

EDITORIAL: STRATEGIES TO ACHIEVE HEALTH GAINS FOR CHILDREN

GUEST EDITORIAL

Victor Nossar

Service Director, Department of Community Paediatrics, South Western Sydney Area Health Service

Garth Alperstein

Community Paediatrician, Community Health Services, Central Sydney Area Health Service

This issue is the third in the series about improving the health of children in New South Wales. It looks at evidence-based strategies capable of achieving needed health gains for children.

It is often easier to measure children's health indicators than it is to improve them. The articles in this issue aim to assist health professionals to identify relevant strategies likely to lead to improvements in children's health.

The first article, 'Health gain for the children and youth of Central Sydney: a strategic plan' introduces readers to the broad concepts that necessarily underpin the development of a strategic plan to improve the health of children (p. 108). Next, in 'Efficacy of interventions: an evidence-based approach', readers are shown how an evidence-based approach can be used to select the most effective health interventions in such a strategic planning process (p. 109). Dr Katrina Williams from the New Children's Hospital, Westmead, explains how the Cochrane Collaboration can assist in this process (p. 110). The article by Ms Suzanne Pope and Professor Beverley Raphael examines how a public health framework can usefully be applied to the mental health of children and adolescents (p. 114).

These articles, along with a review of child health promotion programs being undertaken in NSW, highlight the importance of selecting strategies capable of achieving health gain for children, based on the best available evidence.

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HEALTH GAIN FOR THE CHILDREN AND YOUTH OF CENTRAL SYDNEY: A STRATEGIC PLAN

Garth Alperstein

*Community Paediatrician, Community Health Services,
Central Sydney Area Health Service*

Victor Nossar

*Service Director, Department of Community Paediatrics,
South Western Sydney Area Health Service*

The NSW Government's decision to relocate the Royal Alexandra Hospital for Children (one of Sydney's tertiary children's hospitals) from the inner city to the western area of Sydney in November 1995 precipitated the need to develop a strategic plan for children and youth in the Central Sydney Area. The purpose was to determine what new services should be established. This article describes the conceptual framework underpinning the development of this strategic plan and the broad outcomes of the process.

NATIONAL HEALTH PRIORITIES FOR CHILDREN AND YOUTH

National health priorities provided the framework and direction for the development of this local strategic plan for child and youth health services. *Health goals and targets for Australian children and youth* set priorities for child health in 1992.¹ It was followed by the release of the national government policy, *The health of young Australians*,² which endorsed these priorities and was adopted by Australian Health Ministers Advisory Council in 1995. In 1993 the NSW Health Department took a complementary direction in health service development, focusing on population health outcomes and intersectoral collaboration to achieve maximum health gain for the people of NSW.

THE STRATEGIC PLANNING PROCESS

The strategic planning process for Central Sydney took a population-health-outcomes focus from the beginning. The approach used was adapted from the work of the Welsh Health Planning Forum for the National Health Service in Wales, which is described in *Protocol for investment in health gain. Maternal and early child health*.³

The aim of the Central Sydney strategic plan was to consider the health status of the local population and then any evidence-based interventions to provide solutions for high-priority health needs.⁴ Central Sydney has adopted the World Health Organization's definition of health: 'not only the absence of disease, but also the physical, emotional, social and spiritual wellbeing of the individual and the community'. The strategic plan acknowledged the influence that politics, economics and the environment have upon health and sought to include the other services and organisations that contribute to the health and wellbeing of the community.

Consequently, the strategic plan for child and youth health services in Central Sydney is explicitly:

- outcome oriented—focusing on the national health goals and targets for Australian children and youth to set priorities for health service action
- evidence based—using data describing the health status of the population and research about health interventions
- focused on equity and social justice—identifying groups in the population that have greater need for health service intervention because of relative social disadvantage
- comprehensive in approach—involving all relevant health and non-health organisations and the community in deciding on the priority of health issues, in planning responses through involvement of the advisory group and working panels, and through community consultations with specific reference groups.

The strategic plan provides a conceptual framework and strategic directions to develop services and target resources to promote health gain for the children and youth of Central Sydney. It was intended that the model could be used by other Area health services and could also provide some key information for those Areas.

Rather than propose radical changes in service delivery over a short term, the strategic plan supports a gradual shift in focus. Health-promotion and illness-prevention programs that have been shown to be effective and that are capable of addressing the high-priority health needs of the community over the longer term will be balanced against the need for acute health care services. To ensure community support, the strategic plan was developed in collaboration with the local community, and consensus was reached regarding the approach taken.

Consideration of the strategic plan shows that there needs to be greater emphasis on health-promotion and illness-prevention activities if health gain for the population as a whole is to be achieved and growth in expenditure on hospital and clinical treatment services is to be moderated. The commitment of Central Sydney Area Health Service to improving health outcomes for the children and youth of Central Sydney can be seen in the development and endorsement of this strategic plan.

REFERENCES

1. *Health goals and targets for Australian children and youth*. Canberra: Child, Adolescent and Family Health Service and Department of Community Services and Health, 1992.
2. *The health of young Australians. A national health policy for children and young people*. Canberra: Australian Government Publishing Services, 1995.

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EFFICACY OF INTERVENTIONS: AN EVIDENCE-BASED APPROACH

Garth Alperstein

*Community Paediatrician, Community Health Services,
Central Sydney Area Health Service*

Victor Nossar

*Service Director, Department of Community Paediatrics,
South Western Sydney Area Health Service*

This article describes how an evidence-based approach was used to determine the most effective interventions to support the health of the children and adolescents of the Central Sydney Area.

Evidence-based medicine has been defined as 'the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients'.¹

The strategic plan *Health gain for children and youth of Central Sydney*² sought to apply these concepts to interventions for populations rather than just for individuals. This approach has also been adopted by others, including the Canadian Task Force on the Periodic Health Examination and the Welsh Health Planning Forum.^{3,4} The Canadian task force encompassed the whole lifespan, and considered a number of child health issues. The Welsh group analysed child health issues more from the clinical perspective of hospital treatment and rehabilitation. The Central Sydney plan, however, focused more on population-based health promotion and prevention interventions for children and adolescents.

THE PROCESS

Evidence-gathering

Having described the health status of the children and young people in Central Sydney, the plan sought to identify interventions capable of addressing these health issues. Research was undertaken into available intervention strategies utilising the work of the abovementioned groups, MEDLINE searches, literature reviews and consultation with expert advisers for each of the identified issues. It was sought to establish, from available evidence:

- what is known to work
- what is known *not* to work
- unproven strategies or conflicting findings.

Evidence-rating

Recommendations were then made about each intervention, using an established rating scale,³ which assesses efficacy on the basis of best available evidence and grades interventions accordingly. The grades are:

- A good evidence to support implementation
- B fair evidence to support implementation
- C inconclusive evidence to support implementation or abandon intervention

- D fair evidence to abandon intervention
- E good evidence to abandon intervention.

