

CHILD HEALTH: KEY PROGRAMS AND STRATEGIES TO ACHIEVE HEALTH GAINS

GUEST EDITORIAL

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This is the fourth and final issue in the series exploring ways of improving the health of children in New South Wales. It examines the implementation of key programs and strategies to achieve those health gains.

The first two articles examine how health issues and programs can be prioritised, and describe the key initiatives for maximising health gain in the life stages of childhood (pp. 124 and 126). Professor Graham Vimpani provides a comprehensive summary of home visiting programs (p. 130), and Ms Caroline Wraith and Dr Elisabeth Murphy describe an effective early intervention program: 'Schools as Community Centres' (p. 131). Both these programs have been shown to enhance social capital, particularly in disadvantaged communities. More and more research reveals the profound links between social connectedness and positive health outcomes. The article by Ms Lesley King explains the rationale and importance of using a settings approach as the basis for the delivery of programs (p. 128). In a later issue an article will introduce the Families First program, recently funded by the NSW government to provide some of the key services identified as capable of improving the health of children in New South Wales.

This series has covered a wide range of topics on child health. When taken together, they provide a blueprint for the design and implementation of services capable of improving the health of children in New South Wales. ☛

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PRIORITISATION OF HEALTH ISSUES AND STRATEGIES TO IMPROVE CHILD HEALTH

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This article describes how Central Sydney Area Health Service, when developing a strategic plan to improve the health of children, prioritised health issues and determined interventions to address them.

To achieve better health outcomes for children, it is insufficient to document health needs and identify effective strategies to meet those needs. As all health services have finite resources, it is also necessary to prioritise services which are capable of achieving the maximum health gain. However, scant research has been published on the most appropriate means to establish priorities in health. The diagram by MacFarlane suggests some of the principles underpinning the prioritisation of health issues and interventions (Figure 1).¹

In 1996, Central Sydney Area Health Service developed a strategic plan for children and youth to determine new services that should be established in the Area.² The plan included consideration of MacFarlane's elements in determining the health issues that were a priority and the interventions to address them. Several different approaches were used to rate health issues to determine

their relative importance and the ability of interventions to achieve health gain.

Criteria used to rank health issues included:

- the numbers of people affected by the particular health issue: that is, the size of the problem in the community (the number of people affected was estimated from either prevalence or incidence data, as appropriate)
- the mortality resulting from the health issue
- the morbidity resulting from the health issue; that is, the effect of the condition on the affected person's ability to function independently. The effect on the duration and quality of life was measured with a scale that ranged from occasional visits to the doctor or primary care provider to severe disablement or death.

Further criteria included:

- comparison with NSW rates of incidence and prevalence
- comparison with national targets, where available.³

Several numerical scoring systems, with different weights for each of the variables identified (incidence or prevalence, severity, mortality, comparison against NSW rates and against national targets), were given a trial to determine the most objective method for prioritising issues on the basis of the described criteria. Different mathematical methods were also tried. The results proved to be remarkably consistent for the different trials, and the health issues remained in a similar order, forming consistent high-, medium- and low-priority groupings.

A less numerical scoring system, described by Morley in 1973, was also given a trial.⁴ This system was based on four criteria:

- prevalence of the condition
- severity of the condition
- availability of effective intervention
- community concern about the health issue.

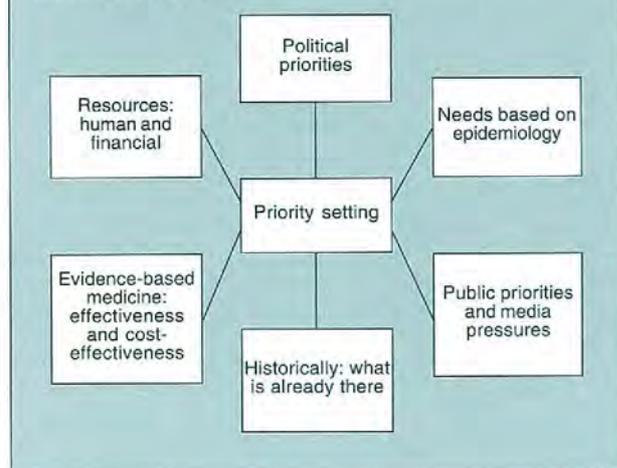
This system drew on prevalence rates, functional status scores, research on interventions, and community consultation to establish comparisons. (Consultations had been held with eight different community groups, with one to three meetings for each group.) This approach combined the burden of suffering with the availability of effective interventions and community concern into a single scoring system.

Once again, regardless of the approach used, the grouping of the health issues into high, medium and low priority remained broadly consistent.

The final priorities established by the Central Sydney Area strategic plan were the result of the methodologies described, but also drew on local additional community

FIGURE 1

SOME OF THE BASES OF PRIORITISATION OF HEALTH ISSUES AND INTERVENTIONS (FROM MACFARLANE¹)



consultations, discussion with relevant experts and common sense (Table 1).

Socially and environmentally related issues proved difficult to quantify, but from both the community consultations and discussions with relevant experts, there appeared to be broad consensus that these issues belonged in the high-priority group.

