas. The Act itself does not contain any requirements relating specifically to swimming pools or spas. Pools and spas to which the public are admitted include those operated by councils, hotels and fitness centres.

The Guidelines for Disinfecting Public Swimming Pools and Spa Pools set out information about disinfecting and treatment factors, water testing equipment, frequency of testing, recommended testing methods and bacteriological standards. Various industry groups provided input into the technical content of the guidelines and continued liaison with these groups will be pursued to ensure technical developments are incorporated into reprints.

While water quality is the primary focus of the guidelines, the Regulation includes for the first time requirements for pool operators to maintain adequate hygiene in pool surrounds and change rooms. This has been seen as a logical step in ensuring that public health standards are maintained in all aspects of pool and spa use.

## DISPOSAL OF BODIES

### Regulation – Part 5

The new Regulation is based on the old Public Health (Funeral Industry) Regulation 1987. It reflects the primary objective of maintaining acceptable standards of public health and has generally brought administrative procedures up to date. The areas covered include:

- requirements for premises used for preparing bodies;
- preparation of bodies including embalming, viewing, handling transport; and
- burials, cremations and exhumations.

Specific requirements have been reviewed in close consultation with funeral industry representatives. Many of the old structural and site specifications have been transferred to local government or will be incorporated into existing planning requirements administered by other Government bodies.

Provisions relating to the licensing of undertakers and the registration of mortuaries have been incorporated into section 295 of the Local Government Act 1919. As councils administered these provisions under the Public Health Act 1902, it was considered more appropriate for the provisions themselves to be transferred to the Local Government Act. However, at the request of the Department of Local Government, the provisions of the old Regulation relating to licensing and registration have been saved as an interim measure until the new Local Government Act comes into effect.

## MICROBIAL CONTROL

### Act – Part 4, Regulation – Part 6 and Code of Practice for the Control of *Legionella* bacteria

Controlling the incidence of Legionnaires' disease in the community is a matter of particular public health importance in NSW since the outbreaks in Wollongong (1987), Newcastle (1989), Merrylands (1990) and Fairfield last month. The provisions relating to microbial control (of which *legionella* bacteria forms a part) provide detailed requirements for the installation, operation and maintenance of:

- air handling systems;
- evaporative cooling systems;
- hot water systems;
- humidifying systems;
- warm water systems; and
- water cooling systems.

The relevant provisions of the Act, Regulation and Code of Practice take into account the requirements of Australian Standard AS 3666 and combine to provide the technical details necessary to achieve effective controls.

## TOBACCO PRODUCTS

### Act – Part 6 and Regulation – Clause 85

Part 6 of the Act controls the sale of tobacco by requiring tobacco products to be packaged and the package to be marked with one of the following health warnings:

- smoking causes lung cancer;
- smoking causes heart disease;
- smoking damages your lungs; or
- smoking reduces your fitness.

These warnings are to be rotated equally throughout a 12-month period. Words such as "non-injurious", "non-hazardous" and "harmless to man" are prohibited. Significantly, the old Public Health Act prohibited the sale of tobacco to people under 16 years. The minimum age has now been raised to 18 in an effort to curb juvenile smoking, and retailers must display a sign where tobacco is sold, stating that its sale to people under 18 is a criminal offence. Signs have been distributed to all tobacco licensees and more are available from Quit. For Life if required.

## MISCELLANEOUS PROVISIONS

Throughout the Act and Regulation, inspectorial powers are provided to Medical Officers of Health (appointed under the Act and attached to Public Health Units) and other authorised officers. All powers of entry must be exercised in accordance with section 72 of the Act which sets out the following conditions.

The person must:

- possess and produce a certificate of authority stating his or her name, the nature and source of power, date of expiry and the type of premises to which the power extends. The certificate must be signed by the Minister, Director-General or delegate;
- give reasonable notice to the occupier where appropriate; and
- use no more force than is reasonably necessary to exercise the power.

Other provisions require:

- public authorities to notify a Medical Officer of Health of a public health risk; and
- occupiers of premises to:
  - ensure a room or cubicle used for sleeping is of a certain minimum size; and
  - take reasonable measures to keep the premises free from vermin such as rats and mice (except where kept as pets). Provisions covering the control of vermin had been unnecessarily complex, requiring, among other matters, that the Director-General of the Health Department approve rat traps and the use of ferrets! While obviously important in 1902, the new clause reduces 111 words to 25 and reflects the new emphasis on outcomes rather than process, where possible.

## CONTACTS

Further information on the Public Health Act or Regulation and copies of the:

- Skin Penetration Guidelines;
- Guidelines for Disinfecting Public Swimming Pools and Spa Pools; and
- Code of Practice for the Control of *Legionella* Bacteria

can be obtained from your local Public Health Unit (see Appendix).

Copies of the Public Health Act and Regulation 1991 can be obtained from the Government Information Service on (02) 743 7200, or toll free (008) 463 955.

*Caroline Marsh*  
Senior Legal Officer, NSW Health Department.

# THE OREGON PLAN

## INTRODUCTION

The Oregon Plan has attracted worldwide attention although, at the time of writing, it had still to be enacted by the legislature. It is an attempt to face up to the rationing of health care by making the process by which access to health care is decided open, by seeking and taking into account community values for health care, and by determining the effectiveness and efficiency of health care interventions to inform these choices. These features of the plan have received much favourable comment, and many — policymakers, practitioners and academics — have asked if it could be applied here.

In this paper, we describe the processes and problems involved in setting health care priorities in Oregon, review the success of such methods in achieving the aims of the plan and comment on the relevance of the Oregon approach to Australia.