These ratings were awarded after analysis of the quality of the available evidence, taking into consideration the methodology described in the identified studies and any advice from relevant experts. The quality of the evidence was assessed according to the following criteria:

- I at least one properly randomised controlled trial
- II-1 well-designed controlled trials without randomisation
- II-2 well-designed cohort or case-control studies, preferably from more than one centre
- II-3 comparisons of times or places with or without interventions
- III opinions of respected authorities, based on clinical experience, descriptive studies or reports of expert committees.

Generally, the strongest recommendations (a rating of A or E) were reserved for interventions whose efficacy was supported or negated by high-quality evidence (I or II-1). Interventions for which there was evidence assessed as II-2 and II-3 were generally awarded a rating of B or D. Where there was limited evidence to either support or negate an intervention or strategy, the C rating was assigned to that intervention.

Review of interventions

All of the available health interventions or strategies were also reviewed to determine whether they formed a part of current services, offered by Central Sydney Area Health Service (CSAHS) or by other organisations within Central Sydney. The interventions were then categorised as either 'yes', 'no' or 'partial', in regard to whether a particular intervention was being implemented in Central Sydney.

In an attempt to further define the optimal approach to achieve the desired child health outcomes, each strategy was then reassessed in light of its assigned rating and the quality of evidence supporting it, alongside formal consideration of its implementation status. Taking all these factors into account, an estimation was then made about whether there existed an opportunity for either health gain or for reorientation of that service.

Examples

For example, if a particular strategy was assigned a high rating (A or B) and sound methodology had been used in the supporting studies identified (I, II-1), and, as well, if the strategy or activity was not being implemented at that time by CSAHS or the other services in Central Sydney, then an opportunity for health gain would be created from the implementation of that strategy (for example, a comprehensive home visiting program).

Conversely, if there was good evidence that a strategy had low efficacy or was ineffectual, and that activity was being implemented at that time by CSAHS or other services, this would indicate that there was an opportunity to reorient the resources being used by that service (for example, distraction hearing testing of all seven-month-old babies).

CONCLUSION

In the final analysis, it was recognised that not all interventions lent themselves to this type of evidence-based evaluation (especially not the interventions of a community development type). The relevance and importance of these kinds of interventions need to be assessed by other means than the application of this kind of evidence-based methodology. As Sackett stated, 'evidence based medicine is not restricted to randomised controlled trials and meta-analyses. It involves tracking down the best external evidence with which to answer the clinical question'.¹ He particularly cautioned against purchasers and managers using evidence-based medicine as a means to cut health care costs. In fact, the adoption of the most efficacious interventions to maximise both quality and quantity of health outcomes could increase costs.

This process has proved to be useful in identifying areas of practice where changes in services could achieve improved health, as well as highlighting those areas of practice where additional strategies or services are required but may not yet be in place.

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COCHRANE COLLABORATION

Katrina Williams

Paediatrician, Clinical Epidemiology Unit, New Children's Hospital, Westmead

The Cochrane Collaboration was established in 1993, with the aim of preparing, maintaining and disseminating systematic reviews of the effectiveness of health care. It is expected that systematic reviews of the available evidence will become the first step in creating policies, changing practice and developing appropriate future research.

Development of the collaboration has demanded the personal and financial commitment of large numbers of individuals (clinicians, academics, consumers and policy makers) and organisations (governments, research agencies and charitable institutions) internationally. Currently the Cochrane database collects systematic reviews of randomised and controlled trials.

THE CHILD HEALTH FIELD

A child health field was proposed at the 4th International Cochrane Colloquium because of a perceived need for more reviews in the area of child health.

The aim of the child health field is to promote the interests of children within the collaboration by undertaking reviews that address questions that are important for clinicians and parents in a form that is easily translated into policy and practice. Activities include promoting and publicising the field to relevant professionals, consumers and professional bodies. A child health field database of references is currently being developed.

While the Cochrane centres are responsible for training, the child health field will also take on a content-relevant training role. In Australia, training has already been established through the Centre for Community Child Health & Ambulatory Paediatrics in conjunction with the Department of Biostatistics and Epidemiology of the University of Melbourne, and so far has been provided at the Royal Children's Hospital in Melbourne. In addition, those in the child health field have identified areas within child health where existing review groups will not serve required needs. A planning meeting for a review group on developmental, psychosocial and learning problems was held in 1997 in an attempt to fill one such area of need.

HOW TO BECOME INVOLVED?

Clinicians can become involved in the Cochrane effort in two ways: by becoming users of reviews on clinically relevant areas or by undertaking reviews themselves. To undertake a review requires training, as well as consultation with the review group most relevant to the chosen topic. A commitment must be made to update the review on a yearly basis, for life. This may sound onerous, but in reality, it can be passed on to another reviewer. It is expected that, in future, review group administrators will look for any new trials on topics registered with them and pass them directly to the reviewers.

WHAT'S HAPPENING IN NSW TO PROMOTE CHILD HEALTH? A REPORT FROM AREA HEALTH PROMOTION UNITS

This brief report lists some examples of current programs for children's health conducted by the Area health promotion units. The examples are based on summaries provided to the *NSW Public Health Bulletin* in May 1998 by the health promotion units in response to a request for information from the Bulletin.

Area health services in NSW, in addition to their care and treatment services, have a range of services and programs working to improve children's health. In addition to the work of the health promotion units outlined here, health improvement and health promotion programs are carried out by:

- early childhood health services
- community child and family services
- public health units.

Although many programs are specifically designed to address a single health issue, such as skin cancer, they often implement strategies through particular settings, such as a school or child health centre. The alternative is for the setting itself to be taken as the starting point. In this case, programs (such as the health promoting schools program) may address multiple health issues, depending on local relevance and need.

EXAMPLES OF STATEWIDE PROGRAMS^a

Sun protection in schools

Expected outcomes: Improved awareness and knowledge of sun protection, and reduction in unprotected sun exposure.

School canteen programs

Expected outcomes: School canteens adopt and implement nutrition policies and provide healthy food choices.

Nutrition in child care centres

Expected outcomes: Child care centres adopt and implement nutrition policies and provide nutritious food according to specified standards.

Playground-injury prevention in schools and council playgrounds

Expected outcomes: Reduced incidence of serious injuries in school and council playgrounds. Playgrounds conform to the safety guidelines of the Australian Standards Association.

(a) In this report, 'statewide' refers to programs that have been implemented widely across NSW over the last five years or more. In most cases this has involved coordination between the NSW Health Department and Area health services. It does not necessarily mean that all programs are current in all Areas.

Scalds prevention

Expected outcomes: Reduced incidence of serious hot-water burns in children.

