

# Key Interventions to Improve Health Gain for Children and Improve Family Functioning

Some interventions stand out across the review because they are evaluated as effective throughout a range of programme areas or are identified by people interested in child health (for example providers who made submissions on the *Child Health Strategy* consultation document in March 1998 (Ministry of Health 1998e)) as having the potential to improve health outcomes for a significant number of children and are therefore worthy of further consideration.

While a range of programme areas and issues were examined in the review, and these varied considerably in nature, some of the interventions identified were remarkably consistent across them. The following interventions are not exclusive of each other and are identified as having the potential to lead to the greatest health gain for New Zealand children:

- tobacco control measures
- home-visiting programmes
- interventions to protect children from unintentional injury
- improved health service delivery.

Their potential effectiveness will be enhanced by adapting them to the New Zealand setting and by ensuring that evaluation is built into implementation.

## Culturally effective services

While it is likely that evaluations of preventive interventions conducted in the United States and other developed countries are generally applicable to New Zealand, it is important to recognise the unique features of this country in terms of Māori and Pacific people and the geographical diversity that exists in our society, for example, the many small isolated rural communities. Such factors suggest that proven interventions from overseas still need to be evaluated to determine their suitability in relation to the New Zealand setting. The Polynesian population in New Zealand includes Māori and a range of Pacific people with different cultural backgrounds.

Māori are not a homogeneous group. They live in a range of differing situations and conditions and in order to meet their needs, health services must be comprehensive and flexible. Meeting differing cultural expectations and specific health needs will be achieved by:

- being aware of and responding to the diverse expectations of Māori who may best receive their services in a Māori and/or a mainstream setting
- working sensitively with Māori through high-quality consultation
- recognising the tikanga and mana of iwi in their region

- encouraging greater participation of Māori in service planning, delivery and monitoring
- recognising and responding to the particular employment requirements of Māori staff
- having providers sufficiently familiar with Māori cultural beliefs, norms and values to be able to eliminate the risk of inappropriate practices which cause offence or marginalise participation on cultural grounds (Minister of Health 1996).

In order to achieve improvements in health outcomes for Māori it is essential to use interventions that are identifiably Māori and validate Māori communities. This will happen when communities have ownership of solutions. Māori health services have been shown to have achieved a better access to Māori communities than their mainstream counterparts. Whānau-based networks can play a vital role in assuring greater access to services, and these must be developed and maintained. For information on some further targets and interventions related to health outcomes for Māori refer to *He Matariki: A strategic plan for Maori public health* (PHC 1995) and *Whāia Te Whanaungatonga Oranga Whānau: The wellbeing of whānau* (Ministry of Health 1998f).

A range of services exist which have been developed by Māori and which reflect the incorporation of tikanga Māori into health services. They include services to reduce smoking, to combat drug and alcohol abuse, to respond to and prevent child abuse, and to promote physical activity, oral health services and home-visiting services. There are some providers who combine a number of health, education and social services into a comprehensive service. Such services reflect the community they come from.

An example of a well-established Māori programme is *Tipu Ora* which provides a comprehensive health promotion programme aimed at increasing access and utilisation of health services for Māori mothers and babies and utilises the experience and training of an older experienced mother who provides support to a younger mother. The success of the programme has been measured in the reduction of low birthweight babies, an increase in the number of mothers who have stopped smoking during pregnancy, an increase in breastfeeding rates, an increase in mothers who place their babies in the correct sleeping position, an increase in the number of smokefree environments, and improved immunisation rates (Te Puni Kōkiri 1994).

## Tobacco control measures

(These are discussed in more detail in section 4 Tobacco Control and Child Health.)

Tobacco smoking by pregnant women and parents has a significant impact on child health and development. Studies show that one-third of all pregnant women smoke during pregnancy, while two-thirds of Māori women and single women smoke during pregnancy. Tobacco smoking contributes to:

- low birthweight and premature delivery
- SIDS, asthma, pneumonia, glue ear, and meningitis
- later adolescent smoking behaviour.

Regulatory and enforcement measures, as are currently in place, are effective population-based interventions. There is evidence that further increases in tobacco taxation levels would reduce tobacco smoking particularly amongst young people and those on low incomes.