## THE PROCESS

In 1989 a coalition of legislators, policymakers and health care professionals created a plan that would try to deliver universal access to basic health care to all citizens of Oregon, US. At that time a significant proportion of Oregon's citizens was denied access to health care as they were either not privately insured for health care or not eligible for assistance under the federal schemes designed to provide access to care for the old, the disabled and the poor.

The Oregon Plan has three stages:

- priority setting;
- budget setting; and
- implementation.

The priority setting has attracted the most attention and provoked the most contention. The first attempt at setting priorities involved three processes:

- community consultation;
- identifying a list of conditions and possible treatments and determining the outcomes of treatment; and
- comparing the health gains (outcomes) of treatment with the costs to establish which treatments should be given priority, i.e. funding.

The result of combining the social values generated by the community consultation and the evaluation of the costs and outcomes of health care was a "draft" list of health care service priorities. Subsequent reviews of the draft list have changed the approach used in the construction of the final priority list, as described here.

### Community consultation

The process of community consultation was designed to identify social values critical to setting health service priorities. There were two components to this process — community meetings and a telephone survey. More than 1000 citizens attended a total of 47 community meetings. These meetings followed a set format and recorded the values of the participants in terms of such issues as longevity versus quality of life, preventive care versus treatment, care for the old versus the young. The critical social values which evolved from this process are shown in Table 1.

TABLE 1

1. Prevention
2. Quality of life
3. Cost effectiveness
4. Ability to function normally
5. Equity
6. Effectiveness of treatment
7. Benefit to many as opposed to few
8. Treatment of mental health problems and chemical dependency
9. Personal choice in treatment decisions
10. Community compassion
11. The impact on society
12. Length of life
13. Personal responsibility

Unfortunately, the sample of the population attending the public meetings was not representative of the Oregon population as a whole; 56 per cent of participants worked in the health care industry. It was even less representative of those whom the implementation of the plan would affect; less than 10 per cent of attendees had incomes which would classify them as living below the federal poverty level.

Quality of life was explored. Using a simplified classification of health outcomes (a modified version of the Quality of Well-Being Scale (QWB) developed by Kaplan and Bush<sup>1</sup>), values or weights were derived from a random telephone survey of 1000 people and site-specific surveys of disadvantaged groups. These weights were used to value different health outcomes from various treatments.

### Health outcomes

Information about the outcomes of treatment for specified conditions was collected. Data were drawn from a review of the literature and from the deliberations of 54 panels of health care providers. These experts were asked to determine clinical effectiveness of treatment by specifying, for each condition, the probability of each health state (the states as described by the QWB) with and without treatment. The published outcome data were compared with the outcomes solicited from the panels of providers.

For a list of conditions/treatments, the expected health states after treatment were weighted by the values derived from the community survey. The resultant scores multiplied by the duration of the health state gave an estimate of the benefits of treatment, which many would recognise as Quality Adjusted Life Years (QALYs). These priorities were then modified according to the critical social values summarised in Table 1.

### Priorities

Priorities were set using the economic evaluation approach. The costs of providing treatment were estimated by the Medicaid agency and other provider bodies. The cost per unit of health gain, or cost per QALY for each condition given treatment compared to no treatment, was then estimated. Priorities could be assigned by comparing costs and benefits, ranking treatments by cost per QALY.

This draft priority list was published but withdrawn in the face of widespread criticism. A revised list was developed. The new method involved developing sets of categories of expected health benefit from treatment, and assigning each condition and treatment pair to a category. The categories were ranked by the Health Services Commission (HSC) in order of their perceived importance to the individual,

to society and by the "necessity" of the category. This approach ignores the cost per QALY ranking which would have indicated the costs and benefits of additional or marginal benefits. To a minor extent, cost was factored into the process as the final arrangement of the items within each category was done with some references to service costs.

This "final" list as constructed and approached by the Oregon Plan implies that all priority 1 services should be provided before any priority 2 services. That is, anyone eligible for heart surgery should be operated on before any hip replacements are funded. The final priority list was released in February 1991. As this list ignores costs to a large extent, the Oregon approach as currently formulated is not based on economic evaluation principles.

## PROBLEMS AND CRITICISMS

### Community consultation

The community consultation process involved an unrepresentative sample of Oregon citizens. Most of those involved in the public meetings were health care professionals. The extent to which the ensuing values do reflect those of the wider community is open to question. The group to be affected by the plan's health care rationing, those Medicaid beneficiaries and the poor without insurance, were under-represented.

### Costs and outcomes data

Difficulties were encountered in obtaining data in three main areas of the "draft" prioritisation process. These were the categorisation of outcomes, the estimates of the frequency of outcomes and the estimation of costs.

The methodological problem (as opposed to data availability) in the construction of such a priority list is the identification of the margin. Economic evaluation is focused on the margin where there are clearly defined alternatives. In considering such a wide range of condition/treatment pairs, it is not clear where the relevant margin is. The question of, for example, the benefits of doing coronary artery bypass grafts (CABGs), is difficult to answer in the abstract, as their effectiveness will vary across patients with the extent of disease, age and risk factors. Economic evaluation is more usually applied to an analysis of whether there should be marginally more CABGs than hip replacements. The choice is not CABGs or hip replacements but what mix of CABGs and hip surgery will give the greatest health gains.

A priority list of disease/treatments constructed by the marginal approach does not imply that the treatment at the top of the list is more significant in saving lives or reducing morbidity than those lower down; rather it means that the additional health gain per dollar spent is higher for those disease/treatments at the top. This may explain why the draft priority list, released in September 1990 and withdrawn immediately by the HSC, did not look "intuitively sensible" to health care providers and consumers<sup>2</sup>.