Tobacco sales to minors

Expected outcomes: Compliance of retailers with legislation banning sales of tobacco to minors (aged under 18 years).

Health promoting schools

Expected outcomes: Schools foster learning and practice of health-related behaviours and provide a health-enhancing environment.

EXAMPLES OF HEALTH PROMOTION PROGRAMS CONDUCTED THROUGH PRIMARY HEALTH-CARE SERVICES^b

Immunisation

Expected outcomes: Increased proportion of age-appropriate immunisation rates.

Breast-feeding

Expected outcomes: Increased proportion of women breast-feeding.

Early childhood injury prevention program (ECIPP)

Expected outcomes: New parents have increased awareness of risks, and knowledge of safety practices.

EXAMPLES OF AREA PROGRAMS^c

Primary school asthma program (Western Sydney)

Expected outcomes: Increases in confidence in school staff in dealing with emergency asthma episodes.

Child car restraint program (South Western Sydney)

Expected outcomes: Correct installation of child restraints and use of authorised restraint-fitting stations.

Eating disorders program (Central Sydney)

Expected outcomes: Improved body image among female high school students.

Home safety parties (Northern Rivers)

Expected outcomes: Reduced incidence of serious injuries occurring in the home.

Sports injury prevention (Northern Sydney)

Expected outcomes: Reduced incidence of serious injuries. Changes in sporting organisations' knowledge, policies and practices.

(b) A wide variety of preventive and health promotion programs are conducted through primary health care services, particularly through early childhood health services, across NSW. This list contains a limited number of examples.

(c) These examples are derived from information provided in responses to the request for information from the Bulletin.

Suicide prevention (South Western Sydney)

Expected outcomes: Reduction in the rate of youth suicide.

Youth centres smoking program (Hunter)

Expected outcomes: Adoption of smoke-free environments in all youth centres funded by the Department of Community Services.

RELATED REPORTS

Sun protection

Sun protection survey of primary schools in Northern Sydney. (1998, Northern Sydney)

Shade audit competition evaluation. (1996, 1997, Northern Sydney)

Sun protection in the Central Sydney Area Health Service: a discussion paper. (1997, Central Sydney)

Survey of sun protection practices in primary schools. (1996, Central Sydney)

Sun protection plan 1997–2000. (1997, Central Sydney)

Strategic plan for skin cancer control 1997–2000. (1997, South Western Sydney)

Nutrition

Mathews R, Williams L. Caring for children: a local child care initiative goes statewide. *Health Promotion Journal of Australia* 1995; 5(2): 49–54.

Plaskett J, Cook L, Hodge W. *Nutrition on long day care centres: implementing 'Caring for Children' in Central Sydney.* (1994, Central Sydney)

Karen N, Whitworth A, Lane S, Amantides S. *Caring for children—Northern Sydney.* (1994)

Health promoting schools

Health promoting schools report. (1997, Northern Sydney)

Palmer S, Mitchell J, Woodrow S. *The health promoting schools project.* (South Western Sydney)

Working with schools: an introductory guide for health workers. (1997, South Western Sydney)

Sun protection and nutrition survey. (1998, Western Sydney)

Other

'Reflections'—a body image program for young women. (1997, Central Sydney)

NSW youth sports injury report. (1997, Northern Sydney)

Taggart J. *Incorrect installation of child restraints: an observational study in South West Sydney of a preventable public health program.* (1995, South Western Sydney)

Kidsafe. *Playground safety reports.*

Youth suicide prevention strategic plan 1997–2001. (1997, South Western Sydney)

CONTACT INFORMATION:

AREA HEALTH PROMOTION UNITS

Central Coast

Mr Douglas Tutt, Health Promotion Coordinator
Tel: (02) 4320 4510 Fax: (02) 4320 4566
cchupu@pip.com.au

Central Sydney

Ms Isla Tooth, Acting Director, Health Promotion
Tel: (02) 9515 3247 Fax: (02) 9515 3351
itoot@hpu.rpa.cs.nsw.gov.au

Far West

Ms Norma Livingstone, Health Promotion Officer
Tel: (08) 8080 1478 Fax: (08) 8087 8697
nlivings@doh.health.nsw.gov.au

Greater Murray

Ms Nicki Melville, Manager, Health Promotion
Tel: (02) 6058 1700 Fax: (02) 6058 1737
nmelv@doh.health.nsw.gov.au

Hunter

Ms Sue Carter, Coordinator, Health Promotion
Tel: (02) 4924 6394 Fax: (02) 4924 6212
suec@wallsend.newcastle.edu.au

Illawarra

Ms Jane Wilson, Coordinator, Health Promotion
Resource Unit
Tel: (02) 4275 1999 Fax: (02) 4275 1311
wilsonj@doh.health.nsw.gov.au

Macquarie

Ms Anne Field, Health Improvement and Planning
Coordinator
Tel: (02) 6881 2322 Fax: (02) 6884 7223
afield@doh.health.nsw.gov.au

Mid North Coast

Ms Deborah Church, Health Promotion Coordinator
Tel: (02) 6583 0750 Fax: (02) 6583 7582
dchurch@doh.health.nsw.gov.au

Mid Western Area Health Service

Ms Trish Strachan, Health Improvement and Health
Promotion
Tel: (02) 6332 8561 Fax: (02) 6332 8577
trishst@doh.health.nsw.gov.au

New England

Ms Ingrid Brett, Research Officer, Health Promotion
Tel: (02) 6766 2288 Fax: (02) 6766 3003
ibret@doh.health.nsw.gov.au

Northern Rivers

Ms Uta Dietrich, Acting Manager, Health Promotion
Tel: (02) 6602 1902 Fax: (02) 6622 2151
udiet@doh.health.nsw.gov.au

Northern Sydney

Mr Peter Whitecross, Area Coordinator, Health Promotion
Tel: (02) 9926 6719 Fax: (02) 9926 6710
pwhitecr@doh.health.nsw.gov.au

