

EVIDENCE-BASED ORAL HEALTH PLANNING

GUEST EDITORIAL

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This is the third issue in a series of four examining, from a public health perspective, the current and emerging issues in oral health. This issue examines planning for the oral health of populations and the potential contribution of good-quality research to both inform and drive this process.

Oral health resources are finite, and planning decisions should be determined by explicit priorities for care. Gavin Mooney and Glynis Newberry suggest that the principles of efficiency and equity should guide priority setting. They describe how the health economic technique of program budgeting and marginal analysis has been used on the Central Coast to establish priorities for dental services in a climate of diminishing funds.

An expanding volume of information from research is available to planners, policy makers and practitioners to inform decision making about health interventions and services. However, accessing, interpreting and evaluating this information is an increasingly daunting task. A new series of 12 Health Evidence Bulletins has recently been released by the Wales Office of Research and Development for Health and Social Care. In the second paper in this issue, Nicholas Phin, who directed the development of these bulletins, provides a brief introduction to them. One Bulletin in the series examines Oral Health and Clive Wright, from Dental Health Services Victoria, provides a commentary.

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In the March issue of the *NSW Public Health Bulletin*, a number of articles examined the relationship between periodontal disease and systemic health. This has stimulated a great deal of interest, and consequently the Bulletin has sought appraisals of the principal references supporting these claims. Christine Roberts and Charles Algert from the NSW Centre for Perinatal Health Services Research have reviewed the paper that suggests that periodontal infection may be a risk factor for preterm birth. They question: 'How strong is the evidence?' Geoffrey Tofler and Anthony Kull from the Department of Cardiology at the Royal North Shore Hospital have

reviewed the papers that infer a link between periodontal and cardiovascular disease in 'Cupid and the Tooth Fairy'.

Contact information for the principal dental officers and directors of public oral health services in NSW is included in this issue.

The fourth and final issue in the oral health series will consider the public health impact of oral diseases on the elderly, public health aspects of oral cancer, workforce issues, the surveillance of oral health and future directions for public oral health research. ☒

PRIORITY SETTING IN DENTISTRY: PUTTING TEETH INTO THE PROCESS

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INTRODUCTION

In principle, priority setting is simple. In practice, it seems more difficult. In dentistry, it is perhaps easier than in many other health care sectors.

From an economics perspective just two principles are needed to drive any priority-setting exercise: efficiency and equity. Efficiency refers to maximising the good that the available resources can provide. Equity refers to the just distribution of something or other.

However, difficulties arise at the following five levels:

- accepting that these are the necessary and sufficient principles
- defining 'the good' that is to be maximised in pursuing efficiency
- defining 'the something' that is to be justly distributed
- measuring 'the good' and 'the something'
- changing the philosophy of planning.

This article considers these five difficulties and indicates how dentistry on the Central Coast has used Program

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Budgeting and Marginal Analysis (PBMA) to formulate not only its priorities but its philosophy of planning.

PBMA ISSUES

Accepting efficiency and equity as the only principles

Too often, we believe, health service priorities are driven by the size of the problem rather than by a philosophy of 'best buys'.¹ The former is often couched in terms of needs—usually health needs—and has given rise to a major (and very often unproductive) industry of 'needs assessment', one variation of which is the 'burden of illness' approach promulgated by the World Health Organization and the World Bank.² Assessing community needs and measuring the burden of illness are often more productive of frustration and of unnecessary burdens on the analysts.³ They may have some limited relevance to equity, depending on how this is defined, but none to efficiency. Once one has measured total needs (we are not even sure that in principle or in practice such an entity has meaning), there is a requirement to decide what to do with the needs assessed. The principles we would advocate are that any additional resources be allocated in areas of need where the best benefits are to be gained. This is different from allocating resources to maximise the number of needs to be met. In the language of the economist, additional resources should be used efficiently to 'maximise the marginal benefits'.

What is intriguing here is that there is no need to measure total need! If there is an extra \$100,000 available, then the question is: how best to spend it? That can normally be

answered in efficiency terms without knowing the totality of needs. Efficiency is concerned with altering the balances of resources—'on the margin'—until benefit ('the good') cannot be increased further. Equity is concerned with ensuring that any resulting distribution is fair. In neither case is measurement of total need required. What we do need to know is the nature of 'the good' being bought and how fairness is to be conceived.

Defining 'the good'

What's the good of health care? The answer to this question is frequently interpreted or posited to be health (and health alone). This might be right, and certainly health is a benefit. But is it the only benefit? We doubt it. For example, in December last year, a workshop of senior decision makers at the Central Coast Area Health Service examined perceptions of the principles that drive resource allocation. It emerged that there were concerns beyond simply maximising the health of the population. There was interest in access and in respecting the dignity and autonomy of patients. There were concerns for equity and indeed several other potential effects of health service interventions.

There is no single solution to defining the good. However, it is difficult to see that it is purely health. Whatever it is, we would argue that it is important to try to define it as well as possible.

Defining 'the something' that is to be justly distributed

The main contenders here are equal health, equal access for equal need, and equal use for equal need. We do not advocate one over another. We do advocate that someone in a decision-making capacity must decide which is most important. Otherwise, the worry is that equity will remain something that all are in favour of in principle but fail to deliver in practice.

Measuring 'the good' and 'the something'

Clearly, the goal is to do this as well as possible by using the best available evidence. However, we would submit that defining 'the good' and 'the something' should precede the measurement. Too often, it seems that what is measurable becomes 'the good' or 'the something', with the consequence that 'the good' or 'the something' are inappropriately defined.

Changing the philosophy of planning

In the PBMA philosophy of planning, the emphasis is on the margin. It looks to see whether some movement of resources from one activity or one program to another might result in an increase in the overall amount of good produced.