### Universal access

It is important to realise that the availability of health care services for the majority of Oregon residents has not changed. Those covered by private health insurance continue to be covered. There is still differential access for those on welfare compared to those covered privately. This is quite in keeping with some contemporary thinking in the US that equity concerns can be met by the provision of a "decent basic minimum" of health care and that those who want special procedures or the ambience and comfort of "Cadillac care" should pay for it out of their own pockets<sup>3</sup>. In Oregon, most of the citizens continue to drive health care Cadillacs.

The plan does extend access to health care (or at least to a designated list of essential treatments) to all citizens whose income falls below the federal poverty level. This is achieved without any budgetary increases in health care expenditure. The plan must cut back on expenditure elsewhere; it does this by limiting access to health care for current Medicaid beneficiaries and also to those services designated by the priority list. Therefore, to some extent, Medicaid beneficiaries are losers under the plan. But budgetary constraints at the federal level have led to successive tightening of the eligibility criteria for this program; thus a growing proportion of the poor are not eligible for Medicaid assistance. This may make the plan more politically acceptable.

## CONCLUSION AND RELEVANCE TO AUSTRALIA

The rhetoric surrounding the Oregon experiment emphasises the provision of equitable health care, the restriction of health services based on cost-effectiveness analysis, and community consultation and the eliciting of community values in making those rationing decisions explicit. The implementation of the plan has fallen short of these ideals, as this review has described. The gap between rhetoric and reality has led some commentators to label the Oregon Plan an illusion<sup>4</sup>.

The plan is a solution to the growing numbers of citizens without guaranteed access to even basic health care. It is salutary to realise that the number of US citizens without any health insurance or entitlement to government benefits is larger than the population of Australia. In Australia, universal access to hospital and medical care is guaranteed and the system is financed largely through the ability to pay. Quite simply, although all countries have to face the issues of rationing health care, the Oregon problem is not the Australian problem.

Are there elements of Oregon which could be applicable here? The appeal of the experiment lies in its bold and explicit approach to rationing health care and its attempt to involve the community in the debate and decision making. Community consultation is a difficult issue. Asking individuals to rate lists of procedures makes little sense; they lack information about the efficacy and effectiveness of such interventions. What individuals can do is judge the worth or value of health gains as measured by the relief of pain, the improvement of mobility, the extension of survival and the reduction of anxiety. Survey methods and techniques already exist to collect this information. Individuals can also be asked to judge the value of health gains compared to other gains from health care, the provision of care rather than cure for the terminally ill and the enhancement of dignity and autonomy. These values can be taken into account in allocating health care resources.

Also important is the collection and dissemination of data on the costs and outcomes of treatments. There is little information on the long term outcomes of health care interventions, particularly their impact on the quality of life.

*Marion Haas, Public Health Officer  
Jane Hall, Director, Centre for Health Economics Research  
and Evaluation*

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# RESOLVING PROBLEMS IN ENVIRONMENTAL TOXICOLOGY

The Newcastle Environmental Toxicology Research Unit (NETRU) involves a collaborative group of scientists committed to applied research in environmental health to provide independent, scientifically sound information that will be of value in resolving problems in environmental toxicology. The aim of the unit is to complement other groups working in the field of environmental toxicology and to work closely with the NSW Health Department in pursuing the objectives of the Department's strategic plan on environmental health. It began as the Newcastle part of a submission to the National Health and Medical Research Council for a national research and training centre in environmental toxicology. The submission combined the environmental toxicology groups from the universities of Newcastle, Wollongong and Technology, Sydney. Although Brisbane was the successful applicant, all three NSW institutions have continued their commitment to applied research in environmental toxicology.

The establishment of NETRU was supported by a grant from the NSW Health Department as part of a program to support environmental health research in NSW. The overall mission of NETRU includes carrying out appropriate research on environmentally related health problems, providing education and training on design, measurement, analysis and interpretation of studies on environmental toxicology; participating in the training of public health division staff in environmental toxicology and risk assessment; and undertaking health risk assessment for the Health Department as required.

The environment in general and specifically environmental toxicology are major causes of concern for the community. Concerns include blood lead level in children at Balmain, Broken Hill and Boolaroo (Lake Macquarie); ozone and nitrogen dioxide in Sydney's air; pollen in Tamworth's air; blue green algae in the Darling River; toxic waste sites around Sydney; and pollution of beaches. Added to these are broader issues such as environmental tobacco smoke, sick buildings and problems at the environmental and occupational health interface such as asbestos.

The strongly emotive nature of concerns about environmental toxicity adds to the challenge of the evaluation and management of environmental risk. The complexity of the task is further compounded by the need to use less than perfect measures of exposure and outcome, and often to extrapolate from data demonstrating effects at high exposure to guessing the possible health effects at very low exposure seen in the environment. Since evidence for possible causal associations in environmental toxicology cannot include data from experiments in humans, it is necessary to obtain information from a range of exposed sources including observational studies on exposed populations, laboratory investigations on humans, animals and cells and statistical modelling.

A logical process for management of potential environmental toxicology problems has been recommended by the US Research Council:

1. hazard identification;
2. risk assessment (both qualitative and quantitative);
3. risk management;
4. risk communication.

Research-derived data are required at each step of this process and a broad range of disciplines is required, including chemists, biologists, epidemiologists, statisticians, pharmacologists, medical geographers, health social scientists,

clinicians and health administrators. The quality of study design and analysis, a major concern of epidemiologists and statisticians, is an essential component for obtaining valid information about the above four steps. The emphasis of NETRU is on epidemiological and statistical aspects of environmental toxicology. Occupational health and clinical toxicology are also strongly represented.