HEALTH PROMOTION UNITS, SEXUAL HEALTH CLINICS AND PUBLIC HEALTH UNITS

Southern NSW

Ms Karen Peterson, Cross District Coordinator, Health Promotion

Tel: (02) 4827 3435 **Fax:** (02) 4827 3438
kpete@doh.health.nsw.gov.au

South Western Sydney

Ms Mandy Williams, Director, Health Promotion

Tel: (02) 9828 5911 **Fax:** (02) 9828 5905
mandy-williams@doh.health.nsw.gov.au

Wentworth

Mr David Riches, Manager, Centre for Health Promotion

Tel: (2) 4739 4622 **Fax:** (02) 4739 8459
wchp@ozemail.com.au

Western Sydney

Ms Karen Filocamo, Acting Director, Health Promotion

Tel: (02) 9840 3708 **Fax:** (02) 9840 3709
kfilo@doh.health.nsw.gov.au

SEXUAL HEALTH CLINICS

Holden Street, Gosford

Tel: (02) 4320 2114 **Fax:** (02) 4320 2020

MASH, Dubbo

Tel: (02) 6881 2215 **Fax:** (02) 6884 7223

Port Kembla Hospital, Warrawong

Tel: (02) 4276 2399 **Fax:** (02) 4423 9392

Shoalhaven District Hospital, Nowra

Tel: (02) 4423 9353 **Fax:** (02) 4423 9392

Greater Murray and Riverina, Wagga Wagga

Tel: (02) 6938 6492 **Fax:** (02) 6938 6495

Hawkesbury, Richmond

Tel: (02) 4578 1622 **Fax:** (02) 4588 5085

Royal North Shore Hospital, St Leonards

Tel: (02) 9926 7414 **Fax:** (02) 9901 3530

Macquarie Street, Sydney

Tel: (02) 9382 7440 **Fax:** (02) 9382 7475

The Lakes, Forster

Tel: (02) 6555 6822 **Fax:** (02) 6554 8874

Albion Street, Surry Hills

Tel: (02) 9332 1090 **Fax:** (02) 9332 4219

Manly

Tel: (02) 9977 3288 **Fax:** (02) 9977 3347

Wentworth, Penrith

Tel: (02) 4724 3877 **Fax:** (02) 4724 2620

Blue Mountains, Katoomba

Tel: (02) 4782 0360 **Fax:** (02) 4782 3483

Bligh Street, Tamworth

Tel: (02) 6766 3095 **Fax:** (02) 6766 6835

Hunter Street, Lismore

Tel: (02) 6620 2980 **Fax:** (02) 6620 2985

Livingstone Road, Marrickville

Tel: (02) 9560 3057 **Fax:** (02) 9568 3335

Parramatta Health Service, Marrickville

Tel: (02) 9843 3111 **Fax:** (02) 9893 7103

High Street, Taree

Tel: (02) 6551 1421 **Fax:** (02) 6551 0982

Mid Western, Orange

Tel: (02) 6361 9906 **Fax:** (02) 6363 1070

Bigge Park, Liverpool

Tel: (02) 9827 8022 **Fax:** (02) 9602 4352

Southern NSW, Goulburn

Tel: (02) 4827 3148 **Fax:** (02) 4827 3438

Royal Newcastle Hospital, Newcastle

Tel: (02) 4923 6909 **Fax:** (02) 4923 6572

Kirketon Road, Darlinghurst

Tel: (02) 9360 2766 **Fax:** (02) 9360 5154

AREA PUBLIC HEALTH UNITS

Central Coast, Gosford

Tel: (02) 4320 4545 **Fax:** (02) 4320 4550

Central Sydney, Camperdown

Tel: (02) 9515 3180 **Fax:** (02) 9515 3182

Far West NSW, Broken Hill

Tel: (08) 8088 0376 **Fax:** (02) 8087 8697

Hunter, Wallsend

Tel: (02) 4924 6477 **Fax:** (02) 4924 6490

Illawarra, Wollongong

Tel: (02) 4226 4677 **Fax:** (02) 4226 4917

Macquarie, Dubbo

Tel: (02) 6881 2256 **Fax:** (02) 6884 7223

Mid North Coast, Port Macquarie

Tel: (02) 6583 0716 **Fax:** (02) 6583 7582

Mid Western, Bathurst

Tel: (02) 6332 8505 **Fax:** (02) 6332 8577

New England, Tamworth

Tel: (02) 6766 2288 **Fax:** (02) 6766 3003

Northern Rivers, Lismore

Tel: (02) 6620 7500 **Fax:** (02) 6622 2151

Northern Sydney, Hornsby

Tel: (02) 9477 9186 **Fax:** (02) 9482 1650

South Eastern Sydney, Zetland

Tel: (02) 9382 8333 **Fax:** (02) 9382 8334

Southern NSW, Goulburn

Tel: (02) 4827 3428 **Fax:** (02) 4827 3438

South West, Albury

Tel: (02) 6021 4799 **Fax:** (02) 6021 4899

South Western Sydney, Liverpool

Tel: (02) 9828 5944 **Fax:** (02) 9828 5955

Western Sector, Parramatta

Tel: (02) 9840 3603 **Fax:** (02) 9840 3608

Penrith

Tel: (02) 4724 2022 **Fax:** (02) 4724 3300

IMPROVING THE HEALTH OF CHILDREN IN NSW: MENTAL HEALTH ISSUES FOR CHILDREN

Suzanne Pope and Beverley Raphael
Centre for Mental Health, NSW Health Department

This article examines how a public health framework can be applied to the mental health of children and adolescents. It describes the epidemiology of mental health problems in children and adolescents, some of the factors associated with an increased or a decreased risk of mental health problems, and gives examples of prevention interventions that apply a public health approach.

The mental health of children, adolescents and their families is as important as their physical health to their well-being and personal development. While some mental health problems are relatively mild and short-lived, others can cause significant suffering and may even be life-threatening. The consequences of failing to address the mental health needs of children and adolescents are extensive. High social and economic costs occur through school failure, disruptive behaviours and inability to develop the social and problem solving skills that enable young people to become productive and happy members of society.

Applying a public health approach to mental health is relatively recent. This approach includes identifying the prevalence of mental health problems and disorders in children, the risk factors, the protective factors and effective interventions. Effective interventions should span the spectrum of mental health, health promotion, prevention of mental health problems, early intervention in the development of mental health problems, and

management of existing mental health problems and disorders.

EPIDEMIOLOGY

International studies have estimated that the prevalence of mental health problems in children and adolescents to be between 18 and 22 per cent (Table 1). The Western Australian Child Health Survey found that nearly one in five children and adolescents aged 4 to 16 years (18 per cent) had experienced a mental health problem in the previous six-month period.¹ Of these, 6 to 8 per cent had had more than one type of problem. A national survey of mental health problems and disorders in children and adolescents is currently under way, and results will be available in 1999.

In common with other disorders, untreated child and adolescent mental health problems may become significant health problems in adulthood.⁹ Extensive evidence indicates that prevention and early intervention programs may reduce later mental health problems and disability and ease the burden suffered by these children, adolescents and their families, with potential cost saving to communities and governments.

FACTORS INFLUENCING THE DEVELOPMENT OF MENTAL HEALTH PROBLEMS

A number of factors associated with an increased risk for mental health problems in childhood have been identified. Factors are associated with a lower risk of mental health problems have also been identified (Table 2).