DENTISTRY ON THE CENTRAL COAST

In 1995, a PBMA exercise was conducted in Community Dental Services on the Central Coast.⁴ The study was

successful, allowing immediate decisions to be made regarding priority choices in dentistry. The Commonwealth Dental Health Program was discontinued in August 1996, reducing the funds to adult dental services in the Central Coast Area Health Service by \$1.75 million, or two thirds of the budget for adult dental services. PBMA principles and the prioritised wish lists were revisited (see box). Resources were reallocated from areas of less good (or benefit) to areas where the good was maximised. While the dental services provided for adults in particular were still adversely affected by the budget cuts, revisiting the PBMA approach allowed the effects to be kept to a minimum.

PBMA, as a philosophy of planning, has been picked up by the Central Coast Area Health Service. The dental PBMA led not only to considering the use of PBMA longer term in dentistry, but also in mental health and in allied health. In addition, it has led to an examination of the principles underlying priority setting and resource allocation more generally by the Area Health Service. Most recently, it has led to the Central Coast Area Health Service deciding to pursue PBMA and other health economic exercises by employing a health economist (GM) part-time.

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Further information on PBMA as a means of priority setting and the development of 'wish lists' can be found in two previous issues of the *NSW Public Health Bulletin*: 'Program Budgeting and Marginal Analysis: a guide to resource allocation' (April 1995; 6[4]: 29–30) and 'Program Budgeting and Marginal Analysis in NSW' (October, 1997; 8[10]: 81–82). These back issues can be obtained from our Web site at www.health.nsw.gov.au/public-health/phb/phb.html.

EFFECTIVENESS INTO PRACTICE

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The almost exponential increase in the amount of information from research that is available to health professionals relating to new treatments, therapies and our understanding of disease processes is creating enormous problems for practitioners and policy makers alike. A new initiative being developed in Wales seeks to provide these two groups with straightforward statements about health which have clearly referenced evidence that has been critically appraised and subjected to a formal literature search across a wide range of sources. Oral health was identified as a key area for inclusion in the project and an oral health bulletin has been produced under the direction of Dr A.L. Glenn, a consultant in dental public health.

In 1995, it was estimated that a general physician needed to examine 19 articles a day, 365 days a year, in order to extract the information required to keep up-to-date in his or her speciality. There is no reason to believe this situation is any different in 1999 and, in fact, with the much greater emphasis on electronic communication, it may be worse. This type of information overload has implications not only for an individual's professional requirement to maintain acceptable standards of care and expertise, but also for the bodies responsible for setting and monitoring the professional standards and competencies of practitioners. In addition, it creates real problems for those trying to develop and implement policy: does the new treatment X offer any advantages over current practice; should a change in practice be supported, and when is it likely to be superseded?

Therefore, it was felt to be essential that clinicians and policy makers have easy access to clear and succinct

statements about health issues that were backed up by references that were up-to-date, indicated the strength of the evidence, had been rigorously and critically appraised and had been subjected to a formal literature search. The Health Evidence Bulletins, born from the work of the original Welsh Health Planning Forum, seeks to provide such a source of information, both in paper format and in electronic format through the World Wide Web. The layout of the bulletins was designed for easy reading and searching, and the hypertext links built into the electronic version enable many of the references cited to be accessed directly on screen.

Eight subject areas were chosen for the Health Evidence Bulletin relating to oral health:

- tooth decay
- periodontal diseases
- dentofacial anomalies
- oral cancer
- TM joint disorders and complex facial pain
- tooth wear and hypersensitivity
- dental injuries
- inherited dental anomalies.

The papers produced by a systematic literature search were first appraised by a clinical team, and then their products were scrutinized by external reviewers in an effort to both minimise bias and ensure that the final product was as robust as possible. The production of this current bulletin is seen only as a first stage. It is intended that the process will be repeated, incorporating new evidence as it becomes available and expanding the range of topics covered.

The *Oral Health* bulletin can be accessed through the Internet at www.hebw.uwcm.ac.uk, where paper copies may also be ordered. Nicholas Phin can be contacted by email at weightmana@cardiff.ac.uk. #

ORAL HEALTH: WELSH HEALTH EVIDENCE BULLETIN

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Oral Health is one in a series of 12 publications initiated by the Protocol Enhancement Project, Wales Office of Research and Development for Health and Social Care. The aim of the Health Evidence Bulletins—Wales is to provide 'the best current evidence across a broad range of evidence types and subject areas'.

The Protocol Enhancement Project for the *Oral Health* health evidence bulletin was developed and edited by both an internal oral health review group (namely, academic and public health expertise drawn from Wales) and an external advisory group drawn from prestigious dental academic institutions of the United Kingdom.

The randomised controlled trial (RCT) has been the 'gold standard' for evidence-based health research, and the bulletins include RCTs where available, but also sift through 'high quality evidence' from observational and

other studies. In this sifting process they use both an adaptation of the Bandolier hierarchy of evidence type,¹ and the health benefit notation system described by Enkin et al (1995).²

The protocol provides clear, contemporary statements on an oral health intervention, together with an indication of the strength of evidence to support the statement (hierarchy plus potential benefit), and citation of the source of the evidence. For example, the statement 'Fluoride varnishes reduce dental caries and are particularly recommended for special needs groups' cites evidence from two sources Hellestein and Steiner³ [Type I evidence—meta-analysis] and *Oral Health*⁴ [Type V evidence—expert opinion] and describes the health gain as 'beneficial—evidence clearly demonstrated'.

