

**Supporting Evidence for
Changes to the Content of
the Well Child /
Tamariki Ora Framework
Background Paper 2007**

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In 2007 as part of the Well Child/Tamariki Ora Framework Review, the Ministry of Health developed this background paper setting out the evidence for proposed changes to the Well Child Framework. This document was used in the consultation process and together with stakeholder feedback informed the changes that have been made to the Framework.

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Executive Summary

As part of the Well Child / Tamariki Ora Framework Review (the review), the Ministry of Health has developed this background paper, *Supporting Evidence for Changes to the Content of the Well Child / Tamariki Ora Framework*, which provides supporting evidence for the proposed changes to the content of the Well Child / Tamariki Ora framework.

In July 2006 the Ministry commenced the review, which adopts an outcomes-based approach. It is framed by the New Zealand Health Strategy, the Primary Health Care Strategy, He Korowai Oranga (the Māori Health Strategy), and the Child Health Strategy.

In February 2006 the Government commenced a programme of expenditure reviews. The overall aim of the expenditure reviews is 'to improve performance and value for money within and across votes', and the Well Child Review has been identified as the initial service area within the health sector for the expenditure review. In line with this overall aim, the Well Child Review is seeking to find ways to improve health outcomes within existing resources, and to clarify the value of the next best spending opportunities that cannot be realistically afforded within existing baseline funding. The review is also seeking to identify the most efficient spread of early intervention services across votes.

The objectives of the review are to:

- determine the best way to improve child health outcomes and reduce inequalities
- identify/confirm the health outcomes the Government should seek for children from birth to five years of age
- determine which types of activities can help to meet these outcomes, based on evidence and best practice within the Well Child / Tamariki Ora framework
- assess the extent to which the clinical content and processes underpinning the current framework will achieve these outcomes
- make recommendations for any changes to the current framework
- identify opportunities for reprioritising existing funding and priorities for any new funding.

This initial phase of the review has focused on reviewing the content of the framework and proposing options for changes based on evidence and sector input. The second phase of the review, after August 2007, will focus on how the quality of Well Child / Tamariki Ora services can be improved through enhanced service delivery to families with greater need and improved co-ordination of services, in order to improve child health outcomes and reduce inequalities.

Well Child / Tamariki Ora services aim to support families/whānau to maximise their children's health status and developmental potential, and to establish a strong foundation for ongoing healthy development. The service is offered to all New Zealand children and their families/whānau from birth to five years of age.

The current framework is delivered by the Royal New Zealand Plunket Society (Plunket) under contract to the Ministry, and by other non-government organisations such as Māori and Pacific health providers and some primary health organisations contracted to District Health Boards (DHBs). A few Well Child initiatives such as the six-week check are delivered in the primary health care setting. Most DHB-held contracts focus on tamariki Māori and Pacific children and their families/whānau. Plunket Well Child service provision covers approximately 85 to 88 percent of New Zealand children. The remaining 12 to 15 percent of services are provided by DHB-funded Well Child providers, primary health organisations, or Māori and Pacific non-government organisations.

The Ministry has consulted with the health, education and social services sectors to inform the review and obtain input to assist with formulating the options. DHBs were surveyed in mid-2006 to gather information about their role in the implementation of the framework. This consultation identified areas where Well Child / Tamariki Ora services are not working as effectively as they could be. Key issues identified as barriers to effective delivery of these services include the relative fragmentation of child health services, problems with delayed referrals from lead maternity carers to Well Child providers, and an inability to adequately measure performance and report on outcomes. There is also reported to be room for improvement in the way Well Child / Tamariki Ora services are delivered for Māori and Pacific children and their families/whānau, in terms of workforce development and provider capacity.

Proposed changes to the framework

Based on the evidence and consultation undertaken, the Ministry considers that there is an identified need and continued support for publicly funded Well Child / Tamariki Ora services, and that there is no need for a radical change to the National Schedule. However, there is evidence to suggest that a refocusing of the current service provision is needed. There are a number of issues that are having a significant impact on the wellbeing of young children and that are not addressed well in the current programme. These include maternal postnatal depression, nutrition, dental care, infant and child mental health, and developmental delay.

The Ministry is proposing the following revisions to the framework.

- A universal service with targeted intensity is likely to deliver the best outcomes, but there needs to be a stronger focus on the delivery of a range of services to vulnerable families and first-time parents.
- A single framework and service specification is desirable, but better integration with other services (eg, primary health care, early childhood education and whānau ora services) is necessary.
- Changes need to be made to the content of the core assessments and the ages at which they are carried out.