TABLE 1

RECENT INTERNATIONAL COMMUNITY-BASED PREVALENCE STUDIES OF MENTAL HEALTH PROBLEMS AMONG CHILDREN AND ADOLESCENTS

	Study					
	Anderson et al. ³ New Zealand longitudinal study	McGee et al. ⁴ 943	Bird et al. ⁵ Puerto Rico 1988	Costello et al. ⁶ Pennsylvania 1988	Offord ⁷ Canada 1987	Velez ⁸ New York 1989
<i>n</i>	782	943	777	789	2679	776
Age	11	15	4-16	7-11	4-16	11-20
Disorder	% ^a	%	%	%	%	%
Attention deficit disorder	7	2	10	2	6	4
Conduct disorder	3	7	2	3	6	5
Oppositional disorder	6	2	10	7	— ^b	7
Overanxious	3	6	—	5	10	3
Separation anxiety	4	2	5	4	—	5
Phobia	2	5	2	9	—	—
Depression or dysthymia	2	2	6	2	—	2
Any	18	22	18	22	18	18

Notes:

(a) Percentages rounded to nearest whole number. (b) Not measured.

FRAMEWORK FOR MENTAL HEALTH PREVENTION SERVICES FOR CHILDREN

There is a growing scientific basis to support the practice of prevention in the field of mental health for children. The focus must shift from individual case work to a broader understanding of the biopsychosocial, socioeconomic, cultural and spiritual needs of communities. By its nature, prevention of mental disorders among children requires the public health approach of developing partnerships among people and agencies in the community.

Provision of high-quality services and programs demands a spectrum of interventions: mental health promotion, prevention, early intervention and treatment. One of the difficulties for implementing promotion and prevention programs is that their future benefits may seem uncertain or too distant. Clinicians trained in individual case work may therefore be reluctant to change to a public health model.¹¹

In a review of the use of evidence-based care for child and adolescent mental health, Kurtz et al. suggested that preventive interventions should be implemented at the earliest possible stages in the development of disorders.¹²

Mental health problems in children may impair their social and educational development. This may lead to low self-esteem and poor attainment of positive learning experiences, further compounding their risk of psychological problems. Mental health problems are also associated with an increased risk of youth suicide.

The framework for implementing these interventions is the three-tier typology of universal, selected and indicated preventive measures and therefore is compatible with a public health model.¹³

EFFECTIVE PREVENTION PROGRAMS

Postnatal depression

The most important issue for promoting the mental health of infants is identifying the family situations that predict later problems.¹⁴ A major risk for infants is postnatal depression in their mothers. Approximately 10 per cent of women after delivery experience a depressive disorder that is severe enough to interfere with their daily functioning.¹⁵ Studies have shown that the care received by infants of such mothers is less responsive, more rejecting and more coercive than that received by controls.¹⁶ This care may

TABLE 2

CHILDREN'S RISK FACTORS AND PROTECTIVE FACTORS FOR DEVELOPMENT OF MENTAL HEALTH PROBLEMS

Type of factor	Risk factors	Protective factors
Environmental	Poverty Housing conditions Unemployment Family size Parent marital status Marital conflict Poor parenting skills Parental psychopathology Exposure to negative life events (for example, bereavement, family separation, trauma, family illness) Life transitions (for example, change of school)	Positive peer relationships Social support (elders and peers) Family structure and cohesion Positive parent-child relations
Child characteristics	Genetic influences Biological influences (prenatal, perinatal and postnatal) Difficult early temperament Cognitive style Low IQ Academic failure	Repertoire of coping skills Social skills Strong intellectual skills Cognitive style Academic competence
Social and economic	Marginalisation Racism	Family or carer employment Family or carer income Social status School environment

Source: Modified from Table 1. Spence¹⁰

affect infant growth and development, and infants may develop a depressed mood style as early as three months of age.¹⁷

Appropriate and effective treatment of postnatal depression at the earliest stages may prevent psychological withdrawal and developmental impairments in the infant.¹⁸ In the South Western Sydney Area a screening program is being implemented for women at risk of postnatal depression. This program has included adapting the Edinburgh Postnatal Depression Scale for use with women from non-English-speaking backgrounds.¹⁹⁻²² To promote recognition and management of postnatal depression, training for general practitioners, hospital and community health workers has been recommended.

A multidisciplinary day program has been established at a family care centre in the South Western Sydney Area. Families are provided with support and therapy early in the episode of depression to prevent mother-infant attachment disorders from developing.

Behavioural disorders

Behavioural disorders or problems affect a significant number of children. They include a range of challenging behaviours, such as oppositional defiant disorder, and aggressive behaviours. Behavioural problems in childhood may escalate over time and may develop into delinquent and antisocial disorders in adolescents. As these disorders progress they become more difficult to treat and may persist into adulthood.

Programs that promote appropriate parenting for vulnerable families or families at risk can reduce the risks of disruptive behavioural problems in preschool-aged children that may lead to conduct disorders. Improving a parent's sense of competence in parenting and promoting marital communication may lead to improved mental health outcomes for both parents and children.

The Positive Parenting Program originating from the University of Queensland is being implemented in several Health Areas in NSW. The program is derived from 15 years of experimental clinical research in behavioural family interventions and extensive field evaluation. It is described as a multilevel family intervention program.²³ Following the intervention, participating families have reported less use of coercive and overactive discipline strategies and lower levels of parental depression than the control group.²³

Western Sydney Health Area adapted this program for select communities with high rates of child abuse notifications. However, the program was offered as a universal program for all families in these areas to promote acceptance of the program and avoid stigmatising participating families. Initial implementation of the program is currently being evaluated.

Primary-school-aged children

Depression has been predicted as one of the major public health problems of the 21st century. Depression currently accounts for almost 11 per cent of the disease burden worldwide; this is expected to rise to 15 per cent by 2020.²⁴

Prevention of depression in children and adolescents is possible, and opportunities first present themselves in childhood. Programs that improve self-esteem, encourage positive thinking and increase social and problem-solving skills can protect children against depression. Such programs can be provided through a general curriculum format, with the school education system supplying an efficient and systematic environment for their delivery.¹

The Aussie Optimism Program is an Australian adaptation of the Penn Prevention Program.²⁵ The Penn program focuses on 10-year-old children showing early signs of depression. The intervention aims to modify children's cognitive style to promote optimistic rather than pessimistic thinking. The children are also provided with social skills training. A six-month follow-up indicated that participants showed a significant improvement in depression measurement compared with a control group that did not receive the intervention.

CONCLUSION

A public health framework (as applied to physical health) can also be applied to mental health. The increasing evidence about the prevalence of mental health disorders in children can be combined with advancement in knowledge of effective interventions to promote the mental health of children. Prevention and early intervention programs are crucial to improving mental health outcomes for children. If significant advancements are to be made, then interventions need to target the early stages of mental health problems and disorders as well as the early years of life. Effective interventions work best when delivered in partnership with the many services and organisations involved with children and their families.