The health evidence bulletins make an important departure from the 'gold standard' RCT evidence base. They argue that many health issues do not lend themselves to investigation by RCT and that, by valuing evidence from RCTs more highly, interventions with limited effectiveness might be judged more worthy than those based on observation. Further, that information 'assigned as Type V evidence includes important reports of recommendations which *should rightly be highly regarded*' (author's emphasis). Many epidemiologists and quantitative purists may find this approach counter to the principle of the Cochrane Collaboration. Yet, in health fields such as dentistry and oral health, the contribution that observational and qualitative research has made to oral health gain is immeasurable. It is impossible to conduct a randomised clinical trial of water fluoridation. The closest one can get is a well controlled and rigorously conducted observational trial. Further, RCTs are extremely expensive. Oral health research, especially oral health promotional research, does not compete well for the funding for highly extensive and expensive studies. Consequently, opportunity for applying RCT principles to measuring, for example, the impact of frequency and form of sugar consumption on dental caries, or the impact of educating nursing home carers in the provision of oral health care to the elderly may be both impractical and inappropriate. More cost-appropriate evaluation may well lie in soundly structured qualitative, or less rigidly constrained quantitative, methods. Therefore, the *Oral Health* bulletin makes a valuable contribution to evidenced-based dentistry in the public health context. However, readers should be aware that the goal posts have been moved.

Oral Health reports more than 100 interventional statements in eight dental subject areas: tooth decay; periodontal diseases; dentofacial anomalies; oral cancer; temporomandibular joint disorders and complex facial

pain; tooth wear and hypersensitivity; dental injuries; and inherited dental anomalies. The statements cover areas in which there is professional controversy and important dental public health implications, for example, in the value of periodic dental examinations and the use of dental amalgam.

The Protocol Group supported the statement 'Regular clinical examination is recommended for the early detection of tooth decay, with radiographs (x-rays) to detect caries not visible on examination. The interval between successive clinical and radiographic examinations should vary according to the caries susceptibility of the individual', with a health benefit notation indicating that the intervention was beneficial and the effectiveness clearly demonstrated. Two citations, one providing Type IV evidence (well designed observational studies) and the other Type V evidence (expert opinion; influential reports and studies), supported the notation. Likewise, the statement 'Dental amalgam is an effective filling material. Amalgam restorations do not appear to be hazardous to the general health of the population' was supported by the Protocol group with a health benefit notation indicating a beneficial health outcome. Three citations were used to support the statement at three levels of evidence: Type III—'well designed interventional studies without randomisation'—Type IV and Type V.

Neither of these two important dental public health subject areas are measured easily by RCTs. Yet, the best research evidence available must be used by planners and decision-makers to ensure that rationality continues in the provision of public dental health services.

Statements within *Oral Health* are appraised clearly and critically. They represent the best evidenced-based practice available in dentistry measured against a defensible standard. This health evidence bulletin is strongly recommended to all dental practitioners and dental public health workers.

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PERIODONTAL INFECTION AND PRETERM BIRTH: HOW STRONG IS THE EVIDENCE?

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A recent *NSW Public Health Bulletin* article discussed the possibility that periodontal infection may be a risk factor for preterm birth.¹ One of the papers cited in support of this association was 'Periodontal infection as a possible risk factor for preterm low birth weight' by Offenbacher et al.² Such an association is potentially of major importance. In Australia, approximately seven per cent of births are preterm each year, and for many of these there is no known cause.^{3,4} Should an infectious cause be found, this would be a tremendously exciting result as, other than smoking, most risk factors for preterm birth are not modifiable. However, we believe the Offenbacher article provides only weak evidence, if any, of a causal association between periodontal disease and preterm birth because of significant methodological problems in the study.

Offenbacher's study results suggest that periodontal disease may be a risk factor for preterm low birthweight (PLBW) infants. But what the study literally shows is a very strong association between PLBW and a variable the authors have created, Extent 3:60. This is a yes/no variable of dental disease, 'yes' meaning that a woman had clinical attachment loss (CAL) of 3+ mm affecting 60 per cent or more of her dental sites. CAL is a measure of the loss of support, both soft tissue (gum) and hard tissue (bone) around a tooth caused by periodontal disease. It is measured in millimetres and is the distance from the junction between the enamel (covering the crown of the tooth) and the cementum (covering the root of the tooth) and the base of the periodontal pocket (the point where the gum meets the tooth root).⁵

The authors seem to suggest that the Extent 3:60 variable was selected in order to have a tighter confidence interval around their result. The cases in the study had an adjusted odds ratio (aOR) of 7.5 for having Extent 3:60. However, the authors state that 'mean CAL measures are generally an insensitive measure of disease'. An expert opinion on the study factors (periodontal disease, how it is assessed, other causes and its relationship with infection and antibiotics) would be of considerable interest.

The other evidence from the study for an association between periodontal disease and PLBW is not nearly as dramatic. The differences in extent and severity of clinical attachment loss between cases and controls were not great

when reported as continuous variables and were marginally statistically significant.

Other methodological questions hover over this study. Unusually, case status is defined as preterm birth in the *current or a previous pregnancy plus* birthweight < 2500 g. In NSW, only 60 per cent of preterm infants are < 2500 g, and it is unclear why the authors have chosen to select on size as well as maturity. Although called a case control study, it appears to be a convenience study on a group of volunteers from the University of North Carolina (UNC) Prenatal Care Clinic. The women in the study differ from the UNC study base, with black women markedly over-represented. Maternal race was the only factor described for the entire UNC population. The authors also state that 'The mean age for cases was ... not significantly different from controls.' Yet a comparison of the mean ages and standard deviations shows that the controls were significantly younger than the cases ($p < 0.01$). All of this raises questions as to how the controls were selected and how representative they are of the general population.