The World Health Organization considers that most econometric studies show a convincing decrease in consumption as tobacco tax rates increase (Chollat-Traquet 1996). Young people are particularly sensitive to the price of tobacco products. It has been estimated that in this age group, with every 10 percent increase in price a 14 percent decline in demand would be expected (DHHS 1994). This intervention can assist in reducing the risk of dependence. Furthermore, such taxes can be used directly to fund health programmes, including health education. This is the case in at least five countries and in seven American states and three states in Australia. Many health authorities recommend increasing tobacco taxes, for instance, the American Academy of Pediatrics (1997).

There is a service gap in smoking cessation programmes. Effective smoking cessation treatments are available and are cost-beneficial but have not been widely implemented. Three treatment elements in particular are effective, and one or more of these should be included in smoking cessation treatments. They are:

- nicotine replacement therapy (nicotine patches or gum)
- social support (provider encouragement and assistance)
- skills training/problem solving (DHHS 1994).

Effective reduction of tobacco use requires the health purchasing and provider systems to make administrative changes that result in systematically identifying, and intervening with, all tobacco users at every visit. There is also good evidence that counselling offered as part of a home-visiting programme is effective in reducing tobacco smoking amongst pregnant women (DHHS 1994).

Having tobacco smoking as a monitoring indicator in contracts is effective in increasing clinician intervention rates, but tobacco smoking is not currently a variable on prenatal or primary care minimum data sets.

## Home-visiting programmes

Home visiting gives professional staff, para-professionals or volunteers the opportunity of working with individuals within a family context and in their own home. It involves delivering health, development and service information, personal support and sometimes practical assistance. It also provides an opportunity for the visitor to observe the family within its own context. Home visiting can reach people who might not otherwise receive or utilise health, welfare or educational services for their children and themselves. The success of the programme with an individual depends on the visitor building a trusting relationship with one or more family members (often the mother) and providing an intensive service (frequent visits at least initially) and beginning the intervention early in a child's life (Vimpani et al 1996; Donnelly 1992).

A recent review found that a small but growing body of research has supported the effectiveness of home visitation in some but not all home-visitor programmes. Included are:

- prenatal benefits, especially improved health outcomes for mother and for infant
- postnatal benefits, such as fewer subsequent pregnancies, fewer accidental injuries, a decline in use of physical punishment and increase in use of appropriate discipline, improved maternal child interaction, increased use of appropriate play material, fewer verified incidents of child abuse and neglect, higher developmental quotients in infants visited

- long-term effects (a 15-year follow-up study), such as fewer subsequent pregnancies, reduced maternal criminal behaviour, a decline in the verified incidence of child abuse, less use of welfare (American Academy of Pediatrics 1998).

Current research indicates that successful programmes include the following elements:

- a focus on families in need of services
- intervention beginning in pregnancy and lasting through the fifth year of life
- flexibility and family specific
- active promotion of positive health-related behaviours
- a broad multi-problem focus
- measures to reduce family stress by improving its social and physical environment
- use of nurses or well trained para-professionals (American Academy of Pediatrics 1998).

Other systematic reviews of evidence have consistently found that home visits to high risk families, single or teenage parents through the perinatal period, infancy and early childhood are effective in reducing injuries and improving child intellectual and behavioural functioning. Mrazek and Haggerty (1994) examined five randomised control trials (RCTs), a quasi-experimental study and the *Healthy Start in Hawaii* evaluation which were all aimed at high risk groups. From this they concluded that ‘infants born to high-risk mothers ... could benefit from preventive interventions that reduce financial, institutional, and other access barriers’. Furthermore, they concluded that nurse home visitation can be an effective means of influencing maternal and child health outcomes. Evidence for effectiveness in preventing child abuse is less clear (Olds and Kitzman 1993). Intensive home-visiting services providing parenting advice, promoting access to services and offering psychosocial support are currently being implemented and evaluated in many parts of the world.

There are two contentious issues associated with providing home-visiting services. These relate to whether or not screening tools should be used to identify who receives services and to what extent support services should be provided universally or targeted at specific groups at risk of poor health and welfare outcomes.

Single episode screening processes may lack precision (MacMillan et al 1994). Rigid use of screening tools runs the risk of bringing people into a programme who don’t need to be there and more importantly denying services to people who could use them.

Approaches to identifying infants and caregivers who may benefit from home-visiting intervention include: (1) a two-stage identification process to improve specificity, (2) allowing late referrals of families with identified need, and (3) including clinical judgement of trained professionals. The impact of early attachment failure and other poor parenting factors suggest that over-inclusion of cases in the early months is justified.

The argument against a targeted model of service delivery is that it comes as a model of deficit – it focuses on weaknesses and limitations rather than building on strengths and assets, and leads to fostering dependence. Targeting has also attracted criticism because of the stigmatising for the families involved.