Emphasis on epidemiology and statistics is reflected in the activities of NETRU, which include analysis of the Sydney Air Quality study, analysis and follow-up of the Boolaroo Lead Study and investigation of the Tamworth asthma epidemic. Members of the group are involved in other studies which include environmental aspects of asthma, lung function in aluminium smelter workers, cancer in coal miners and the health effects of manganese mining.

Although NETRU is based in the Respiratory Medicine Unit at John Hunter Hospital, the group itself has broader origins: John Stephenson of the Hunter Public Health Unit; David Christie, Environmental and Occupational Health, Newcastle Medical School; Tony Smith, Clinical Pharmacology, Newcastle Medical School; Howard Bridgman, Geography Department, University of Newcastle. To these can be added a number of collaborators from a range of disciplines including paediatrics, behavioural science and biostatistics.

As noted above, NETRU has been set up with assistance from the NSW medical research funding programs of the NSW Health Department. While it has a potential Statewide role, the major activities in the next 12 months will be in the Hunter region. This restriction is due to a combination of limited resources, the presence of active Public Health Units in other regions, and the outstanding opportunity for environmental research in the Hunter region given its mix of urban and rural environments, range of industries and population stability. It is proposed that projects such as the Boolaroo Lead Study may act as a prototype for similar problems in other parts of the State.

Although funding for NETRU was provided in mid-1991, unforeseen events led to delays in recruitment of staff. From late April two staff — John Wlodarczyk, medical statistician, and Rosemary Aldrich, public health medicine registrar — were to take up positions. John has completed a PhD thesis on the analysis of industrial exposure and lung function in aluminium smelter workers and has been the statistician on the Tamworth, Boolaroo and Sydney Air Quality studies. He has the added advantage of a background in economics. Economic analysis plays an important role in decision making about the environment. Rosemary Aldrich is a graduate of Newcastle Medical School and is completing an MPH on health promotion in the Department of Public Health at Sydney University.

The role of NETRU will evolve over the next 12 months. Although activities have been determined by relatively acute problems, it is anticipated that there will be the opportunity to study longer-term research questions, public health interventions and provide a consultancy service in a range of environmental areas. The major limitation on such a role will be resources.

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*Michael J Hensley  
Associate Professor in Clinical Epidemiology, Newcastle  
Medical School;  
Director, Respiratory Medicine Unit, John Hunter Hospital;  
Convenor, Newcastle Environmental Toxicology Research Unit.*

# INFECTIOUS DISEASE NOTIFICATION — PROGRESS AT LAST

TABLE 2

## CONDITIONS TO BE NOTIFIED BY DOCTORS AND HOSPITAL CHIEF EXECUTIVE OFFICERS

- Acquired immunodeficiency syndrome (AIDS)
- Acute viral hepatitis
- Adverse event following immunisation
- Foodborne illness in two or more related cases
- Gastroenteritis among people of any age, in an institution (e.g. among people in educational or residential institutions)
- Leprosy
- Measles\*
- Pertussis (Whooping cough)
- Syphilis
- Tuberculosis

## CONDITIONS TO BE NOTIFIED BY LABORATORIES

- Arboviral infections
- Brucellosis
- Cholera\*
- Diphtheria
- Gonorrhoea
- *Haemophilus influenzae* type b (blood or cerebrospinal fluid only)\*
- Hepatitis A
- Hepatitis B
- Hepatitis C
- Hepatitis D (Delta)
- Hepatitis E
- Human immunodeficiency virus (HIV) infection
- *Legionella* infections
- Leptospirosis
- Listeriosis
- Malaria
- Meningococcal infections\* (blood or cerebrospinal fluid only)
- Mumps
- Mycobacterial infections
- Pertussis
- Plague\*
- Q fever
- Rubella
- Salmonella infections
- Syphilis
- Typhus (epidemic)\*
- Viral haemorrhagic fevers\*
- Yellow fever\*

## ADDITIONAL CONDITIONS TO BE NOTIFIED BY HOSPITAL CHIEF EXECUTIVE OFFICERS

- Cholera\*
- Diphtheria
- *Haemophilus influenzae* type b: epiglottitis\* meningitis\* septicaemia\*
- Hydatid disease
- Legionnaires' disease\*
- Meningococcal disease: meningitis\* septicaemia\*
- Paratyphoid
- Plague\*
- Poliomyelitis
- Tetanus
- Typhoid
- Typhus (epidemic)\*
- Viral haemorrhagic fevers\*
- Yellow fever\*

\* To be notified by telephone to Public Health Units

## INTRODUCTION

Infectious disease notification has been required under legislation in NSW since 1902<sup>1</sup>. However, schedules of notifiable diseases have often been anachronistic and compliance has been poor<sup>2</sup>, because the relevance of notification to disease control has not been evident to clinicians. The schedules have comprised long lists of conditions, some of which have had no public health significance (e.g. ornithosis and ankylostomiasis), and they have omitted conditions for which a public health response is essential (e.g. *Haemophilus influenzae* type b). Also, health departments in Australia have lacked protocols for diseases which require prompt public health action.

This article describes new approaches to infectious disease surveillance and control in NSW. The example of a measles outbreak highlights the importance of collaboration between clinicians and the new public health network which has been established in the State.