There were only 31 controls for the 93 cases in this study, an unusually low ratio. It would appear that 16 of the controls were recruited at an antenatal clinic, and 12 of these had their periodontal assessment then. The examiners could hardly have been blinded to the likelihood that these pregnant mothers would be controls. Another difficulty is with the reported protective effect of cystitis and bacterial vaginosis, both risk factors for preterm birth.^{6,7} The authors speculate that the strongly protective effect of a history of cystitis (aOR = 0.15, 95 per cent CI 0.02–0.92) or the presence of bacterial vaginosis in the current pregnancy (aOR = 0.10, 95 per cent CI 0.01–1.74) is due to the use of systemic antibiotics for these conditions. However, this appears to contradict the methods that indicate that women treated with antibiotics during the current pregnancy were excluded.

Although it is stated that data were collected, other risk factors for preterm birth (multiple pregnancy, antepartum haemorrhage, pregnancy-induced hypertension etc) that may confound the relationship with Extent 3:60 are not described, nor are they controlled for in the analysis.

In summary, the Offenbacher study provides evidence of a strong association between PLBW and a constructed outcome variable, Extent 3:60, among a group of mothers who may or may not be representative of the general population. It also seems to provide evidence that a history of [treated] cystitis or bacterial vaginosis is protective against PLBW. Clearly these results need to be interpreted with caution. Because preterm birth is an important problem, further research is warranted to see if these results are repeatable by other investigators.

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CUPID AND THE TOOTH FAIRY: THE LINK BETWEEN CARDIOVASCULAR DISEASE AND ORAL HEALTH

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The presence of a link between periodontal and cardiovascular disease is supported by epidemiological publications and studies of biological mechanism. Although still unproven, a causal relationship is attractive for several reasons. First, it fits with current thinking about atherosclerosis as an inflammatory disorder and the contribution from infective processes. Second, it suggests that current cardiovascular risk assessment could be improved by dental examination. Third, and of great potential clinical importance, prevention and treatment of periodontal disease could reduce cardiovascular disease (CVD).

Recent prospective cohort and case-control analyses by Beck and Loesche and their colleagues support this relationship.^{1,2} Beck analysed 1,147 men from the US Normative Aging and the Dental Longitudinal studies.¹ Mean alveolar bone loss scores were significantly associated with total coronary heart disease (odds ratio 1.5), fatal coronary heart disease (1.9) and stroke (2.8). In a case-control study of 320 veterans who were either seen at a dental outpatient clinic ($n = 206$) or in a long-term nursing home ($n = 114$), Loesche found a statistically significant association between coronary heart disease and

several oral health parameters, such as the number of missing teeth, plaque benzoyl-DL-arginine-naphthylamide (BANA) test scores and salivary levels of *Streptococcus sanguis*.²

In epidemiological studies such as these, questions arise regarding potential confounders. Besides traditional risk factors such as age, cigarette smoking and diabetes mellitus that are common to both dental and CVD, both conditions are modified by factors such as level of education, income, stress and social isolation. Thus, the associations may primarily reflect the fact that people who are more health conscious are at lower risk of coronary heart disease and have better dental health. The decision to extract teeth, in addition to the condition of the teeth, is also influenced by financial considerations and access to health care, as well as attitudes about the value of oral health. Since these behaviours and attitudes are hard to measure, controlling for them is difficult and surrogates for healthy behaviour (for example, level of physical activity) should be considered. Beck and colleagues included level of education in their analytic models, along with age, body mass index, smoking status, blood pressure, family history of heart disease, cholesterol and alcohol consumption. Significant associations remained in the study by Beck as well as others that provided adjustment models, although questions remain as to how complete such adjustments are.

Diet is another possible explanation for the relationship between tooth loss and CVD. While a poor diet rich in sugar may lead to both periodontal disease and CVD, tooth

loss can then lead to harmful changes in diet, including reduced intake of fibre, fruit and vegetables and a higher sweet intake. Dietary data are difficult to report and were not included in the analyses by Beck and Loesche. Other unaccounted dietary factors such as cooking or processing could also impact on both periodontitis and CVD. Tooth loss may also lead to poor self-image and psychological stress that increases risk of CVD. Cigarette smoking is increasingly accepted as a risk factor for periodontitis and has been shown to affect different aspects of the host immune response. While the Beck and Loesche studies considered smoking history, their analyses may fail to fully address the harmful role of nicotine with regard to both dental and CVD. Unmeasured genetic factors may also predispose to both disease processes.

While a cause and effect relationship remains uncertain,^{3,4} there are compelling biological links between infection and inflammation, and increased cytokine activity, monocyte activity, increased lipopolysaccharide activity and procoagulant changes.⁵ Periodontal disease provides a strong and chronic stimulus to these inflammatory responses that are associated with atherosclerosis.

It is important that further prospective cohort and case-control studies are undertaken in both men and women that carefully take into account potential confounders. Clinical studies should be performed to determine whether improved periodontal care will reduce fibrinogen, C-reactive protein, other inflammatory factors and other intermediate markers for cardiovascular risk factors.⁶ Although difficult to construct, randomised clinical trials

will be needed to address the relationship between periodontal disease and CVD more completely. For many reasons, better self-care and professional care to minimise periodontal disease is recommended. When teeth have to be extracted, adequate prostheses and counselling to maintain a good diet are needed. If the possible link between dental disease and CVD can be more firmly established, it will be exciting to contemplate the opportunity to reduce the risk of CVD through improved dental care.

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The Public Health Bulletin wishes to acknowledge the work of the oral health editorial committee in producing this series on oral health. Members of the committee are:

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Barbara Taylor, Head of the Periodontics Department, United Dental Hospital

Richard Widmer, Head of the Department of Dentistry, New Children's Hospital

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Alan Patterson, Chief Dental Officer, Oral Health Branch, NSW Health Department.