This process identified both the issues and the strategies that could produce health gain for the child population of Central Sydney. It is important to recognise that many of the health issues that fell into the medium- and low-priority groups were issues that were being adequately addressed by existing health service programs or by political, social and environmental initiatives. The categorisation of these health issues into low- or medium-priority groups did not imply they were of less significance, rather that they were of lesser prevalence or severity at that time, or were less amenable to improved health gain from alternative or more intensive interventions. Indeed, some of the health issues in the medium- or low-priority group could have been of

a high priority for certain target groups, such as otitis media in Aboriginal children

The selection of high-priority health issues and the identification of effective interventions for these issues provides a sound basis for the expectation of significant health gain in the Central Sydney Area.

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TABLE 1

PRIORITY GROUPS OF HEALTH ISSUES FOR CENTRAL SYDNEY AREA HEALTH SERVICE CHILD HEALTH STRATEGIC PLAN

High priority	Medium priority	Low priority
Tobacco-related	Youths in juvenile justice	Scoliosis
Related to alcohol and other substances	Sexual abuse	Autism
Low birthweight and prematurity	School bullying	Colour vision
Perinatal and infant mortality	Eating disorders	Cerebral palsy
Self-harm and suicide	Asthma	Developmental hip dysplasia
Depression	Burns and scalds	Accidental poisonings
At-risk behaviours (oppositional defiant disorder, conduct disorder)	Anxiety	Psychoses
Related to safer-sex practices	Falls	Congenital heart disease
Physical abuse and neglect of children	Congenital sensorineural hearing loss	Fetal alcohol syndrome
Attention-deficit hyperactivity disorder	Traffic-related	Iron-deficiency anaemia
Children of substance-abusing parents or of parents with mental illness	Postnatal depression	Drowning
Excessive sunlight exposure	Sudden infant death syndrome	
Immunisation	Post-traumatic stress disorder	
Domestic violence	Fitness-related	
Learning difficulties or intelligence-related	Lead exposure	
Nutrition-related	Neural tube defects	
Social- or environment-related	Visual problems	
	Conductive hearing loss	
	Developmental disability	
	Obsessive-compulsive disorder	

KEY INITIATIVES TO ACHIEVE HEALTH GAIN FOR CHILDREN

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This article describes the way key population-based interventions, carried out at the appropriate stage of life, can result in better health outcomes for children.

In general, the health literature focuses on interventions that, although important, benefit relatively few children. If, however, the position of achieving the maximum health gain for the most children is taken, one is compelled to look at very different problems requiring very different interventions.

Analysis of the literature describing the efficacy of programs and interventions to achieve health gain for populations of children reveals relatively few that are capable of making significant contributions. However, when these key interventions are mapped against the life stages of children, they offer a blueprint for the greatest health gains for the greatest number of children (Figure 2).¹

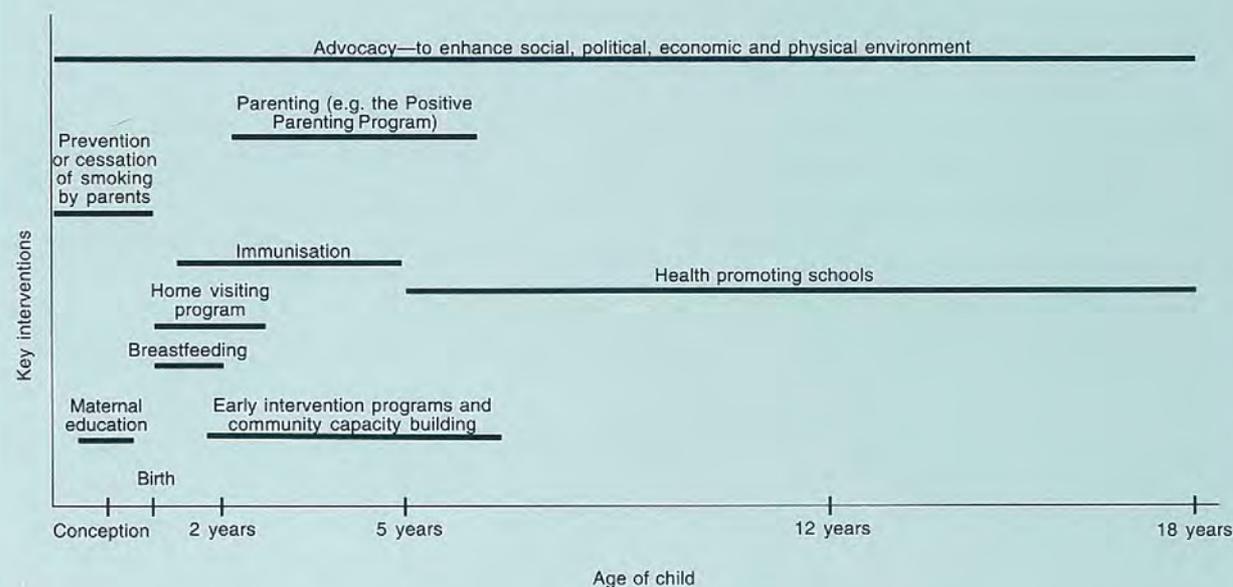
Some of these initiatives, such as home visiting programs, early intervention programs and health promoting schools (in the context of a settings approach to health problems) have been described in more detail in this series.²⁻⁴ The cost-benefits of breastfeeding, immunisation and cessation or prevention of tobacco smoking are well established and extensively documented.⁵⁻⁷ The educational status of parents, particularly mothers, is associated with improved health outcomes, including reductions in infant and child mortality.⁸ One of the most effective components of the Positive Parenting Program (Triple P) is a population-based behavioural family intervention program for preschool children.⁹

The social and physical environment, political influences, and economic status can also significantly affect the health of communities. Health workers have an obligation to advocate improvements to these important determinants of health status.