- Postnatal depression (PND) is a significant issue for mothers and has a strong impact on children and families. There is evidence indicating that screening for PND is feasible, and that treating PND results in measurable improvements in child health outcomes. Currently there is no formal screening for PND, any screening that is done varies by location, and some areas do not have well-developed maternal mental health teams. The Ministry is proposing to formalise screening, supported by training and clear referral and treatment guidelines. Maternal and infant mental health will be considered as part of the review and update of the framework for child and youth mental health and addiction service provision, set out in *Te Kokiri: The Mental Health and Addiction Action Plan 2006–2015*.
- Sudden unexpected death in infancy (SUDI) is a major contributor to infant mortality in New Zealand. The Ministry is proposing to maintain the universal SUDI prevention message, with a re-emphasis on the five key actions that parents and caregivers can take to reduce the risk of SUDI, particularly for Māori infants. It is essential that mainstream providers support Māori SUDI teams in their ongoing work.
- Child development is a powerful determinant of health in adult life. Developmental surveillance is a shared activity between parents and health professionals, and uses both parties' knowledge of the child to monitor the child's ongoing development. The Ministry is proposing to use a widely accepted validated screening tool, Parental Evaluation of Developmental Status (PEDS), both to detect development and behavioural problems and as a means of eliciting and responding to parental concerns.
- The Ministry is recommending that children at risk of vision problems be flagged to ensure they are screened in middle childhood. Newborn screening for congenital cataracts should be undertaken in all infants by a general practitioner at the six-week check. With the exception of the above checks, for children under the age of four years identification of vision defects should rely on parental concern and professional awareness rather than a formal screening programme. Well Child screening for vision defects should take place at four years of age, and the vision check should consist of a distance vision test only.
- The schedule provides for a tympanometry check for glue ear at three to four years of age. Evidence suggests that universal tympanometry screening has poor coverage and is of limited benefit. There is also little support in the literature for routine tympanometry at three years. Therefore, the Ministry is proposing that tympanometry screening be phased out as a national programme. DHBs may, however, decide to undertake glue ear screening in areas of high prevalence and high deprivation. The Ministry is proposing that four- to five-year-old children have screening audiometry as part of the B4 School Check, and that children with hearing difficulties at this check have tympanometry undertaken as part of the diagnostic assessment.

B4 School Check¹

The B4 School Check will replace the existing school New Entrant Check. The check aims to identify any behavioural, developmental or health concerns that may adversely affect the child's ability to learn in the school environment, and to ensure appropriate and timely referrals are made.

The Ministry is proposing that the content of the B4 School Check include:

- hearing and vision screening
- screening to detect behavioural and developmental problems through the use of the Strengths and Difficulties Questionnaire (SDQ) and PEDS
- measurement of height and weight
- recording of body mass index (BMI) as a population-level indicator
- an oral health assessment
- a general health assessment.

The Ministry is proposing that the qualifications for the professionals conducting the B4 School Check would need to include nursing or medical registration, community experience, child health experience, and the ability to communicate with children and families. Vision hearing technicians (VHTs) will continue to play an important role in vision and hearing screening and initial assessment of children where there are identified concerns. The nurse or medical professional would need to have links with education (both early childhood and primary) and links with other services (eg, social workers in schools). It would be beneficial if they could also perform vision and hearing screening and immunisations in some situations.

There are several options for where the B4 School Check could take place, including the family home, early childhood education centres and kōhanga reo, general practices, the school, and community settings. A combination of approaches may be needed, but it will be important to ensure that a needs-based approach is followed.

The Ministry is proposing that the B4 School Check take place between four and five-and-a-half years of age, preferably between four and four-and-a-half years, allowing more time for those children who are difficult to find or who are unable to attend. A catch-up may be necessary once a child has started school for a small percentage of children. This is also a good time to review children with concerns that did not meet referral criteria.

¹ Previously referred to as the 'Ready for School' check.

Service delivery

The existing service delivery model for Well Child / Tamariki Ora services is based on home visiting, with the core contacts being delivered initially in the home setting by a registered nurse, and then for less needy families in the clinic or school. There is a considerable body of evidence on the effectiveness of home visiting as a model of service delivery, which indicates that home visiting benefits children's health outcomes such as oral health, mental health and breastfeeding. The Ministry is proposing that home visiting remain the principal mechanism for delivering early Well Child / Tamariki Ora services.

Good parenting protects and promotes children's mental health. Changing parenting practices may be important for reducing abuse in childhood and improving links to family support. Universally available parent support and education programmes help to build parents' capability, promote secure attachment and improve outcomes for children. The expansion and enhancement of universally available parenting programmes are being considered as part of the cross-government initiatives led by the Ministry of Social Development.