Mary Osborn also contributed to the series during her Public Health Officer placement in the Oral Health Branch. In particular, we thank Jane Bell who has played a significant role in coordinating the series.

PRINCIPAL DENTAL OFFICERS AND DIRECTORS OF ORAL HEALTH SERVICES IN NSW AREA HEALTH SERVICES, MAY 1999

RESPONSIBILITY FOR ADMINISTERING DENTAL SERVICES IN AREA HEALTH SERVICES LIES WITH THE RESPECTIVE PRINCIPAL DENTAL OFFICERS AND DIRECTORS OF ORAL HEALTH SERVICES LISTED BELOW. FURTHER INFORMATION ABOUT ORAL HEALTH SERVICES IN YOUR AREA CAN BE OBTAINED FROM THE APPROPRIATE OFFICER OR DIRECTOR

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NHMRC CLINICAL TRIALS CENTRE: FROM RESEARCH TO EVIDENCE TO POLICY

The National Health and Medical Research Council (NHMRC) Clinical Trials Centre, part of the University of Sydney, was established more than 10 years ago under the auspices of the National Health and Medical Research Council to promote and coordinate large-scale clinical trials in Australia and internationally. It is now a substantial institution contributing to the development of evidence-based medicine in Australia.

The Centre's purpose is to improve health outcomes, clinical practice and public health policy in Australia and internationally through the better use of clinical trials research. In other words, it aims to provide clinical evidence and also to lend its expertise to fostering the development of better evidence and better health policy for those working in fields of health in Australia. There are four main branches of this aim:

- to provide high-quality evidence of the effectiveness of health care interventions of major importance through large-scale randomised trials
- to be a national resource and centre of international standing in the design, conduct, analysis and interpretation of randomised clinical trials
- to provide high-quality education and training in the design, conduct, analysis and evaluation of clinical trials
- to promote and improve evidence-based health care through the use of randomised trials and clinical trial registries.

The clinical trials themselves provide clinical practitioners and policy makers with statistically robust information on the benefits and risks of treatments. Comprehensive evidence is available from long-term trials of thousands of patients, particularly those with cancer and cardiovascular diseases. Further, the Centre undertakes quality-of-life research and economic evaluations to assess the cost-effectiveness of treatments, and provides randomisation and trial registry services for those undertaking their own trials.

Staff at the Centre offer specialist advice and consultation on issues relating to trials design, conduct and analysis.

The Centre's educational service activities include offering regular short courses in statistical methods, research design and data management throughout the year. In September 1999, the Clinical Trials Centre will conduct the first International Clinical Trials Symposium. Themes include new statistical techniques, quality-of-life and economic assessment, changing health policies through the results of clinical trials, and the future of health care evaluation. ☒

Further information and advice on collaborative research projects, consultancy, the symposium and education courses are available by telephone (02) 9562 5000, by fax (02) 9565 1863, by email enquiry@ctc.usyd.edu.au, or from the Web site www.ctc.usyd.edu.au.

NSW PUBLIC HEALTH BULLETIN

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The *Bulletin* aims to provide its readers with population health data and information to motivate effective public health action.

Submission of articles

Articles, news and comments should be 1000 words or less in length and include a summary of the key points to be made in the first paragraph. References should be set out in the Vancouver style, described in the *New England Journal of Medicine*, 1997; 336: 309-315. Send submitted articles on paper and in electronic form, either on disc (Word for Windows is preferred), or by email. The article must be accompanied by a letter signed by all authors. Full instructions for authors are available on request from the editor.

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INFECTIOUS DISEASES, NSW: MAY 1999

TRENDS

Reports of notifiable infectious diseases reflect usual patterns for this time of year (Figure 1, Table 1). However, **influenza** appears to have arrived a little early this season (see below), and cases of **gonorrhoea** continue to be reported among young men in eastern Sydney (see earlier *NSW Public Health Bulletin* reports).

THE IMPORTANCE OF INFECTION CONTROL

Alison Rutherford, Leena Gupta and Patrick Maywood

Central Sydney Public Health Unit (CSPHU) recently investigated a centre in Campsie where an unqualified person had been practising as a doctor and performing minor surgical operations. The centre had been obtaining clients through advertisements placed in local ethnic newspapers. The person had recently been prosecuted by the NSW Medical Board, which then advised the Public Health Unit in May 1999 because of possible public health concerns.

On receiving notification from the Medical Board, CSPHU established an inquiry under Section 71 of the *Public Health Act 1991* to inspect the premises and to view records. This inspection suggested that the transmission of blood-borne viruses may have been possible in the past because of the poor standards of infection control at the centre. The unit found and copied records of persons who had visited the centre. The records were written in languages other than English, were incomplete in their details and were stored haphazardly. It is believed from the records and discussions with some local people that many who had attended the centre may have been from non-English speaking backgrounds.

Because of the poor and incomplete record keeping, it was not possible to use the records obtained to contact everyone who had attended the centre. Therefore a media release was issued advising anyone who had visited the centre that they might be at risk of blood-borne virus transmission. The media release urged them to contact their local doctor or public health unit and suggested that they be tested for blood-borne viruses. Broad coverage was achieved in mainstream and ethnic press.

Other public health action included:

- attempting to interview the person concerned, with the assistance of an interpreter, to establish the scope and extent of what had occurred at the centre
- translating all records available from the centre in order to write to those whose contact details were discernible
- notifying the local divisions of general practice, other public health units, the relevant community medical association, and local councils of the situation and

advising them of steps to be taken should they be contacted by people who had visited the centre

- establishing a protocol for responding to telephone inquiries and ensuring necessary care and/or counselling for people who might contact the CSPHU
- issuing a warning letter to the practitioner advising them of their obligations under the *Public Health Regulation 1991*.