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PUBLIC HEALTH EDITORIAL STAFF

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

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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 (Wordperfect or Word for Windows are 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.

Editorial correspondence

Please address all correspondence and potential contributions to The Editor, *NSW Public Health Bulletin*, Locked Mail Bag 961, North Sydney NSW 2059 or to Lmadd@doh.health.nsw.gov.au. Tel (02) 9391 9956, Fax (02) 9391 9232.

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INFECTIOUS DISEASES, NSW: OCTOBER 1998

TRENDS

As shown by Figure 1, this spring has so far been relatively quiet, at least for most seasonal communicable diseases. The incidence of **gonorrhoea** remains a concern, however, particularly among gay men (see report p. 120).

CHANGES TO THE NSW NOTIFIABLE DISEASES SCHEDULE

On 25 September 1998, five new infectious diseases were added to the list of conditions that **laboratories** are required to report to local public health units. These are:

1. **Chancroid**, an acute bacterial sexually transmitted disease (STD), which is characterised by single or multiple painful necrotising ulcers. It is most prevalent in tropical and subtropical regions and is rare in Australia. It is caused by *Haemophilus ducreyi*.
2. **Chlamydia infection**, one of the most common bacterial STDs in Australia. It causes urethritis in males, and mucopurulent cervicitis in females. Infection in pregnancy can result in conjunctival and pneumonic infection of the newborn. It is caused by *Chlamydia trachomatis*.
3. **Donovanosis**, a chronic, and (if untreated) progressively destructive, ulcerative bacterial STD, which is endemic among Aboriginal people and Torres Strait Islanders in some central and tropical regions of Australia. It is caused by *Calymmatobacterium granulomatis*.
4. **Lymphogranuloma venereum (LGV)**, a bacterial STD characterised by genital lesions and regional lymph node suppuration with inflammation that may extend to adjacent tissues, or proctitis. It is rare in Australia. It is caused by LGV serovars of *Chlamydia trachomatis*.
5. **Giardiasis**, a parasitic infection, which causes gastroenteritis, spread by the faecal-oral route (mainly person-to-person or from contaminated water or food). It is caused by *Giardia lamblia*.

The initiation of public health surveillance for these conditions brings NSW into line with other States, will provide a better understanding of their epidemiology in NSW, and will inform the planning of evaluation of prevention and treatment programs. While **giardiasis** is transmitted by a variety of vehicles, of prime concern for communities are outbreaks caused by contaminated water supplies. The surveillance of this organism will provide a new tool for better identifying potential water-borne outbreaks.

Except for clusters of cases, or evidence of unusual exposures, public health unit staff will not generally follow up individual case notifications of these diseases. Clinicians seeking advice about the diagnosis, management

or contact tracing of any **STDs** (including those listed above) are encouraged to contact their local Area sexual health clinic or their local public health unit (listed on page 113).

Hospital infection surveillance system

The NSW Health Department has funded the University of NSW Hospital Infection Epidemiology Unit to run a pilot investigation of the NSW Hospital Infection Surveillance System (HISS). The project coordinator is Dr Mary-Louise McLaws. The HISS will result in the development of standardised, valid and reliable surveillance data.

The establishment of the pilot for the HISS is based on the recommendations of the first national prevalence study of nosocomial and community-acquired infections that was undertaken in 1984 by McLaws and the NSW Nosocomial Infection Taskforce.¹

The HISS complements a range of infection-control programs already established in NSW, including:

- the NSW health infection control policy (currently being revised)
- the Nosocomial Infection Outcome Indicator Project
- the NSW Infection Control Resource Centre
- the NSW 24-hour needle stick injury hotline
- regulated infection-control standards for medical practitioners, nurses, dentists, podiatrists, physiotherapists and dental technicians
- distribution of the NSW infection control training and information resources kit
- the NSW Infection Control Advisory Group.

The pilot investigation will involve collection of standardised surveillance data at 10 pilot sites for 12 months from November 1998. These sites are Prince of Wales, John Hunter, St George, New Children's, Wollongong, Westmead, Albury Base, Tamworth Base, Mona Vale and Nepean hospitals.

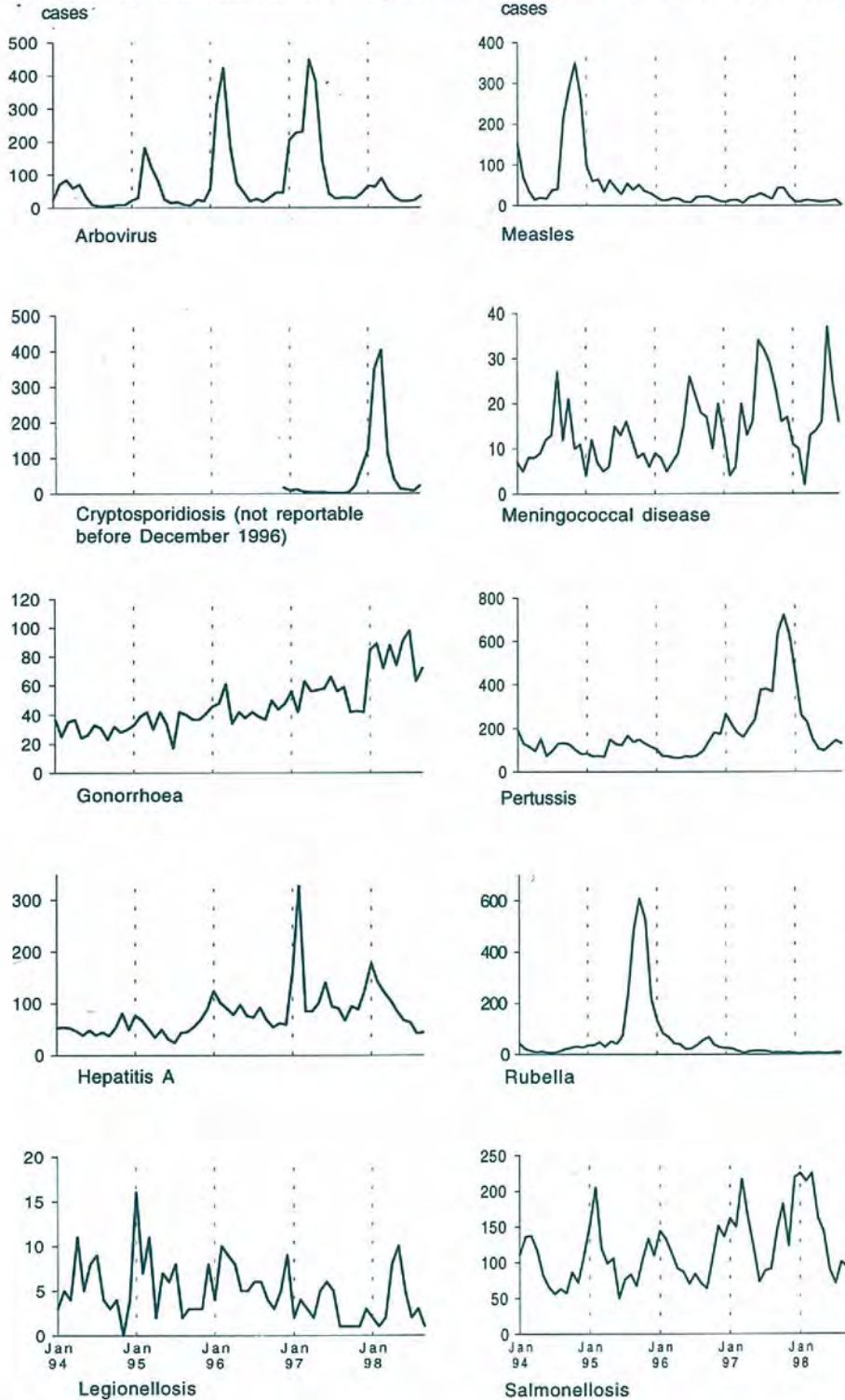
Data will be collected to describe local surgical infections, intravascular device-related bacteraemia infections, respiratory syncytial virus, rotavirus, multiple-resistant organisms, including methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant enterococci (VRE), extended-spectrum beta-lactamase-producing enterics (ESBL), gentamicin-resistant enteric bacteria and others.