When considered together, these programs indicate the critical interventions required, in the various stages of children's lives, to achieve maximum improvement in the health of most children. This population-based perspective on child health thus represents a counterpoint to the dominant focus, the care of sick or injured children, which

FIGURE 2

KEY INTERVENTIONS FOR IMPROVING THE HEALTH OF CHILDREN



alone is unable to significantly influence the principal determinants of children's health.

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CHANGE TO THE MMR SCHEDULE AND THE NSW HEALTH DEPARTMENT IMMUNISATION CERTIFICATE FOR PRIMARY SCHOOL ENTRY

On 8 July 1998, the National Health and Medical Research Council (NHMRC) recommended a revised schedule for the measles, mumps and rubella (MMR) vaccines.

From August to November 1998, NSW Health assisted the Commonwealth to carry out the National Enhanced Measles Control Campaign. During this campaign, teams of nurses offered the MMR vaccine to all children in NSW primary schools. The campaign allowed the change in the schedule for MMR vaccination, which was previously given at 12 months and between 10 and 16 years of age.

MMR vaccines should now be given at 12 months of age and before school entry (four to five years of age).

The Australian Immunisation Handbook, 6th Edition, indicates that MMR and oral poliomyelitis vaccine (OPV) may be given simultaneously.

For NSW children, the pre-school dose should be recorded on the NSW Health Department Immunisation Certificate for Primary School Entry'. The certificate is being updated; meanwhile, immunisation providers may add a box (on the line for measles) to record the second dose.

Any queries should be directed to your local Public Health Unit.

Dr Ashwell
Acting Manager
Immunisation, AIDB

THE SETTINGS APPROACH TO ACHIEVING BETTER HEALTH FOR CHILDREN

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This article describes the rationale supporting the use of a settings approach to improve children's health. School is one key setting for promoting health, and so the concept of health promoting schools has been developed by the World Health Organization. The article refers to examples of how the model has been adapted for Australia.

A settings approach is a neat way of packaging interventions and actions to improve children's health, for both practical and theoretical reasons. A settings approach locates public health action in the social, cultural and physical places in which children live, learn and play. This approach has been popularised and applied to health promoting schools, healthy cities, healthy localities, and most recently 'healthy islands'.¹

A setting refers to a socially and culturally defined geographic and physical area of social interaction, and a socially and culturally defined set of patterns of interactions performed in the area.²

Theoretically, the settings approach has much to offer, for it adopts a social-ecological perspective, which recognises that health is influenced by contextual and environmental factors. What logically follows is an approach to problem solving and action that involves addressing the range of physical, social, organisational and cultural factors influencing health in an environment. Settings are therefore more than convenient locations for reaching target groups; they are also social systems that can support health and provide avenues for changing social systems, not just individuals. The types of outcomes expected from working in this way include changes in environments, policy, skills and organisational processes, as well as changes related to specific health problems.

From a practical point of view, the settings approach does not preclude a focus on specific health issues, and can serve two purposes:

- addressing a specific health problem
- developing the general problem solving capacity of the organisations involved in that setting.^{3,4}

The settings approach offers an alternative to vertical ways of structuring programs, in which separate programs

address individual health problems (such as heart disease and injury). Such an integrated approach ensures greater coordination in negotiating with stakeholders and in the compilation of resource materials. Reduced duplication of effort and competition between programs are other potential benefits.⁵

HEALTH PROMOTING SCHOOLS

The school has traditionally been an attractive setting for health promotion, for it provides a way of reaching a large proportion of children and young people, and brings with it a team of professional educators. In recognising the school as a social system, the opportunity arises to influence structural aspects of the school environment and adopt a more comprehensive approach to improving health. The health promoting school concept has been promulgated by the World Health Organization, and programs have been implemented in many countries, including Canada, the United Kingdom, the United States and Australia.

Health promoting schools have been characterised as having six domains for action: the formal curriculum, the school ethos, school policies and practices, school health services, school-home-community interactions, and organisational structures.⁶ The evidence regarding interventions to improve children's health indicates the value of intersectoral, comprehensive programs, and these can be developed and implemented through the structure of health promoting schools programs.⁷

While the concept of health promoting schools is well developed, the practice lags. We are currently grappling with how to achieve widespread implementation of a health promoting schools program, and how systematically to monitor progress and results. A key feature of the program as it has been implemented in Australia is the collaboration between the health and education sectors, which has occurred (to varying degrees) at national, State and local levels. The Western Australian School Health program (WASH), an intersectoral program providing a model of operation, professional development and follow-up support to schools, is a well-documented example of a State implementation program.^{8,9} In NSW, as part of the Coalfields Healthy Heartbeat program, a health promoting schools project was conducted with 15 primary schools in a socially disadvantaged region.¹⁰ Consistent with

findings from studies on intersectoral collaboration generally, a key lesson from local health promoting schools programs has been the importance of tailoring activities to complement core school activities.¹⁰

Implementation of health promoting schools programs requires commitment from both education and health sectors and an orchestrated approach. As a new, evidence-based policy and program initiative, the health promoting schools approach requires infrastructure and resources—such as workforce development and technical support—if it is to be widely implemented.