## PUBLIC HEALTH DEVELOPMENTS

The NSW Health Department re-established an Epidemiology Branch in 1989 and supported the development of 14 Public Health Units (PHUs) throughout the State. The PHUs have wide responsibilities in monitoring health on an Area and Regional basis, implementing prevention measures and responding to public health problems. The specific responsibilities of the PHUs, in relation to infectious diseases, are surveillance (including laboratory, hospital and clinician notifications) and implementation of effective and timely responses to limit the spread of infectious diseases of public health importance within the community. These responses not only reduce morbidity and mortality from infectious diseases, but result in substantial saving on treatment (antibiotics, hospital beds, intensive care and health care personnel).

A new Public Health Act, proclaimed in November 1991, has rationalised infectious disease notification, so that only those conditions requiring a public health response are notifiable. These diseases are listed in Table 2.

## AN INFECTIOUS DISEASE PROBLEM

Throughout 1990 and continuing into 1991, public health officials in at least four States and Territories — NSW, Victoria, the ACT and the Northern Territory — received unusually large numbers of measles notifications.

In the event of a measles epidemic, public health practice requires a prompt response to prevent its propagation in the community<sup>3</sup>. It is generally accepted that all susceptible contacts must be immunised within 72 hours of exposure if they are to be protected, because the "incubation period" of the live vaccine is three days less than that of the native virus<sup>4</sup>. However, the practical problems militating against this deadline are formidable.

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## THE PUBLIC HEALTH UNITS' PERSPECTIVE

There is something special about working with the infectious diseases notifications in a Public Health Unit. To many the task may seem dull, boring and repetitious but for those who take up the challenge life is never dull. In most PHUs this job has become the "cross" of the Public Health Nurse.

With the enactment in November 1991 of the new Public Health Act the more streamlined process of the notification of infectious diseases began formally. Doctors and laboratories received their colour-coded packages containing the infectious diseases notification forms that month. For many laboratories the notification system was a new process and its implementation appeared to occur without too many problems.

Staff of the PHUs spent many hours educating doctors on the new system. The biggest challenge in this process was convincing a doctor's receptionist that you needed to talk to the doctor and that tomorrow would not do. The reward was hearing the surprised tone in the doctor's voice when he or she realised someone was interested in the case of measles being notified and that the bottomless black hole that devoured notifications in the past no longer existed.

Notifications arrive in the PHUs by phone or mail. For those PHUs that act as a distribution centre for the private laboratories, the arrival of the mail is viewed with dread. Murphy's law says that as soon as you put one batch of sorted notifications in the mail another will arrive for processing.

The worst time for a notification is 4.45pm on a Friday before a long weekend. The phone rings and someone wants to notify a case of *Haemophilus influenzae* type b or measles. All thoughts of leaving work on time to beat the holiday traffic vanish as you put down the phone and begin madly turning the pages of the *Infectious Diseases Manual* in an attempt to salvage something of the weekend.

As the public becomes aware of the services provided by the Public Health Units, the number of calls about all diseases — whether notifiable or not — is increasing. Schools require information about "nits", nursing homes ask for help with outbreaks of scabies, and day care centres need help in developing infection control policies.

Information sharing on the problems experienced with the notification system takes place at gatherings such as the Public Health Nurses' quarterly meetings and the Infectious Diseases Special Interest Group. These forums enable all units to have input into changes that may need to be made to the system.

The notification of infectious diseases is an evolving process.

*Desolie Lovegrove — Illawarra Area Public Health Unit.  
Gay Rixon — Northern Sydney Area Public Health Unit.*

## Progress at last

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One of the most important delaying factors is difficulty with the diagnosis of what has become a rare condition. Although laboratory diagnosis of measles is both sensitive and specific, there is general reluctance to subject children to venipunctures.

Once a presumptive diagnosis is made, prompt notification of the case to the local PHU is essential. In the past, compliance with measles notification regulations has been estimated to be about 3 per cent<sup>5</sup>. Measles is highly contagious. The combination of poor notification rates and high infectivity leads to rapid spread, rendering a local response to the outbreak ineffective.

In April 1991, just before the Easter long weekend, the NSW Health Department's Epidemiology and Health Services Evaluation Branch was notified of 46 measles cases in the Northern and Central Sydney Areas<sup>6</sup>. One of these cases had been identified in a boarding school which was about to close for the Easter holidays. The preferred response to such a notification is an immunisation campaign within the school, but because students were dispersing throughout the State this was not feasible. To alert parents to the potential threat of measles the Health Department issued a media release, and this attracted much public attention, associated with a great increase in measles vaccine utilisation. Clinical services, including those in public hospitals, were unprepared for the demands this created.

Measles outbreaks such as those in 1991 suggest that while the improved notification and response arrangements may improve infectious disease control, a paradoxical increase in the number of notifications may occur.

Before the establishment of PHUs, in 1990, public health responses to infectious diseases occurred on an ad hoc basis. Outbreaks which may have occurred in the past but did not attract attention will now evoke an appropriate response. The measles outbreak provided a relatively straightforward test of the new public health arrangements and the capacity of clinical services to deal with the consequences. A harder test would be the introduction into Australia of an exotic disease, e.g. a viral haemorrhagic fever.

## THE PUBLIC HEALTH RESPONSE

The NSW Health Department has devised a set of response protocols for notifications which has been distributed to all PHUs<sup>7</sup>. The protocols specify the public health action required for the response to each notifiable condition. After each notification, the clinician receives a report of the action taken, and can be assured that the appropriate response has been implemented.

The public health network does not operate in isolation from clinical medicine. Clinicians have a responsibility to the community in which they practise, beyond the individual patient. Notification of a scheduled infectious disease should be seen as an integral part of the clinical care of a patient. It has been suggested that by not



notifying, doctors expose themselves to civil action for negligence by the people who subsequently contract the potentially preventable disease.