Sites have been equipped with hand-held computers, and specialised software has been developed for the project. Analysis of the data will be undertaken by the HISS Coordination Unit and a report will be produced using the aggregate data on rates of infection and on the implications of the pilot for continuing surveillance. Individual sites

FIGURE 1

REPORTS OF SELECTED INFECTIOUS DISEASES, NSW, JANUARY 1994 TO SEPTEMBER 1998, BY MONTH OF ONSET

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



will be provided with the results of the analysis of their own data.

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INCREASE IN GONORRHOEA

Gonococcal surveillance NSW—quarterly report:
1 April–30 June 1998

World Health Organization Collaborating Centre for STD and HIV, Microbiology Department, Prince of Wales Hospital, Randwick

Summary

Two features have been prominent in quarterly reports of *Neisseria gonorrhoeae* gonococcus isolate surveillance in NSW over the past year and a half: a continuing increase in the number of isolates referred and a high proportion of isolates resistant to the quinolone group of antibiotics. Both these trends were maintained in the April–June quarter of 1998.

In this quarter, 322 isolates of gonococcus were examined, almost 50 per cent more than in the same period last year. Numbers seen in the six months to 30 June were higher than the total number of isolates seen in the whole of either 1994 or 1995. There has been a 20 per cent increase in the number of gonococcal isolates in NSW each year since 1994.

Resistance to the oral antibiotics available for treating gonococci was also again high. Resistance to the penicillin group was found in more than 40 per cent of all isolates and to the quinolone group in more than 5 per cent of all strains. Quinolone-resistant *N. gonorrhoeae* (QRNG) were until now found only in strains transmitted by heterosexual contact. In this quarter QRNG were also detected among gonococci transmitted by male homosexual contact.

Numbers of gonococcal isolates

In this quarter, there was again a substantial increase in the number of gonococcal isolates, compared with historical data.

In the three months to 30 June 1998, 322 isolates were available for further examination (217 isolates in 1997 and 136 in 1996).

There were 294 isolates were from infected males, a marked increase over the 200 isolates from males in the same period in 1997. The number of isolates from females increased to 28 from 17 in 1997.

There were 65 isolates from the anorectum or pharynx of male patients in the June quarter of 1998 compared with 18

in 1997 (Table 3). Isolates were obtained from males and females in the ratio of 10.5:1 (11.8:1 in the June quarter in 1997). The 47 male rectal isolates comprised 16 per cent of gonococci isolated from men (6 per cent in 1997) and the 18 pharyngeal isolates 6 per cent (3 per cent in 1997).

Antibiotics available for treatment of gonorrhoea

The following antibiotics are available for single-dose treatment of gonorrhoea in NSW:

- oral penicillins (including penicillin, ampicillin and amoxycillin, not recommended)
- third-generation cephalosporins, which include injectable ceftriaxone and injectable cefpodoxime (soon to be discontinued)
- quinolones, which include ciprofloxacin, norfloxacin, enoxacin and ofloxacin
- injectable spectinomycin.

Antibiotic sensitivity patterns

Penicillins

Of the strains tested in the June quarter of 1998, 147 (45.6 per cent) were penicillin resistant, 16 (5 per cent) being penicillinase-producing *N. gonorrhoeae* (PPNG) and 131 (40.6 per cent) resistant by chromosomal mechanisms (CMRNG). The former were isolated from patients who contracted their infection locally (3) and overseas (7), and

TABLE 3

SITES OF INFECTION WITH NEISSERIA GONORRHOEAE, SYDNEY, 1 APRIL TO 30 JUNE 1998 (FROM LABORATORY DATA)

Site	No.
Male	
Urethra	228
Pharynx	18
Anorectum	47
Disseminated	1
Eye	0
Other	1
Total	294
Female	
Endocervix or vagina	26
Pharynx	2
Anorectum	0
Disseminated	0
Eye	0
Other	0
Total	0

Source: WHO Collaborating Centre for STD and HIV

the location was not specified for another 6. Approximately 40 per cent of isolates were penicillin resistant by one or more mechanisms.

Because **nearly half of all the gonococci examined were resistant to the penicillins**, the use of penicillin-based treatment regimens (including amoxicillin and ampicillin) would result in a significant proportion of treatment failures.

Ceftriaxone

All isolates examined were sensitive to this injectable third-generation antibiotic, which has retained its activity against gonococci over many years. A small number of isolates showed some increase in minimum inhibitory concentration (MIC). Although not clinically relevant at this stage, this phenomenon is indicative of trends in susceptibility that may cause future problems. Continued monitoring is warranted. Isolates would also be susceptible to other injectable third-generation agents but not to early-generation oral cephalosporins.

Spectinomycin

All strains were susceptible in vitro to this injectable antibiotic.

Quinolone group

A significant proportion of isolates were resistant to quinolone antibiotics (ciprofloxacin, norfloxacin, ofloxacin, enoxacin), although the proportion of QRNG was not as high as in the March quarter of 1998.

The 18 QRNG isolated represented 5.6 per cent of all isolates. Eleven of the 18 strains isolated this quarter manifested high levels of resistance to this antibiotic group (MIC of ciprofloxacin 1 mg/L or less, 3.4 per cent of all isolates). The MICs of the QRNG ranged from 0.125 to 16 mg/L. Thirty-two (14.7 per cent) isolates were quinolone-resistant in the June quarter of 1997. Details about geographic acquisition of QRNG were available for only 6 of the 18 patients with QRNG in this quarter. Of these, three cases were acquired locally and three overseas.