Solutions to these issues appear to lie in an approach which includes providing some advice and support to all families in pregnancy and immediately after birth and additionally the ability to offer increased services to families identified by the professional staff who have contact with them. Identification of recipients of extra services could to a large extent rely on

the experience and expertise of staff and could be guided informally by the factors identified in the various screening tools that exist. Service delivery must be flexible enough to recognise that families' circumstances are not static and crises occur.

Many providers in the surveys identified themselves as delivering aspects of a home-visiting service as part of a suite of services. A few 'stand alone' home-visiting services exist in New Zealand, but the extent of the services provided varies and coverage is fragmented. Home visiting was identified in the provider surveys as a priority for reaching families who otherwise would make little use of health services. The provision of culturally effective home-visiting programmes includes the need for 'by Māori for Māori' and Pacific family programmes. Ongoing evaluation of early intervention programmes needs to be established in New Zealand.

## **Interventions to protect children from unintentional injury**

(These are discussed in more detail in section 3 Preventing Unintentional Injuries.)

Injuries are the leading cause of death in the age group 1–14 years. Injuries are the second leading cause of hospitalisation of children. In a recent review, Rivara and Grossman (1996) considered that nearly one-third of child injury deaths in the United States are readily preventable. There is good evidence for the effectiveness of a number of interventions in reducing child injuries (Dowswell et al 1996). These are outlined below.

### **Control of environmental and product hazards**

Modifying the environment and products through codes of practice, legislation and regulation can help prevent injuries. Legislation and regulation are likely to be most effective when they are part of comprehensive programmes that include education, environmental modification and safe product design. This comprehensive approach may explain the success that Sweden has had in reducing childhood injuries.

### **Home visiting and health education interventions**

There is strong evidence of the effectiveness of home-visiting interventions in reducing childhood injuries.

### **Local injury prevention programmes**

There is a wide range of evidence-based interventions that require local implementation (such as playground surfacing, traffic management programmes, 'child-proof' fencing and so on). The reduction of childhood injuries in local communities requires systematically identifying patterns and the contributing factors, and planning appropriate interventions. Successful injury prevention programmes require an intersectoral approach where the lead agency may be outside the health sector, for example, the key role of the Land Transport Safety Authority in preventing road traffic injuries and the key role of the Ministry of Consumer Affairs in ensuring product safety.

## Systematic surveillance, identification and analysis of environmental hazards in homes and communities

Injury control is a complex area with a diverse range of factors relating to types of injury and associated risks. The development of successful intervention strategies is dependent on systematic local and national surveillance of injuries and associated pre-event factors. There is room to extend the systems currently existing in New Zealand. Further progress in child injury control will require the development of injury surveillance systems similar to those in Australia, the United Kingdom, and the United States.

## Improved service delivery

In the key provider interviews, fragmented service delivery was identified as the major weakness in the current system. A lack of integration and co-ordination is seen as a barrier to effective service delivery. Culturally effective service provision requires improved co-ordination between 'by Māori for Māori' providers and between those providers and mainstream services. Poor intersectoral co-operation was also seen as compounding this problem. The competitive contracting environment was regarded by providers as a factor reducing co-operation and contributing to fragmented services.

One provider survey identified a national child health information system as one of three priority areas for development that would improve child health outcomes. A system would give information to providers about whether children had received immunisations and other aspects of well-child care. It would allow GPs to recall patients when a check had been neglected and ensure information was passed on when a child changed provider. The use of a recall register by GPs improves immunisation rates markedly (Reid and Graham-Smith 1984; Soljak and Handford 1987; Linkins et al 1994; Tollestrup and Hubbard 1991).

General practitioners surveyed did not see the information system as a high priority in regard to resourcing and stressed instead the need for operational safeguards. The benefits of 'information systems' were not evaluated by this review. However, consultation meetings held as part of the development of the *Child Health Strategy* strongly recommended the implementation of a child health information system in New Zealand.

Removing barriers to accessing child health services is seen as a significant issue for some population groups, in particular Māori and Pacific people. Providers saw poverty, failure to recognise the importance of health issues, cultural and language barriers, and fragmented services as being the greatest barriers to access to child health services.

## Other important interventions

**Legislation and regulations** – These mechanisms play an important part in protecting the health and safety of children. There is scope for enhancing regulatory measures to further control injury in New Zealand and to increase water fluoridation – the most effective measure in reducing dental caries. Regulatory measures are also important in food safety.