Several steps could be taken to improve notification of infectious diseases.

- Undergraduate and postgraduate curricula for clinical studies must emphasise the importance of infectious disease surveillance and the role of disease notification within a comprehensive health care system.
- Health departments must inform clinicians of the relevance of notification, both for the individual patient and for the community.
- Efforts must be made to improve the timeliness and accuracy of infectious disease diagnosis. Clinicians should notify presumptive cases following clinical diagnosis. Where clinical diagnosis is uncertain, clinicians are encouraged to undertake appropriate confirmatory tests; if the public health response cannot await laboratory confirmation, an epidemiological case definition can be used to guide public health action.
- The health system in NSW must devise a public health contingency plan to deal with problems of public health significance. Area Health Services have a statutory obligation to "promote, protect and maintain" the health of their resident population (Area Health Services Act 1987).
- Collaboration between clinicians and the public health network could be enhanced at a local level by the formation of health action groups. These could include representatives of hospitals, primary health care providers, Public Health Units, community health services, and health consumer groups.

*Michael H Levy,  
Manager, Infectious Diseases Section, Epidemiology and Health Services Evaluation Branch.*

*Bin Jalaludin,  
Deputy Medical Officer of Health, Western Sector Public Health Unit.*

*Christine Roberts,  
Public Health Officer, Epidemiology and Health Services Evaluation Branch.*

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## REPORTING STATISTICS

Data in this *Bulletin* relate to Epiweeks 1 to 17. The following table lists the number of weekly reports made to the Epidemiology and Health Services Evaluation Branch this year, out of a possible 16.

**TABLE 3**

NUMBER OF WEEKLY REPORTS MADE TO EPIDEMIOLOGY BRANCH — 1992

Public Health Unit	Number	Status
Central/Southern Sydney	12	Complete
Eastern Sydney	5	Last return April 7
South Western Sydney	7	Last return March 4
Western Sector	16	Complete
Northern Sydney	16	Complete
Central Coast	7	Last return April 9
Illawarra	12	Complete
Hunter	11	Complete
North Coast	14	Last return April 23
New England	14	Complete
Orana and Far West	16	Complete
Central West	11	Complete
South-West	16	Complete
South-East	16	Complete

**TABLE 4**

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

Public Health Unit	Age	Sex	Aboriginality
Central/Southern Sydney	1.3	Complete	100.0
Eastern Sydney	9.4	6.8	100.0
South Western Sydney	4.0	4.6	78.8
Western Sydney	7.8	8.1	94.4
Wentworth	6.7	5.3	94.7
Northern Sydney	3.0	3.0	100.0
Central Coast	2.0	2.0	100.0
Illawarra	3.0	1.0	94.0
Hunter	2.9	1.5	99.7
North Coast	1.8	1.5	90.1
New England	30.7	11.0	87.2
Orana and Far West	5.0	Complete	85.4
Central West	4.0	Complete	94.0
South-West	Complete	Complete	80.6
South-East	1.9	3.9	72.5

## LEGIONNAIRES' DISEASE OUTBREAK

Staff from South Western Sydney and other Public Health Units and the Epidemiology Branch responded to a large outbreak of Legionnaires' disease centred on the Fairfield area in South-West Sydney.

A case control study was undertaken. The case definition was:

- Definite: Positive serology culture or direct immunofluorescence stain of involved tissue or respiratory secretions for *legionella*.
  - Probable: All the following criteria had to be met:
    - Illness of < two weeks duration,
    - aged > 20 years,
    - no alternative microbiological diagnosis,
    - chest x-ray signs of pneumonia — infiltrate/opacity, or laboratory evidence of hypoxia ( $p_aO_2 < 85\text{mm}$ );
- In addition, two or more of the following criteria had to be met:
- gastrointestinal symptoms,
  - central nervous system symptoms/signs,
  - history of heavy smoking,
  - immunosuppression,
  - myalgia,
  - prostration,

## Infectious Diseases

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- biochemical abnormalities (hyponatraemia, raised creatinine kinase, abnormal liver function tests, abnormal renal function tests).

Interviews were held with 23 definite cases, 62 probable cases and 82 hospital controls.

By May 6, 23 cases confirmed by direct immunofluorescence had been reported — 20 in the South West Sydney Area and a further three in the Western Sydney Area. Sixteen cases have been confirmed by sputum culture as *L. pneumophila* serogroup 1. Five people have died and at the time of writing two people were in Intensive Care Units.

There was evidence of an epidemiological association between being a "definite" case and having visited an area of the Fairfield shopping centre sometime between April 9 and April 11.

Analysis of epidemiological data and environmental investigations continue in the search for the possible sources of exposure to legionella.

### LEGIONELLA LONGBEACHAE AND POTTING MIXES

The National Health and Medical Research Council (NHMRC) recommends the following measures be adopted to reduce the risk of infection through handling potting mixtures:

- packages of potting mixes should have fine perforations to prevent build-up of pressure as a result of heating or biological action; and
- packages of potting mixes should have warning labels as follows:  
"This mixture is produced from natural products and contains a variety of living micro-organisms which on rare occasions have been associated with illness in humans."

### INFLUENZA SENTINEL SURVEILLANCE

Four Public Health Units (Central/Southern Sydney, Illawarra, Central West Region and South Eastern Region) continue to provide General Practitioner Sentinel Surveillance data on influenza. The rate of influenza, expressed as the number of cases per 100 consultations, increased during the period April to May (Figure 1).