A further essential ingredient for successful implementation is enthusiasm and initiative at the local level. The concepts of health promoting schools, and settings generally, have been found to be very motivating for professional and lay groups. They offer a positive and participatory approach to health, engaging all stakeholders in the task of making better environments and organisations. The challenge now is to harness this interest, to develop a strong implementation and action-research program, to monitor (and adjust) ways of building organisational capacity, and to study how this translates over time into improved health.

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Correction

An incorrect phone number was published in the October 1998 issue of the Bulletin. The correct phone number for the Population Health Unit on the Mid North Coast is (02) 6583 0750. The editor apologises for any inconvenience caused.

HOME VISITING: AN ESSENTIAL BUILDING BLOCK TO SUPPORT FAMILIES

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This article outlines the advantages of extended home visiting for families and children at risk. This form of visiting—by a nurse, welfare worker or trained volunteer—which may begin in pregnancy or in the first few weeks of life, usually continues regularly and frequently over a period of many months, and in the case of participants in the Olds study, for two years after birth.

Intensive home visiting during the latter part of pregnancy and over the first two years of life is widely regarded as a crucial strategy for improving a range of child and family health outcomes. The benefits of home visiting include the prevention of child abuse and neglect, particularly in vulnerable families. There is good evidence in the literature that, for families, home visiting reduces social isolation, improves the sense of well-being and control of new mothers (especially those most vulnerable by virtue of inexperience and poverty) increases birth intervals, improves employment prospects, reduces involvement with the law and has benefits for long-term mental and social health. For children of all ages, home visiting results in fewer unintentional injuries, better nutrition and lower rates of notified child abuse and neglect.¹

As Weiss reminds us, home visiting is a necessary but not sufficient element for supporting families.² The intensity of the support needed depends on family needs, and there is good evidence that it should be available for all families, especially those having their first child or living in disadvantaged neighbourhoods. Otherwise, there is a danger of stigmatising recipients as potential child abusers, causing some families who could benefit to shy away.³

The success of home visiting is attributed not only to its process and content, but also the extent to which it provides a critical link between family units and a range of other neighbourhood-based family support strategies, such as self-help and personal growth groups for parents, play groups for young children, and the establishing of mutually supportive friendships.⁴

If home visiting is managed as a discrete program there is a significant risk that these linkages will not be achieved. If mainstream health services were to embark on universal home visiting, its practice should be flexible to ensure that other services could be provided in response to family need and that linkages to other neighbourhood services could be made. Having volunteer home visitors working in partnership with professional visitors is a model that is intuitively attractive, but its success requires further evaluation in the Australian context.⁵ Provision of adequate

and secure resources to home visiting programs is critical to their success; current evidence suggests that this has been rare in Australia in recent times.⁶

Home visiting is perhaps best offered from a neighbourhood base that can offer a range of other services, such as play groups and therapeutic or self-help groups for parents, as in the model established by Newpin in the United Kingdom (some family support services in NSW offer a similar model).⁷ A broader role for the local public school in family support work (including home visiting) is being encouraged by projects such as the Schools as Community Centre pilot project,⁸ and the Full Purpose Schools movement promoted by the Australian Centre for Equity through Education.^{9,10}

There is good evidence that investing in home visiting, as a crucial cornerstone in building social connectedness among families, is a cost-effective strategy.¹ From such connectedness and interpersonal recognition develops the sense of mutual trust that is essential to the growth of social capital.¹¹

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WORKING TOGETHER TO SUPPORT CHILDREN AND FAMILIES IN DISADVANTAGED COMMUNITIES

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The Schools as Community Centres Project is an innovative whole-of-government response in NSW to the needs of families with young children living in disadvantaged communities. The project seeks to improve health, welfare and education outcomes for children by ensuring access to appropriate government services.

The link between poverty and adverse social environments and child morbidity has been well documented.^{1,2,3} In Australia 41 per cent of all children aged 0 to 15 years are living in low income families, that is, families who are in receipt of a pension or additional family payment from the Federal Government, and this trend appears to be accelerating.⁴

Evidence shows that children living in families at socioeconomic disadvantage have significantly worse health outcomes and grow into adults who are at greater risk of health problems than their more affluent peers.⁵ Socioeconomically disadvantaged children have:

- higher rates of prematurity and low birth weight
- higher rates of infant mortality
- increased rates of sudden infant death syndrome
- increased rates of accidental and non-accidental injury and death
- lower rates of immunisation
- lower prevalence and duration of breast-feeding
- increased rates of hospitalisation.