Using powers granted under the *Public Health Act 1991*, staff from the CSPHU revisited the premises with suitably qualified clinical waste removal contractors.

The investigation relied on liaison with a range of agencies, individuals and organisations including: the local police, councils and general practitioners; AIDS/Infectious Diseases and Legal and Pharmaceutical Services Branches of the NSW Department of Health; and the NSW Medical Board. Further liaison with the NSW Medical Board and referral of the matter to the NSW Health Care Complaints Commission is planned.

HEPATITIS A IN A BAKERY WORKER

Gerard Finnigan and Tony Kolbe

On Friday, 30 April, the Greater Murray Public Health Unit was notified by telephone of a positive hepatitis A serology (anti-HAV IgM) result in a bakery worker who had presented to an Emergency Department four days earlier with a two-day history of nausea, malaise and vomiting.

Standard follow-up identified the case as a worker whose job was to manually detach bread rolls from bunches and insert the rolls into plastic bags. This person had attended work for 12 days while potentially infectious and was involved in processing approximately 140,000 bread rolls for distribution to the ACT and rural areas of western and southern NSW. Gloves were not used by workers on this production line.

Previously, bread products handled by workers infectious with hepatitis A have been associated with hepatitis A outbreaks.^(1,2) To advise consumers of the potential, but low, risk of hepatitis A infection, a collaborative communication strategy was developed between the bakery, NSW Department of Health, ACT Health and the public health units within the areas affected. A telephone advisory service was established by the company and media releases encouraged the public to contact local public health units with any queries. The bakery was able to provide details of the location of distribution—stores, dates and quantities of bread rolls sold—which assisted in qualifying the risk for some public queries. To date, no cases of hepatitis A have been linked with consumption of bread rolls from this bakery. Surveillance continues.

FIGURE 1

REPORTS OF SELECTED INFECTIOUS DISEASES, NSW, JANUARY 1994 TO APRIL 1999, BY MONTH OF ONSET

These are preliminary data: case counts in recent months may increase because of reporting delays

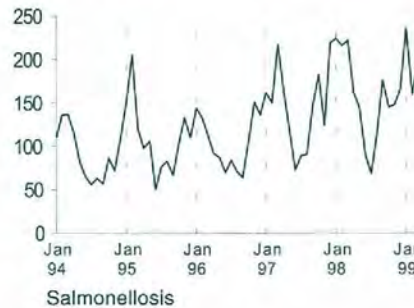
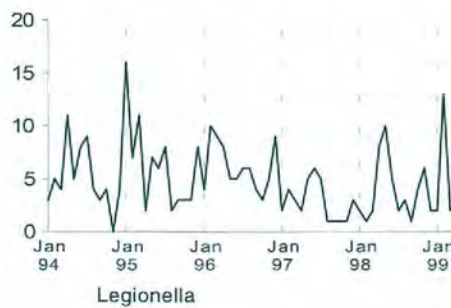
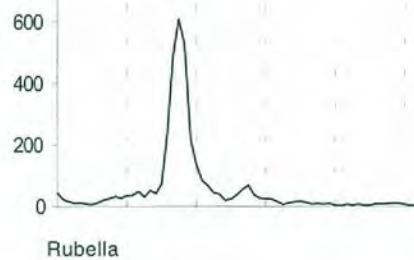
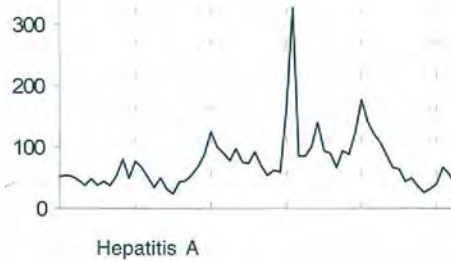
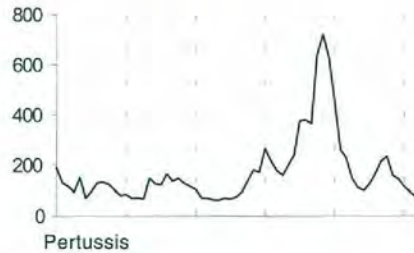
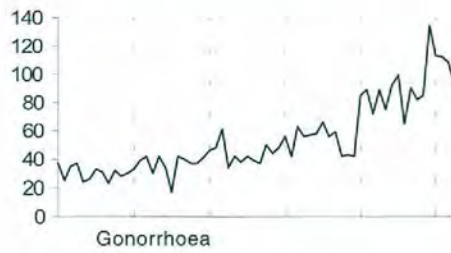
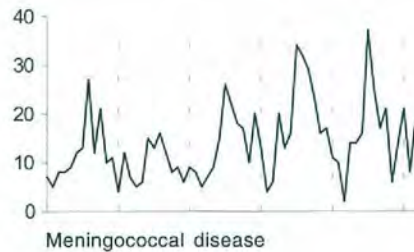
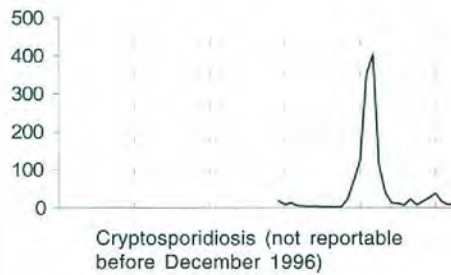
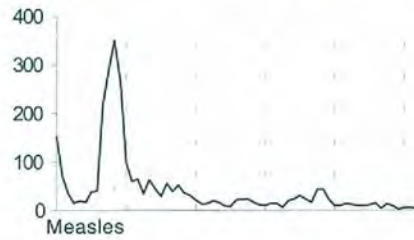
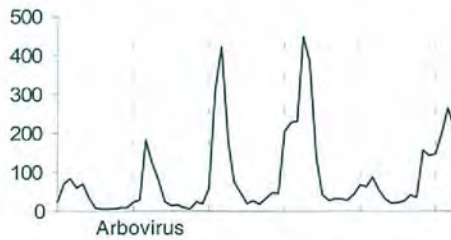