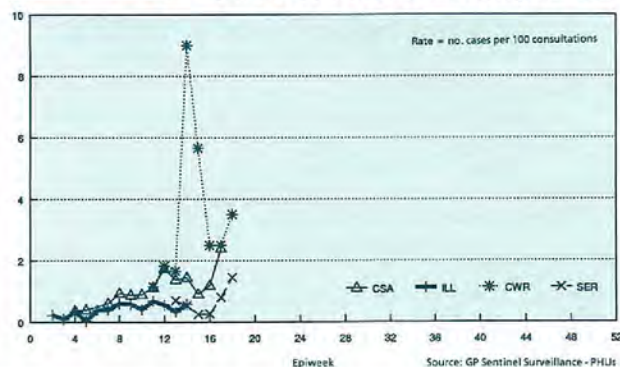
An outbreak of influenza-like illness was reported from Central Western Region in early April. Of the 61 cases reported for the first two weeks of April, the majority were students at one educational institution in Bathurst.

The NHMRC recommends that the following groups of people should receive influenza vaccine:

- all people over the age of 65 years;
- all people who are immunosuppressed;
- all people with chronic heart, lung or kidney diseases; and
- all people with diabetes.

FIGURE 1

INFLUENZA-GENERAL PRACTITIONER SENTINEL SURVEILLANCE NETWORK, NSW 1992



### HUMAN IMMUNODEFICIENCY VIRUS (HIV)

Data reported in this issue of the *Public Health Bulletin* were received only from St Vincent's Hospital and Prince Alfred Hospital.

### ARBOVIRAL SURVEILLANCE

During April there were no reported isolations of arboviruses from the mosquito and sentinel chicken surveillance programs.

### IMMUNISATION FOR HAEMOPHILUS INFLUENZAE TYPE B (HiB) INFECTIONS

*Haemophilus influenzae* type B (HiB) infection accounts for virtually all cases of epiglottitis and is the most common cause of bacterial meningitis in NSW. In 1991 HiB accounted for 64 (53 per cent) of the 120 notified cases of bacterial meningitis. In addition, 25 cases of HiB epiglottitis, 12 cases of HiB septicaemia and 137 cases of HiB infection "not otherwise specified" were notified.

In 1991, 81 cases of HiB infections (36 per cent) occurred in those aged less than 18 months. Twenty-six cases of HiB meningitis (41 per cent) occurred in those aged less than 18 months.

Aboriginal children experience far higher incidence and mortality rates for HiB meningitis and virtually all cases in Aborigines occur before the age of 12 months.

A vaccine against HiB containing polyribosylribitol phosphate (PRP), a constituent of the HiB capsule, conjugated to diphtheria toxoid (hence PRP-D), has been released in NSW. The PRP-D vaccine has been licensed for use in children aged 18 months, as a single dose. The NSW surveillance data suggest that PRP-D will prevent about two thirds of cases of HiB infections.

Three newer conjugated PRP vaccines against HiB have been submitted for licensing in Australia. These vaccines are more immunogenic than PRP-D and appear to give long-term protection for children vaccinated at less than six months of age. Their schedules will involve either three or four doses to be initiated concurrently with triple antigen from two months of age. The newer vaccines will prevent most disease due to HiB.

All PRP conjugated vaccines are safe, with low rates of mild side-effects such as mild fevers and local reactions and no dangerous effects. The costs of the vaccines will be between \$25 and \$40 a course.

However this percentage could be higher if decreased HiB colonisation rates in immunised children effect a decrease in incidence in children less than 18 months of age. Very few cases of HiB in Aboriginal children will be prevented by the PRP-D vaccine because HiB infection tends to occur before the recommended age of vaccination.

The Communicable Diseases Standing Committee (CDSC) of the NHMRC recommended to the Public Health Committee in September 1991 that a single regimen should be introduced for all Australian children; that this should be with one of the newer vaccines starting at two months of age; and that it is not appropriate to include a "catch-up" program initially as part of a national policy.

The NSW Health Department supports the CDSC recommendation that a single HiB vaccine be included in the childhood schedule from two months of age when a suitable vaccine becomes available, and when the Commonwealth make appropriate grants to NSW within the vaccine budget. In the meantime, the PRP-D vaccine is available for children aged 18 months, but it must be bought on a retail basis.



TABLE 7

## SUMMARY OF NSW INFECTIOUS DISEASE NOTIFICATIONS APRIL 1992

CONDITION	Number of Cases Notified			
	Period		Cumulative	
	April 1991	April 1992	April 1991	April 1992
Adverse event	N/A	2	N/A	20
AIDS	*30	*7	*86	*37
Arboviral infection	71	29	317	152
Brucellosis	-	-	1	-
Cholera	-	-	-	-
Diphtheria	-	-	-	1
Foodborne illness (NOS)	203	6	1124	83
Gastroenteritis (inst.)	1	-	24	100
Gonorrhoea	28	7	150	84
H. influenzae epiglottitis	-	1	2	11
H. influenzae B - meningitis	3	2	7	25
H. influenzae B - septicaemia	-	4	1	9
H. influenzae infection (NOS)	13	-	32	6
Hepatitis A	65	30	134	304
Hepatitis B	104	60	360	624
Hepatitis C	19	96	87	805
Hepatitis D	N/A	-	N/A	1
Hepatitis, acute viral (NOS)	66	2	135	7
HIV infection	*78	*34	*233	*214
Hydatid disease	-	-	1	4
Legionnaires' disease	1	29	15	41
Leprosy	-	-	-	1
Leptospirosis	2	-	20	5
Listeriosis	-	-	3	3
Malaria	20	-	61	21
Measles	50	8	163	121
Meningococcal meningitis	3	2	8	6
Meningococcal septicaemia	2	-	6	2
Meningococcal infection (NOS)	2	-	8	4
Mumps	N/A	-	N/A	9
Mycobacterial tuberculosis	23	8	78	87
Mycobacterial - atypical	10	1	28	23
Mycobacterial infection (NOS)	19	-	59	24
Pertussis	1	8	21	56
Plague	-	-	-	-
Poliomyelitis	-	-	-	-
Q Fever	17	4	81	40
Rubella	-	2	4	20
Salmonella infection (NOS)	88	13	565	283
Syphilis	40	8	180	136
Tetanus	-	-	1	1
Typhoid and paratyphoid	4	-	32	10
Typhus	-	-	-	-
Viral haemorrhagic fevers	-	-	-	-
Yellow fever	-	-	-	-