The review has identified a lack of quality data to assess the effectiveness of Well Child / Tamariki Ora services and to determine whether services are resulting in improved child health outcomes. The information environment required to support child health outcomes is part of the scope of the project Primary Health Care Strategy: Key Directions for the Information Environment. The Ministry has made a formal commitment to cover the community and primary child health information environment, including Well Child / Tamariki Ora services, within the Key Directions project.

The Ministry is developing a quality framework which will encompass the assessment of Well Child / Tamariki Ora service delivery along with the measurement of outcomes. This will provide a mechanism to evaluate the effectiveness of Well Child / Tamariki Ora services, including the ability of the services to reach high-needs families/whānau.

There are opportunities to improve child and family health outcomes through implementation of the framework, especially if Well Child / Tamariki Ora services are more closely linked with other health providers, early childhood education, social services and parenting programmes. The next phase of the review will identify ways in which service links can be improved.

Ensuring children and their families have access to effective referral pathways will be essential to achieving the aims of improving child health outcomes and reducing inequalities. The implications of referrals from Well Child / Tamariki Ora services to health, education and social services will need to be considered, including the availability and capacity of resources and workforce.

Feedback on the options paper from stakeholders will be analysed by the Ministry, and this analysis will inform policy advice to the Government about what the framework should contain. If any changes to the framework are to be made, the Ministry will consider reconfiguring existing services, prioritising any new initiatives to maximise the cost–benefit ratio, and utilising cost savings where possible before considering the need for additional funding. Any agreed changes to the existing framework will be phased in over a one- to two-year period.

The B4 School Check is to be piloted from August 2007. Following an evaluation of the pilot, phased national implementation of the check is planned from early 2008.

1 Introduction

1.1 Purpose

As part of the Well Child / Tamariki Ora Framework Review (the review), the Ministry of Health has developed this background paper, *Supporting Evidence for Changes to the Content of the Well Child / Tamariki Ora Framework*, which provides background information and evidence on the proposed changes to the content of the Well Child / Tamariki Ora Framework.

In July 2006 the Ministry commenced the review of the Well Child / Tamariki Ora Framework. The aim of the review is to improve Well Child / Tamariki Ora services in order to improve child health outcomes and reduce inequalities. The review adopts an outcomes-based approach. It is framed by the New Zealand Health Strategy (Minister of Health 2000), the Primary Health Care Strategy (Minister of Health 2001b), He Korowai Oranga: Māori Health Strategy (Minister of Health 2002) and the Child Health Strategy (Minister of Health 1998).

A key theme for the review has been taken from the vision set out in Te Whāriki, the New Zealand Early Childhood Education Curriculum. This not only resonates with the core purposes of the framework, but also clearly signals the inter-agency approach underpinning the review.

We want our children ... to grow up competent and confident, healthy in mind, body, and spirit, secure in their sense of belonging and in the knowledge that they make a valued contribution to society. (Ministry of Education 1996)

1.2 Objectives of the review of the Well Child / Tamariki Ora Framework

The objectives of the review are to:

- identify/confirm the health outcomes the Government should seek for children from birth to five years of age (based on health status and priorities)
- determine the best way to improve child health outcomes and reduce inequalities
- determine which types of activities can assist in achieving these outcomes (based on evidence and best practice) within the framework, including the B4 School Check
- assess the extent to which the clinical content and processes underpinning the current framework will achieve these outcomes and meet current evidence of best practice
- make recommendations for any changes to the current framework, including service delivery, the contracting framework (including pricing) and infrastructural requirements (eg, workforce, information systems, connection with other services)
- identify opportunities for reprioritising existing funding and priorities for any new funding.

In February 2006 the Government commenced a programme of expenditure reviews. The overall aim of the expenditure reviews is 'to improve performance and value for money within and across votes'. The Well Child Review has been identified as the initial service area within the health sector for expenditure review. In line with the overall aim of the expenditure review, the review of Well Child / Tamariki Ora services is seeking to find ways to improve health outcomes within existing resources, and to clarify the value of the next-best spending opportunities that cannot be realistically afforded within existing baselines.

1.3 Review process

Literature review

As part of the review, the Ministry commissioned a review of recent literature to identify new and emerging health issues for preschool children and the current interventions used to address these issues. The focus was on recent (2000 to 2006) literature from the United States, United Kingdom, Australia, Canada and New Zealand (Allen and Clarke 2006).