TABLE 1

NOTIFICATIONS RECEIVED IN APRIL 1999 BY AREA HEALTH SERVICES

Condition	Area Health Service (1999)																Total		
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	for Apr+	To date+
Blood-borne and sexually transmitted																			
AIDS	3	1	—	1	—	1	2	—	5	—	—	—	—	—	—	—	—	13	73
HIV infection*	—	—	—	—	—Reported second monthly—					—	—	—	—	—	—	—	—	—	89
Hepatitis B: acute viral*	—	—	—	—	—	—	—	—	2	—	—	1	—	—	—	—	—	3	21
Hepatitis B: other*	69	36	6	4	2	3	3	4	55	5	2	5	1	3	7	6	2	213	1134
Hepatitis C: acute viral*	2	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	—	4	29
Hepatitis C: other*	100	44	2	27	4	53	43	14	81	46	37	18	2	31	4	19	29	556	2838
Hepatitis D: unspecified*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	1	2
Hepatitis, acute viral (not otherwise specified)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chancroid*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Chlamydia (genital)*	18	10	4	8	2	5	23	15	47	17	14	2	3	5	11	10	2	200	757
Gonorrhoea*	29	9	1	3	—	—	—	2	50	1	1	1	2	—	6	1	—	106	462
Syphilis	17	3	3	2	1	2	—	1	13	2	1	2	—	2	2	2	—	53	218
Vector-borne																			
Arboviral infection*	—	7	4	4	1	11	40	30	4	81	18	3	1	1	3	8	30	246	834
Malaria*	—	3	—	2	—	—	—	2	5	1	1	—	—	—	—	3	—	18	79
Zoonoses																			
Brucellosis*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Leptospirosis*	—	—	—	—	—	—	—	—	—	3	1	1	—	—	—	—	—	5	16
Q fever*	—	—	—	—	—	—	—	1	—	2	1	1	1	—	1	1	—	8	47
Respiratory and other																			
Blood lead level*	2	1	—	—	—	1	3	—	—	1	—	—	—	—	9	—	—	17	247
Legionnaires' disease*	—	2	1	—	—	—	—	—	—	—	—	1	—	—	—	1	—	5	22
Leprosy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Meningococcal infection (invasive)	—	—	1	1	1	—	1	3	3	—	1	—	1	1	1	—	—	14	59
Mycobacterial tuberculosis	2	9	2	1	—	2	—	1	2	—	1	—	—	—	—	—	—	20	128
Mycobacteria other than TB	3	4	—	1	—	—	2	—	5	—	—	3	—	—	—	1	—	19	136
Vaccine-preventable																			
Adverse event after immunisation	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	24
<i>H. influenzae</i> b infection (invasive)*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3
Measles	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	15
Mumps*	—	1	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	2	7
Pertussis	3	5	3	5	10	4	13	1	10	—	2	—	2	3	—	3	2	67	427
Rubella*	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	1	15
Tetanus	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Faecal-oral																			
Botulism	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholera*	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	1	2
Cryptosporidiosis*	—	1	1	—	—	—	1	—	3	2	1	1	—	—	—	—	2	12	84
Giardiasis*	6	13	7	2	2	7	4	2	23	10	6	6	1	3	1	3	1	98	442
Food-borne illness (not otherwise specified)	—	—	—	—	—	—	—	—	—	2	—	—	—	—	—	—	—	2	8
Gastroenteritis (in an institution)	3	—	—	—	—	—	—	—	—	—	—	—	—	—	1	—	—	4	64
Haemolytic uraemic syndrome	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Hepatitis A*	7	5	6	1	2	1	1	—	13	—	—	1	—	—	—	1	3	41	202
Hepatitis E*	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	1	1
Listeriosis*	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	1	7
Salmonellosis (not otherwise specified)*	17	22	25	3	14	6	13	20	17	21	9	2	2	9	5	1	3	191	803
Typhoid and paratyphoid*	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	8
Verotoxin producing <i>E. coli</i> *	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* lab-confirmed cases only

+ includes cases with unknown postcode

CSA = Central Sydney Area

WEN = Wentworth Area

HUN = Hunter Area

NRA = Northern Rivers Area

MAC = Macquarie Area

GMA = Greater Murray Area

NSA = Northern Sydney Area

SWS = South Western Sydney Area

ILL = Illawarra Area

MNC = North Coast Area

MWA = Mid Western Area

SA = Southern Area

WSA = Western Sydney Area

CCA = Central Coast Area

SES = South Eastern Sydney Area

NEA = New England Area

FWA = Far West Area

FIGURE 2

NSW GP SENTINEL SURVEILLANCE: INFLUENZA-LIKE-ILLNESS (ILI), BY WEEK OF CONSULTATION, WITH HISTORICAL COMPARISONS



References

1. Warburton AR, Wreghitt TG, Rampling A, et al. Hepatitis A outbreak involving bread. *Epidemiol Infect* 1991; 106:199–202.
2. Weltman AC, Bennet NM, Ackman DA, et al. An outbreak of hepatitis A associated with a bakery. *Epidemiol Infect* 1996; 117:333–341.