Recent evidence suggests that the economic and social stress on families caused by poverty can contribute to the neglect of children, which in turn may leave those children at greater risk of becoming involved in crime.⁶ Research has demonstrated that universal prevention and targeted early intervention programs have been successful in improving health outcomes for children across many of these dimensions.^{7,8}

Socioeconomically disadvantaged families also experience barriers when accessing services. Health services, in conjunction with other sectors, can help to minimise inequity by instituting changes within their own structures. These changes include: modifying services to ensure that they are accessible and acceptable to families from disadvantaged communities; understanding the problems faced by families living in poverty; considering the perceptions of families of their own needs; focusing on enabling individual families and communities to mobilise their strengths and resources; and establishing a genuine partnership in the care of their children.^{2,3}

THE SCHOOLS AS COMMUNITY PROJECT

The Schools as Community Centres Project was established in 1995 in response to the *Report of the Committee of Review of NSW Schools*,⁹ which emphasised the important role that parents play in the education of their children. The report also emphasised that such factors as the health of children and the family have a major effect on the educational and lifelong outcomes for children. The Schools as Community Centres Project was designed to develop and trial models of effective and efficient inter-agency coordination to support families with children under five years of age. It was funded initially by the departments of Education and Training, Community Services and Health. The pilot project cost was approximately \$600 000 over two years. The Department of Housing is now also contributing to the program costs and its expansion.

The project works with families with children aged under five to encourage and support them in their parenting role, actively promotes community involvement in providing services for children, and encourages and assists parents to access existing mainstream services in the community.

PILOT SITES

Four sites were chosen for the pilot the project: Redfern, Chertsey (Central Coast), Curran (Macquarie Fields) and Coonamble. These sites exhibit the features of

disadvantaged communities, with indicators that suggest high levels of family stress. These four pilot sites provide various forms of support, education and assistance to some 500 families per week.

Each site consists of a 'community centre' that is staffed by a facilitator and is accommodated in spare classrooms on the premises of a local primary school. Schools were chosen to house the project because they are easily accessible by the community and there are benefits in developing early positive links between the home and school.

The facilitator is supported by a community-based advisory group and a local management committee. The management committee comprises the senior local representative of the participating government departments. It confirms the management plan for the site and approves collaborative strategies to support the project. The overall development of the project is overseen by a state inter-departmental steering committee which is responsible for briefing the Directors-General of the Departments on the progress of the project and emerging issues. The project is administered by the Department of Education and Training.

The facilitator consults the local community to identify service needs and local issues, targeting families with children under the age of five. The facilitator works with the community, advisory group and management group to plan collaborative responses to address these needs. The project provides opportunities for agencies to share information and plan on a local, collaborative basis.

Services developed through the project are largely preventive, with a strong focus on the health, welfare and development of young children. As the project has developed, it has become apparent that a core group of support services—for example, play groups, parenting information and groups, transition-to-school programs, information days and inter-agency forums to support workers—are needed at all four sites. A strength of the project is its ability to be tailored to each community's needs as initiatives are developed to reflect local priorities.

EVALUATION OF THE PROJECT

A formal evaluation of the project after the first two years demonstrated that it had successfully met its objectives.¹⁰ The Evaluation Report identified the following successes:

- community centres have developed strong links with their local communities and have initiated a large number of services, workshops, forums and other activities in response to community needs
- the centres have facilitated inter-agency communication, cooperation and collaboration
- families have felt supported in their parenting role; the centres are valued by parents as a source of information about, and referrals to, services
- children are being prepared effectively for school
- the project is contributing to the children's health and well-being
- a school community centre enhances the school's image
- people are developing positive perceptions of their community.

The Evaluation Report details the factors that are key to the success of the project as:

- a local approach
- the choice of facilitator
- the community centres being properly accommodated and resourced
- local management and advisory committees
- a community development approach
- consultation preceding the decision to locate a school community centre
- the project structure.

HEALTH OUTCOMES

The following health outcomes have been achieved:

- The level of age-appropriate immunisation has improved at all four sites.
- there is completion of the recommended child health surveillance and screening programs and attendance at referral appointments
- home visiting programs have been developed
- from the perspective of a broader view of health, there have been major gains in school readiness, attendance at school and community development
- there is improved inter-agency cooperation
- the project has been successful in promoting access to services for disadvantaged groups, including Aboriginal families and communities.

This project is a whole-of-government initiative which provides an appropriate facility for developing many health programs, for example, interventions to improve nutrition, prevent behavioural disorders, child abuse and domestic violence.

Poverty is increasingly being identified as a significant determinant of health outcomes. In addressing these issues there is a need to develop strategies based on a broad perspective of health. The Schools as Community Centres Project is a successful example of a such a strategy. Due to its success, the Directors-General of participating departments have now endorsed the expansion of the project to two new sites in 1999: Kempsey (mid-north coast) and Bathurst (mid-western NSW).

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TRENDS

Apart from persistent high numbers of cases of **gonorrhoea** reported from South Eastern Sydney (mostly related to an outbreak among inner-city gay men—see earlier editions of the *Bulletin*), case reports of most seasonal notifiable diseases generally were unremarkable (Figure 3). In October, there was an increase in reported cases of **gastroenteritis in institutions**, mainly in the Western Sydney and Central Sydney areas, that was thought to be of viral origin transmitted by person-to-person contact (Table 2). Reports in early November suggest that cases of **Ross River virus** infection may be starting to increase in some rural areas of the state.

NEW DIRECTOR OF HEALTH PROTECTION

Mr Ross O'Donoghue has recently been appointed the new Director of Health Protection for NSW Health. Mr O'Donoghue has been acting in this position for much of 1998, and since 1994 has been director of the AIDS/Infectious Disease Branch. Mr O'Donoghue began his career in public health in health education and community development programs, and so brings to the position a broad public health perspective. The new Health Protection Branch is an amalgamation of the AIDS/Infectious Diseases, Environmental Health, and Food Branches, and as such mirrors the structures of many public health units, enabling a strong alliance between these components of NSW Health's policy and effector arms.