Strain subtyping on the QRNG also indicates a further change in the distribution of QRNG subtypes. A recent phenomenon has been the identification of a number of apparent clusters of QRNG in local isolates from heterosexually acquired gonorrhoea. These particular subtypes are no longer as prominent as in previous quarters. QRNG have now also been identified in gonorrhoea acquired by homosexual contact.

Tetracyclines

The tetracycline group of antibiotics is not recommended for the treatment of gonococcal infection. All of the agents mentioned above can be administered as a single dose to ensure patient compliance, whereas the tetracycline-based treatment regimens are multiple-dose therapies, use of

which also contributes to antibiotic resistance. In NSW in each quarter, several treatment failures are recorded for patients who receive only tetracycline therapy when presenting with a urethral discharge. A pattern of suppression of symptoms followed by recrudescence some time after completion of therapy has been seen repeatedly.

The most recent examination of tetracycline-resistance patterns indicated that about 30 per cent of NSW isolates were resistant. In addition, a form of high-level plasmid resistance to the tetracyclines has emerged in the past decade. Isolates possessing this plasmid are identified as tetracycline-resistant *N. gonorrhoeae* (TRNG). In this quarter, 21 cases of TRNG were detected (6.5 per cent of all isolates).

Editorial comment

NSW gonorrhoea notifications have shown an increasing trend over the past few years (Figure 1). The number of notifications for 1998 to the end of August (569) was 42 per cent higher than for the same period in 1997 (401), and 162 per cent higher than for the same period in 1994 (217). Increases have been more marked in males over 25 years of age from the South Eastern Sydney Area. Since 1994 the proportion of cases in males have increased from 83 per cent to 92 per cent. Increases were seen for almost all age groups; however, there was a tendency towards larger increases in older age groups: 38 per cent of cases were aged under 25 years in 1994, compared with 23 per cent in 1998. The proportion of notifications from South Eastern Sydney increased from 40 per cent in 1994 to 50 per cent in 1998.

In response to this increase, an expert committee was recently convened by the NSW Health Department to recommend a plan of action. Fact sheets for medical practitioners and patients are being distributed by public laboratories with all new gonorrhoea diagnoses. The fact sheets provide guidelines for treatment and contact tracing and provide information about the services provided by sexual health centres. Also, the AIDS Council of NSW has planned campaigns, to commence shortly, focusing on safe sex and hepatitis A immunisation among homosexual men. ☐

TABLE 4

INFECTIOUS DISEASE NOTIFICATIONS RECEIVED IN SEPTEMBER 1998 BY AREA HEALTH SERVICES

Condition	Area Health Service																Total		
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	for Sept‡	to date‡
Blood-borne and sexually transmitted																			
AIDS	-	-	-	-	1	-	-	-	8	1	-	-	-	-	-	-	-	10	104
HIV infection*	2	-	-	-	2	-	-	-	5	-	-	-	-	-	-	-	-	37	288
Hepatitis B: acute viral*	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	1	3	46
Hepatitis B: other*	56	45	61	8	24	4	6	6	46	2	1	5	1	1	2	1	-	275	3118
Hepatitis C: acute viral*	2	1	-	-	-	-	1	-	-	-	-	1	1	-	2	-	6	14	91
Hepatitis C: other*	99	51	144	35	25	62	56	27	90	54	46	13	7	20	-	17	14	774	7482
Hepatitis D: unspecified*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Hepatitis acute viral (not otherwise specified)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Gonorrhoea*	19	5	1	3	2	1	1	1	33	-	4	1	1	1	-	-	-	74	738
Syphilis	13	5	5	3	-	1	-	-	13	-	1	2	1	4	-	-	1	49	449
Vector-borne																			
Arboviral infection*	1	4	2	1	-	-	-	2	1	2	5	2	2	3	-	-	3	28	411
Malaria*	-	3	1	1	-	-	-	-	2	-	-	-	-	1	-	-	1	9	128
Zoonoses																			
Brucellosis*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Leptospirosis*	-	-	-	-	-	-	-	-	-	1	1	-	-	-	-	-	-	2	21
Q fever*	-	-	-	-	-	-	-	-	-	1	4	3	9	1	1	-	2	21	166
Respiratory and other																			
Blood lead level	3	2	1	1	3	10	245	1	5	-	2	-	2	-	-	1	1	278	931
Legionnaires' disease	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	37
Leprosy	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Meningococcal infection (invasive)	-	1	3	-	3	3	3	-	2	-	-	1	-	1	1	3	1	22	143
Mycobacterial tuberculosis	10	4	9	1	1	-	-	1	-	-	-	-	-	1	-	-	-	27	313
Mycobacteria other than TB	9	14	-	1	-	2	5	1	6	1	2	-	-	-	1	2	1	45	233
Vaccine-preventable																			
Adverse event after immunisation	-	-	-	2	1	2	-	-	1	-	-	-	-	1	-	-	1	10	169
<i>Haemophilus influenzae</i> b infection (invasive)	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	7
Measles	-	-	-	-	-	-	1	1	-	-	1	-	-	-	-	-	-	3	97
Mumps*	-	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	3	34
Pertussis	9	6	7	13	14	2	6	11	32	4	4	10	3	-	10	38	1	175	2086
Rubella*	-	1	1	-	-	-	1	-	1	3	-	-	-	-	-	-	-	7	48
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
Faecal-oral																			
Botulism	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cholera*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Cryptosporidiosis	2	-	6	1	-	-	-	-	2	6	-	3	2	1	-	-	1	25	1121
Food-borne illness (not otherwise specified)	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	138
Gastroenteritis (in an institution)	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	214
Haemolytic uraemic syndrome	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	5
Hepatitis A	1	1	8	3	7	-	1	3	4	2	8	-	-	1	-	-	3	42	876
Hepatitis E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Listeriosis*	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1	24
Salmonellosis (not otherwise specified)*	8	13	4	6	10	3	9	6	23	2	9	2	2	2	1	5	1	108	1411
Typhoid and paratyphoid*	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1	27
Verotoxin-producing <i>E. coli</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

* laboratory-confirmed cases only ‡ includes cases with unknown postcode

CSA = Central Sydney Area
NSA = Northern Sydney Area
WSA = Western Sydney AreaWEN = Wentworth Area
SWS = South Western Sydney Area
CCA = Central Coast AreaHUN = Hunter Area
ILL = Illawarra Area
SES = South Eastern Sydney AreaNRA = Northern Rivers Area
MNC = North Coast Area
NEA = New England AreaMAC = Macquarie Area
MWA = Mid Western Area
FWA = Far West AreaGMA = Greater Murray Area
SA = Southern Area