**Research and review** – Within a number of programme areas further research is needed, particularly in the areas of health status and in monitoring and evaluating programmes and services.

## Child mortality reviews

Although this review did not look at evaluations of the benefits of comprehensive child mortality review systems, various individuals and groups in New Zealand have advocated a comprehensive nationwide system to review all child deaths. Reports from some systems operating overseas indicate that a significant and unmanageable backlog can develop with this fully inclusive approach.

Recently the Commissioner for Children published a report proposing the development of a child mortality review system in New Zealand (O'Reilly et al 1997). A variety of systems exist in other parts of the world and in particular in the United States where legislation has been enacted in some states to establish reviews (Durfee et al 1992; Committee on Child Abuse and Neglect 1993). The purpose of the reviews is to use what is learnt from children's deaths to reduce morbidity and mortality rates through improved policy and practice and through public education. Some review systems confine themselves to reviewing cases where children die through violence but others are much broader and examine wider categories of death. In some situations specific legislation exists to ensure professional protection and compliance.

A workshop held in Australia in April 1998 reported on two systems operating in Australia (Victoria and New South Wales). Both involved case reviews by multidisciplinary expert teams but otherwise varied considerably in approach and coverage. The important lessons arising include awareness that any system developed should:

- cover all deaths – not only violent deaths
- be clear and specific about its objectives
- ensure 'ownership' and co-operation of all who will be affected by it
- avoid attributing blame
- provide maximum protection for workers and families from identification, publicity and punitive action
- be efficient in cost and time (which includes avoiding duplicating any other data collection system, investigation or practice audit)
- ensure access to relevant material
- have a skilled and widely representative membership on the review committee
- have built-in mechanisms which require action on recommendations
- routinely evaluate whether the system is meeting its objectives and avoiding unintended consequences.

## Child health clearing house

In the course of the review, it became apparent that some studies on specific aspects of child health, relating either to health and welfare status or programme approach and effectiveness, exist within and outside the 'health' arena but are not easily identified. A national clearing house needs to be established that provides easy access to what we know about various aspects of the health and wellbeing of children in New Zealand. While many studies may not meet the randomised control study criteria used to inform much of the

evidence for the effectiveness part of this review, they nevertheless provide valuable local information and point the way to further research. There is also a need for ongoing evaluation of interventions aimed at improving the health and welfare of children. While we must rely to a large extent on overseas research, New Zealand is unique in its history and mix of cultures, and the way we approach improving the health of our children must reflect this uniqueness.

## Health promotion strategies

The *Ottawa Charter for Health Promotion* (WHO et al 1986) defined key public health strategies as:

- building healthy public policy
- creating supportive environments
- strengthening community action
- developing personal skills
- reorienting the health sector.

Some of the interventions identified in the *Child Health Programme Review* fall within these broad categories. The programme review identifies implications for policy and services across all programme areas. Action on these matters will strengthen strategies identified in the *Ottawa Charter*.

This review identified a limited number of evaluations of health education interventions. There is evidence of the effectiveness of some education programmes targeted at specific age groups, for example, substance abuse prevention with school children.

School health programmes can be an important means of improving, promoting and protecting children's health. A health-promoting school is characterised by constantly strengthening its capacity as a healthy setting for living, learning and working. This involves developing school health policies, creating healthy school environments, promoting personal skill development and co-ordinating school activities. The 1997 WHO Expert Committee on Comprehensive School Health Education and Promotion concluded that there is ample evidence that school health programmes can be the most efficient and cost-effective way to improve students' health, and as a result, their academic performance. For the school, school staff, the school as an institution, the family, the community and the nation, health promotion through schools is financially, educationally, socially and politically desirable (WHO 1997a).

A recent review of European and some United States studies of school-based health education programmes indicated that among those that evaluated behavioural change, at least short-term effects were reported in regard to sexual behaviour, general health, smoking, use of alcohol, use of marijuana, and exercise. The following characteristics were part of the most effective programmes:

- Curricula are skill-based, sequentially developed, and reflect the interdependence of the individual, peers, the family, and the community.
- They offer a positive, affirming approach to health and wellbeing.
- They emphasise affective, skill and cognitive objectives.

- They reflect fundamental health concerns of students and teachers.
- They make use of a wide range of interactive techniques.
- They include teacher training and ongoing technical assistance and in-service programmes.
- Classroom activities are supported by home and community assignments to enhance the students' view of health as a broad social process and to involve the family and others (WHO 1997b).