\*Data for March only.

## HEPATITIS C

For the period January to April 1992, 814 notifications for hepatitis C were received by the public health network. Of these, 53.0 per cent were reported by three Public Health Units, with Hunter Area reporting 20.1 per cent of all hepatitis C notifications, North Coast Region 18.2 per cent and Central Sydney Area 14.7 per cent. The number and distribution of hepatitis C notifications is not a reflection of the incidence of the disease, but rather may be a reflection of the frequency of testing for hepatitis C in each area. Of the total notifications 377 (46.3 per cent) were males in the 20-39 age group and 257 (31.5 per cent) females in the 20-39 age group.

## FOODBORNE ILLNESS (NOS)

The decrease in number of notifications of foodborne illness (NOS) in 1991 over 1992 is due to the new reporting criteria embodied in the Public Health Act 1991. Practitioners are reminded that campylobacter, yersinia and shigella infections are no longer notifiable as isolated occurrences.

## APPENDIX

<b>Central Coast</b> Suite 2 West Gosford Shopping Centre Brisbane Water Dr West Gosford 2250 Ph: (043) 23 3166 Fax: (043) 25 0566	PHU A/H contact: Gosford Hospital (043) 20 2111 Director/MOH: Dr Rod Kennedy
<b>Central &amp; Southern Sydney</b> Professional Unit Building 82 Church St Leichhardt 2040 Ph: (02) 556 9322 Fax: (02) 810 6747	PHU A/H contact: Rozelle Hospital (02) 556 9100 Director/MOH: Dr Michael Fett
<b>Central Western Region</b> Webb's Chambers 175 George St Bathurst 2795 Ph: (063) 32 8500 Fax: (063) 32 8555	PHU A/H contact: Bathurst Hospital (063) 33 1311 Director/MOH: Dr Peter Christopher Acting D/D: Peter Tissen
<b>Eastern Sydney</b> Cnr High and Avoca Sts Randwick 2031 Ph: (02) 398 9100 Fax: (02) 398 5373	PHU A/H contact: Prince of Wales Hospital (02) 399 0111 Director: Dr Mark Ferson MOH: Assoc Prof Sydney Bell
<b>Hunter</b> Second floor Commercial Union Building 418-422 Hunter St Newcastle 2300 Ph: (049) 29 1292 Fax: (049) 29 4037	PHU A/H contact: John Hunter Hospital (049) 21 3000 Director/MOH: Dr John Stephenson
<b>Illawarra</b> 18 Madoline St Gwynneville 2500 Ph: (042) 26 4677 Fax: (042) 26 4917	PHU A/H contact: Wollongong Hospital (042) 29 8233 Director/MOH: Dr David Jeffs
<b>New England Region</b> Dean House Dean St Tamworth 2340 Ph: (067) 66 2288 Fax: (067) 66 3003	PHU A/H contact: Answering Service (067) 66 2288 Director/MOH: Dr John Rooney
<b>North Coast Region</b> 31 Uralba St Lismore 2480 Ph: (066) 21 7231 Fax: (066) 22 2151	PHU A/H contact: Lismore Base Hospital (066) 21 8000 Director/MOH: Dr John Beard
<b>Northern Sydney</b> C/- Hornsby Ku-ring-gai Hospital Palmerston Rd Hornsby 2077 Ph: (02) 477 9400 Fax: (02) 482 1650	PHU A/H contact: Hornsby Ku-ring-gai Hospital (02) 477 9123 Director/MOH: Dr Don Holt
<b>Orana and Far West Region</b> 62 Windsor Pde Dubbo 2830 Ph: (068) 81 2235 Fax: (068) 81 2225	PHU A/H contact: Dubbo Base Hospital (068) 85 8666 Director/MOH: Dr Mark Jacobs
<b>South Eastern Region</b> Kenmore Hospital Taralga Rd Goulburn 2580 Ph: (048) 27 3432 Fax: (048) 27 3438	PHU A/H contact: Goulburn Base Hospital (048) 27 3111 Director/MOH: Dr Peter Hlavacek
<b>South West Region</b> 475 Townsend St Albury 2640 Ph: (060) 23 0350 Fax: (060) 23 0168	PHU A/H contact: Albury Base Hospital (060) 23 0211 Director/MOH: Dr Stephen Christley
<b>South Western Sydney</b> 13 Elizabeth St Liverpool 2170 Ph: (02) 827 8022 Fax: (02) 827 8030	PHU A/H contact: Liverpool Hospital (02) 600 0555 Director/MOH: Dr Greg Stewart
<b>Western Sydney and Wentworth</b> 13 New St North Parramatta 2151 Ph: (02) 890 6060 Fax: (02) 630 8187	PHU A/H contact: Westmead Hospital (02) 633 6333 Director/MOH: Dr Anthony Capon