NSW INFLUENZA SURVEILLANCE ACTIVITY UPDATE

Rob Menzies

This report is prepared from weekly *NSW Influenza Surveillance Activity Updates*, produced in collaboration with: the AIDS/Infectious Diseases Branch of the NSW Department of Health; South East Area Laboratory Service; Institute of Clinical Pathology and Medical Research Westmead; South West Area Pathology Service; Pacific Laboratory Medical Services; participating general practitioners; and the Hunter, New England, Northern Sydney and Southern Public Health Units.

Influenza activity during May continued at a moderate level and was higher than the level in April.

Clinical Activity

Rates of influenza-like illness reached levels similar to those reported for the same period last year. Weekly reports

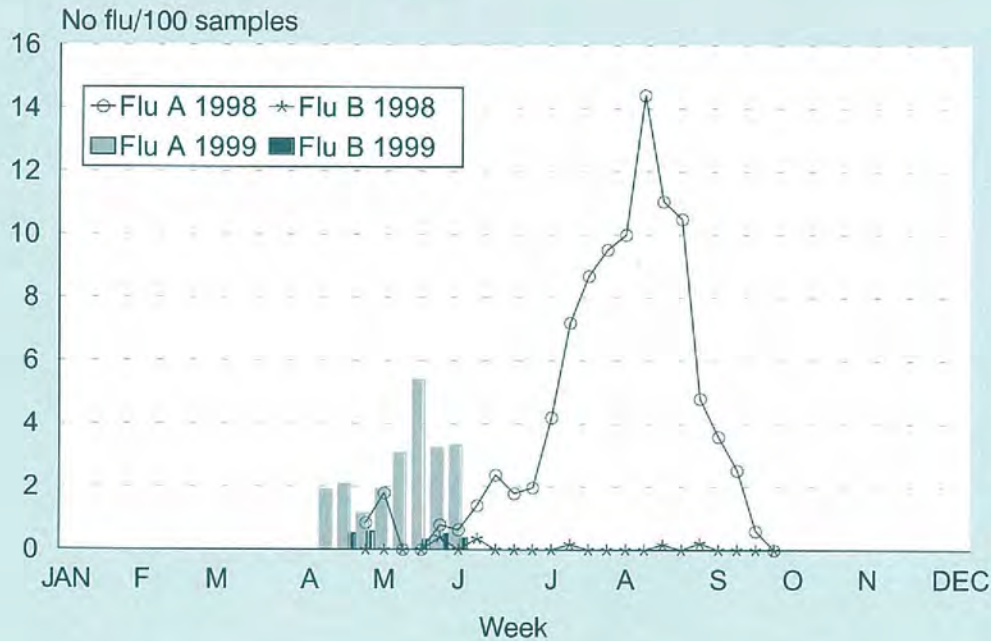
were received from approximately 30 general practitioners (GPs) through four public health units covering more than 3500 consultations per week (Figure 2).

Virological Activity

The laboratory reporting rate for influenza A diagnoses increased in May to a level higher than that for the same period last year. In the last week of May, 14 cases of influenza A (13 virological, one serological), three cases of influenza B (two virological, one serological) and 67 respiratory syncytial virus were reported. In the corresponding week last year, two cases of influenza A, one of influenza B and 71 of respiratory syncytial virus were reported (Figure 3).

Directed Virological Surveillance

During May, approximately 15 GPs submitted specimens from up to five patients a week who had influenza-like illnesses. Of 54 samples submitted, five were positive for influenza A and one for influenza B (11 per cent). This is similar to the overall positive rate of 14 per cent for last year. No other respiratory viruses were detected. Samples were taken from a broad age range (0–79 years) of patients. Approximately 30 GPs from the Central Sydney, South Eastern Sydney, Western Sydney, Wentworth, Central Coast, Hunter, Illawarra, Greater Murray and Southern areas are participating in the scheme this year.

FIGURE 3**NSW INFLUENZA VIRUS ISOLATION RATES, 1998–1999****International Surveillance**

The 1998–99 season in the United States included widespread epidemic activity that peaked in mid-March and was similar in severity to the previous two seasons. In Europe, influenza activity reached epidemic levels in most countries that reported to the World Health Organization. The predominant strain in most countries was A(H3N2): A/Sydney/5/97-like. Influenza B was also isolated in most countries and was the predominant strain in parts of Europe. No country has reported significant influenza activity during May. New Zealand has reported only sporadic activity, Chile reported a regional outbreak in early May and Argentina has reported no activity.

INFLUENZA OUTBREAK IN A METROPOLITAN BOARDING SCHOOL

Lorraine Young, Mark Ferson, Mary Short and David Townson

In the first week of May, the South Eastern Sydney Public Health Unit (SESPHU) was notified by the school health nurse from a local boarding school of a sudden outbreak of a respiratory illness among student boarders. The outbreak commenced on the weekend of the 1 and 2 May 1999. By Wednesday, 5 May, at least 50 students were affected by a similar illness, which was characterised by a

high fever of up to 39°C, sore throat and cough. Seven of the 11 live-in boarding staff members had also been affected.

Because new cases continued to occur, on Thursday, 6 May, the SESPHEU organised for the collection, transport and virological testing of nasal swabs from any new cases. This was done in conjunction with the school's general practitioner, the school nurse, staff of the South East Area Laboratory Service Virology Department, and St Vincent's Hospital Microbiology Department. Three nasal swabs were collected on Friday, 7 May, and the laboratory reported the following day that all three specimens were positive for influenza.

The school accommodates a total of 180 boarders and 11 live-in boarding staff. By Wednesday, 12 May, at least 77 boarders and seven of the 11 staff members had reported illness. The exact number of student boarders affected was not ascertained because many had gone home during this period. The majority of cases presented during the first three to five days of the outbreak, with some cases continuing to occur up until the 12th day. There had also been reports of cases among day students and staff; however, these have been neither documented nor confirmed. ☒

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