There is also some evidence of the effectiveness of personal counselling by health care workers as a means to improve health outcomes. More widespread public education programmes are hard to evaluate but such programmes may well play a part in providing society with significant information and promoting attitudinal change. Examples of these programmes include campaigns aimed at increasing awareness of child abuse, changing attitudes about domestic violence and the dangers of drinking and driving. Such programmes are best delivered as part of a package of health promotion interventions.

Reporting on her recent review of interventions and their effectiveness in reducing inequalities of health through; strengthening individuals, strengthening communities, improving access to essential facilities and services, and encouraging macroeconomic change Sally MacIntyre comments that most interventions have been directed at the individual level and that most interventions that are designed to improve public health (such as mass health promotion campaigns) in general have tended to benefit better-off groups, mostly because they are more likely to respond to such interventions and benefit from behavioural change. She points out that the effectiveness of most interventions has not been rigorously evaluated. Although the reviews show that the interventions have short-term benefits for the deprived individuals or communities at whom they are directed, it is harder to demonstrate long-term effectiveness (MacIntyre 1997).

In an article discussing a number of health education programmes (aimed at adults) LS Syme concludes that more successful programmes:

- ensure the relevance of the programmes to the priority group
- use interventions that have been designed to meet the needs of the priority group
- take into account sub-groups within a community
- reflect the social context in which people live and work (Syme 1997).

## **Current interventions not supported by evidence**

Very few existing interventions have been identified as being ineffective. In order to expand the services identified above, it will be necessary to re-examine some child health service priorities. The evidence review identified a small number of interventions currently purchased by the Health Funding Authority which are not supported by the evidence. These include a range of screening activities such as screening for otitis media with effusion (glue ear) in preschool children and vision screening in school-aged children.

**Table 1** Interventions associated with better health outcomes

Outcome	Key Interventions	Relevant Programme Areas
Reduce tobacco smoking	Tobacco control, Smoking cessation/reduction programmes, Health education, Home visiting, Culturally effective services	Prenatal/infant health, Physical activity, Oral health, Communicable diseases, Asthma, Cancer, Tobacco, Disability
Increase maternal age	Home visiting, Co-ordinated services, Health education, Culturally effective services	Prenatal/infant health, Sexual/reproductive health, Food/nutrition, Child abuse/domestic violence, Unintentional injury, Disability
Increase infant birthweight	Home visiting, Co-ordinated services, Health education, Culturally effective services	Prenatal/infant health, Sexual/reproductive health, Disability
Improve maternal education	Home visiting, Co-ordinated services, Health education, Culturally effective services	Prenatal/infant health, Sexual/reproductive health, Food/nutrition, Mental health/behaviour, Child abuse/domestic violence, Unintentional injury, Oral health, Asthma, Tobacco, Substance abuse
Increase rates of breastfeeding	Home visiting, Co-ordinated services, Health education, Culturally effective services	Prenatal/infant health, Food/nutrition, Oral health, Communicable diseases, Asthma
Enhance early experiences	Home visiting, Health education, Culturally effective services	Prenatal/infant health, Sexual/reproductive health, Mental health/behaviour, Child abuse/domestic violence, Tobacco
Reduce drug and alcohol exposure	Home visiting, Co-ordinated services, Health education, Culturally effective services	Prenatal/infant health, Child abuse/domestic violence, Disability
Support routine health care	Home visiting, Co-ordinated services, Health education, Culturally effective services	Prenatal/infant health, Sexual/reproductive health, Mental health/behaviour, Child abuse/domestic violence, Unintentional injury, Asthma, Tobacco, Substance abuse
Improve partner support	Home visiting, Culturally effective services	Prenatal/infant health, Sexual/reproductive health, Mental health and behaviour, Child abuse/domestic violence, Asthma, Substance abuse
Reduce consequences of poor housing	Home visiting, Co-ordinated services, Health education, Injury prevention measures, Culturally effective services	Prenatal/infant health, Sexual/reproductive health, Food/nutrition, Mental health/behaviour, Child abuse/domestic violence, Oral health, Communicable diseases, Unintentional injury, Asthma, Tobacco, Substance abuse
Reduce consequences of inadequate income	Home visiting, Co-ordinated services, Health education, Culturally effective services	Prenatal/infant health, Sexual reproductive health, Food/nutrition, Mental health/behaviour, Child abuse/domestic violence, Oral health, Communicable diseases, Unintentional injury, Asthma, Tobacco, Substance abuse

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