NSW NEEDLE AND SYRINGE PROGRAM: FEATURES AND PUBLIC HEALTH BENEFITS

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The public health benefits of the NSW Needle and Syringe Program, first implemented in NSW in 1988, are significant. Unsafe drug injecting is a major route of HIV infection; however, the HIV prevalence amongst injecting drug users (IDUs) in Australia has remained one of the lowest in the world, at less than two per cent. This compares favourably with those countries without needle and syringe programs, where HIV prevalence among IDU can be as high as 50 per cent. In many countries, unsafe drug injecting behaviour such as needle sharing now accounts for more HIV infections than unprotected sex. In Malaysia, Vietnam, south-west China, north-east India and Myanmar, 75 per cent of HIV cases are among IDUs. The World Health Organisation estimated that in 1997 injecting drug use was responsible for approximately 43 per cent of the total AIDS cases in the European region.¹

Features of the NSW Needle and Syringe Program

The NSW Needle and Syringe Program has two components—the public sector program and the private sector program—together offering a total of 839 outlets.

The public sector program comprises the following:

- **Primary outlets**, which in some instances operate as stand-alone, publicly accessible facilities, are often housed and administered through hospital departments such as drug and alcohol units. All other needle and syringe facilities in an area health service are supported by the primary needle and syringe outlet.
- **Secondary outlets** are serviced by primary outlets and generally are facilities which also provide a range of other health services to the community, such as community and sexual health centres and hospital emergency departments.
- **Vending machines** are serviced by primary needle and syringe outlets. They provide access to sterile injecting equipment after hours and in areas where it is difficult to provide service. All vending machines are located with disposal bins, which are well utilised.

There are 319 public outlets, including 33 vending machines.

The private sector program operates through the NSW Branch of the Pharmacy Guild of Australia, with approximately 520 members participating in the Pharmacy Fitpack Scheme. Under this arrangement, injecting drug users can purchase or exchange sterile syringes. The costs associated with the exchange of equipment is met by NSW Health.

In 1997–98, approximately 9.24 million needles and syringes were dispensed through the NSW Needle and Syringe Program.

Preventing the spread of HIV

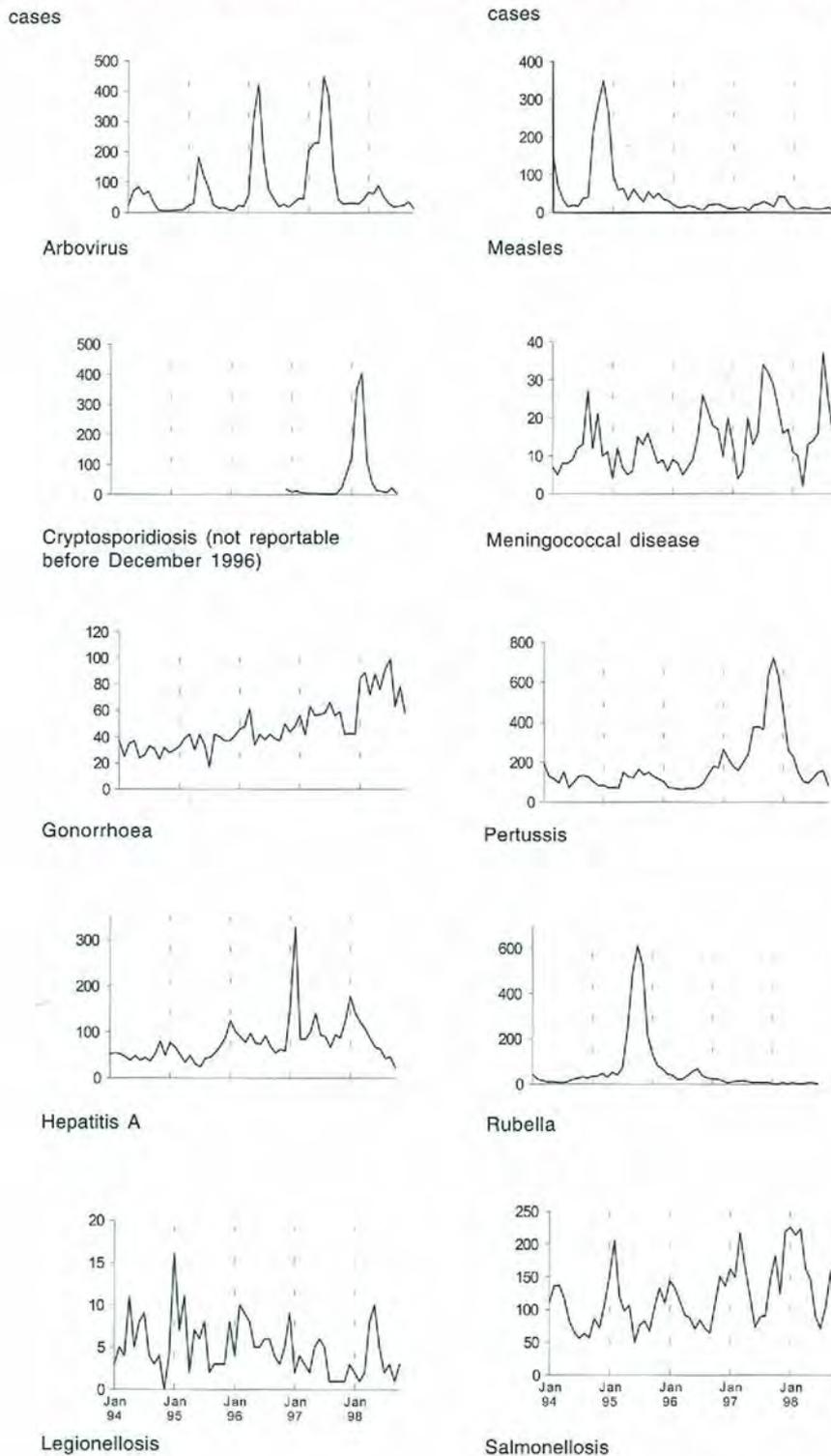
Without needle and syringe programs (NSPs), HIV has the potential to spread rapidly among IDU populations, and from there to the rest of the population. The rapid spread of HIV among IDU in localities without NSP has been well documented. These reports show a striking similarity in the rapidity of both the spread and the resulting high prevalence of cases. In Mykolayev in the Ukraine, prevalence was estimated to have risen from two per cent in 1995 to 57 per cent in 1996. In Edinburgh, prevalence rose from one per cent to 40 per cent in one year and, in Bangkok, prevalence rose from two per cent to 40 per cent in two years.¹

The strongest evidence for the efficacy of NSPs was obtained by an Australian analysis using a non-selective meta-analytic methodology based on more than 3000 articles in the research literature.² From these, the authors identified 81 cities worldwide in which changes in the

FIGURE 3

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

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



HIV antibody seroprevalence among IDUs had been assessed over time. NSPs were present in 29 and absent in 52 of these cities. The study found that HIV prevalence had decreased by 5.8 per cent per annum in the 29 cities with NSPs, and increased by 5.9 per cent per annum in the 52 cities without such programs.

A model approach

Lurie and Drucker noted that the effectiveness of Australian NSPs in minimising new HIV infections made them a desirable model for the development of policy in the United States.³ Recently, it has been estimated that approximately 36 per cent of newly diagnosed AIDS cases in the United States are IDU-related and that injecting drug use is the most frequently reported source of new HIV infections.⁴

The rapid increase in HIV transmission in an injecting population was documented recently in Vancouver, Canada, despite the presence of an NSP.⁵ Previously, the prevalence of HIV among IDUs was similar to Australia's—less than two per cent. However, this increased to around 23 per cent over 18 months. This was thought to be due to several factors, including:

- a high level of needle sharing
- unstable housing
- the use of public 'shooting galleries' with insufficient numbers of needles and syringes distributed to meet the new demand
- an increase in cocaine use with an associated higher frequency of injecting.

Research indicated that changes in environmental conditions and social circumstances created by housing and public health policy affect injecting behaviour and play an important role in determining the health of IDUs. Small changes in public health policy may be enough to produce both positive and sometimes unanticipated negative consequences for injecting drug users.

Cost savings attributed to needle and syringe programs

The public health benefits and cost saving generated by the NSW Needle and Syringe Program are significant. The independent evaluator of the National HIV/AIDS Strategy 1993–94 through 1995–96, Professor RGA Feachem, estimated in his report that, in 1991, Australian NSPs had prevented approximately 2900 cases of HIV infection. This represents a saving of \$266 million in avoided treatment costs.⁶

Prevention of Hepatitis C

The prevalence of hepatitis C (HCV) among Australian IDUs is much higher than that of HIV. This is due to a

number of factors, given that HCV was already present among IDUs before the virus was identified and before prevention efforts (such as NSPs) could be put in place. In addition, HCV is much more readily transmitted than HIV. In Australia, it is currently estimated that about 80 per cent of HCV infections were acquired through injecting drug use, seven per cent through receipt of blood or blood products, and the remainder through other routes such as tattooing, body piercing and needlestick injury.⁷ However, evidence has now emerged which shows that HCV transmission rates among new injectors (injecting for less than three years) dropped from 34 per cent in 1996 to 13 per cent in 1997.⁸

Possible reduction in overdose deaths

Another public health benefit of providing NSPs is a likely reduced incidence of fatal overdose. Such a reduction is made possible through the provision of overdose prevention education for IDU-affected communities and family members and through the availability of cardio-pulmonary resuscitation (CPR) and other interventions at injecting locations. At one inner-city location, NSP workers reported 180 serious overdoses in the six months to the end of October 1998. Due to the presence of NSP workers who administered CPR, no fatalities were reported on any of these occasions. NSP workers continue to provide education to IDUs regarding overdose prevention and appropriate responses in overdose situations.

Promoting access to other prevention programs

NSP staff are often the first point of contact for IDUs into the mainstream of health care. They are able to refer IDUs to a variety of relevant agencies, including drug and alcohol services, detoxification services, methadone treatment services, counselling services, and other drug treatment programs. Staff also continue to provide health and safety education to NSP clients including disease prevention, vein care, nutritional advice, and issues arising out of living with hepatitis C and HIV or AIDS.

Reducing needle and syringe litter

Where resources permit, NSP staff also participate in community education regarding the public health benefits of NSPs and community clean up of inappropriately discarded needles and syringes. They also provide ongoing education to IDUs of the need to exchange or dispose of used injecting equipment safely and responsibly.

In addition, NSW Health has introduced the Needle Clean Up Hotline (1800 633 353). Members of the public can now call a toll-free number from anywhere in NSW to discuss problems caused by needle and syringe littering. Inappropriately discarded needles and syringes will be removed upon request.

Conclusion

IDUs are the most strategically important target population for HIV prevention. Epidemics among this group can be unpredictable, occur rapidly, and have the potential to greatly increase transmission rates in non-IDU women, children and other groups.

The weight of evidence demonstrates that NSPs are effective in reducing HIV infections among IDUs. Implementation of NSP strategies in NSW has been of high quality and effectiveness, and has contributed to maintaining low rates of HIV infection among IDUs. The public health benefit and economic value of NSPs is now being increasingly recognised.

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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 (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.

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TABLE 2

INFECTIOUS DISEASE NOTIFICATIONS RECEIVED IN OCTOBER 1998 BY AREA HEALTH SERVICES

Condition	Area Health Service (1998)																Total			
	CSA	NSA	WSA	WEN	SWS	CCA	HUN	ILL	SES	NRA	MNC	NEA	MAC	MWA	FWA	GMA	SA	for Oct‡	to date‡	
Blood-borne and sexually transmitted																				
AIDS	7	2	3	—	—	—	—	—	4	—	—	—	—	—	—	1	—	17	120	
HIV infection*	—	—	—	Reported second monthly						—	—	—	—	—	—	—	—	—	—	288
Hepatitis B: acute viral*	—	1	1	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	3	50
Hepatitis B: other*	49	26	—	1	1	6	1	4	35	2	2	—	3	2	3	3	2	140	3258	
Hepatitis C: acute viral*	4	—	—	2	—	—	—	—	5	—	1	—	1	—	—	—	3	16	99	
Hepatitis C: other*	61	34	—	10	1	42	34	40	100	34	41	7	8	26	3	8	22	473	7951	
Hepatitis D: unspecified*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	3
Hepatitis: acute viral (not otherwise specified)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Chlamydia (genital)	—	—	—	—	—	—	—	1	4	—	—	5	9	9	4	8	4	44	142	
Gonorrhoea*	14	4	—	—	—	—	2	1	42	—	—	3	1	1	—	1	1	72	811	
Syphilis	7	3	—	1	—	2	—	—	9	1	2	2	3	3	3	—	—	36	484	
Vector-borne																				
Arboviral infection*	—	3	4	—	—	2	1	1	1	3	4	1	3	3	6	2	1	35	457	
Malaria*	2	1	—	—	—	—	—	—	1	1	—	—	—	—	—	—	1	6	134	
Zoonoses																				
Brucellosis*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2
Leptospirosis*	—	—	—	—	—	—	1	—	1	2	—	1	—	—	—	—	1	6	27	
Q fever*	—	—	—	—	—	—	—	1	—	5	1	1	4	—	—	—	17	30	196	
Respiratory and other																				
Blood lead level	5	—	—	2	—	12	3	2	6	1	—	—	—	1	—	2	1	35	964	
Legionnaires' disease	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	37
Leprosy	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Meningococcal infection (invasive)	1	4	6	—	—	1	—	1	7	—	—	1	—	—	—	—	—	21	163	
Mycobacterial tuberculosis	5	2	8	—	—	1	1	—	2	1	—	—	—	—	—	—	—	20	335	
Mycobacteria other than TB	9	4	—	1	—	3	—	1	10	3	3	1	—	—	—	1	—	36	267	
Vaccine-preventable																				
Adverse event after immunisation	1	—	1	—	1	1	1	—	—	—	2	—	—	1	—	—	—	15	169	
<i>Haemophilus influenzae</i> b infection (invasive)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7
Measles	1	—	2	—	1	—	—	—	2	1	2	—	—	—	—	—	—	9	106	
Mumps*	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	35
Pertussis	5	4	11	6	5	4	7	15	10	1	5	3	—	7	16	34	9	143	2222	
Rubella*	—	—	1	—	—	1	—	—	2	1	—	—	—	—	—	—	—	5	53	
Tetanus	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	1	4	
Faecal-oral																				
Botulism	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cholera*	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1
Cryptosporidiosis	1	—	1	—	—	1	—	—	1	—	1	—	1	—	—	—	1	7	1128	
Giardiasis	5	9	6	2	5	3	—	—	6	—	1	6	2	1	—	1	1	48	231	
Food-borne illness (not otherwise specified)	—	—	—	—	—	—	—	—	—	—	4	—	—	—	—	—	—	4	142	
Gastroenteritis (in an institution)	42	—	85	—	—	—	—	—	—	—	—	—	—	—	—	—	—	127	341	
Haemolytic uraemic syndrome	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5
Hepatitis A	—	7	1	—	4	2	—	2	5	1	1	—	1	3	—	1	3	31	909	
Hepatitis E	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4
Listeriosis*	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	25
Salmonellosis (not otherwise specified)*	13	20	24	1	—	4	10	6	15	3	1	7	—	6	—	6	3	121	1565	
Typhoid and paratyphoid*	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	29	
Verotoxin-producing <i>E. coli</i>	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1

* lab-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