Much of the literature refers to a broader age range than just birth to five years, or includes maternal health as well as infant and preschool children. However, the literature review has enabled several promising but broad approaches, principles and guidelines for best practice to be identified. Key findings indicate that there is growing evidence that health and wellbeing in the antenatal period, early infancy and childhood can have significant and lasting effects on health and wellbeing throughout life. Effective community development, health promotion, prevention and early detection of illness and disability, along with prompt, effective intervention, are important strategies for reducing the impact of disease and disability in childhood and throughout life.

Consultation

The Ministry consulted with the health, education and social services sectors to inform the review and to obtain input to assist with formulating the options. A series of focus groups on specific topics, comprising health professionals, medical experts, primary care providers and early childhood education professionals, was held from October 2006 to May 2007. Specific topics included Māori child health issues / mokopuna ora, the B4 School Check, mental health issues, and vision and hearing. Expert input from clinicians was sought on the proposed clinical assessment changes to the framework. Plunket has also provided valuable feedback on proposed changes.

District Health Boards (DHBs) were surveyed in mid-2006 to gather information about their role in the implementation of the framework (Ministry of Health 2006b). All 21 DHBs responded to the survey, providing valuable feedback on the current state of implementation in each of their respective areas, which has helped to inform the review. In addition, consultation sessions were held with DHB Well Child service and funding and planning managers in December 2006 and April 2007 to discuss Well Child / Tamariki Ora service enhancement.

A reference group with a wide range of key stakeholders and frontline providers was established to provide feedback and comment, and an interdepartmental steering group was formed to guide the review and provide governance.

1.4 Cost–benefit analysis

Performing a cost–benefit analysis is important when choosing between intervention options to optimise the allocation of funds. This will need to be considered in planning for implementation and future evaluation.

Investing in infants and toddlers

Heckman and Masterov (2004) utilised cost–benefit analysis to determine what types of human capital programmes produce the most benefit and savings to society. Their analysis determined that:

The returns to human capital investments are greatest for the young for two reasons: (1) younger persons have a longer horizon over which to recoup the fruits of their investments; and (2) skill begets skill. (Heckman and Masterov 2004)

The High/Scope Perry Preschool Project demonstrated that investment in high-quality early childhood services reaps generous rewards: for every dollar invested in one Perry Preschool Project participant there was a saving equivalent to \$17.07. Over a 40-year period this amounts to total savings of \$265,000. Immediate returns are apparent for the individual child, and while each child benefits from every dollar invested, the benefits to society are more than three times the individual amount (Schweinhart 2004). Another example that illustrates similar savings is the Chicago Child–Parent Centre Programme, which showed that for every dollar invested in one participant the cost saved was \$7.14 (Rolnick and Grunewald 2003).

The findings from these evaluations show that, overall, early childhood programmes produce greater savings than costs to society. Society must bear the cost of implementing early childhood programmes, as well as the cost of sending more children to institutions of higher education, but overall society saves money in areas of labour-force quality, crime, social welfare and health, including mental health (Lucas 2006). Table 1 summarises several short-term and long-term social benefits that can be derived from early childhood programmes.

Table 1: Social benefits of early childhood programmes

Short-term	Long-term
<ul style="list-style-type: none"> • Increase in child’s cognitive and socio-emotional development • Increase in child’s educational performance • Increase in the potential for parents to learn positive parenting skills • Increase in parent involvement • Decrease in parental stress 	<ul style="list-style-type: none"> • Increase in graduation rates • Higher educational attainment • Higher earnings/incomes in the workforce • Decrease in cases of abuse or neglect • Decrease in juvenile/adult crime • Decrease in welfare dependency • Decrease in cost of public education

Cost–benefit for interventions to reduce anti-social behaviour and crime

Cost–benefit ratios provide information about the money saved, or the benefit for a given amount of money invested, by implementing an intervention. This ratio provides a useful ‘at-a-glance’ understanding of what may be the most efficient use of resources when choosing between various interventions to reduce anti-social behaviour and crime. In order to make these calculations, data are needed about the differential effectiveness of programmes, the cost of those programmes, and the benefits – or money saved – by reducing or preventing offending (Rubin et al 2006).

Rubin et al compared interventions producing a range of cost–benefit ratios, with the lowest providing a benefit of 1.26 pounds for every pound spent, and the highest providing a return of £17.07. The cost–benefit ratio of 1.26 relates to nurse–family partnerships’ lower-risk sample. Implementing the programme has a lower yield with a lower-risk sample than it would with a higher-risk sample. This may be because in the lower-risk sample fewer of the children would actually have gone on to become offenders. However, it is also possible that certain high-yield programmes may be difficult, or less desirable, to implement (Rubin et al 2006).

The very best investment we can make is to recognise and treat behaviourally disordered children below the age of seven years (Welsh 2003). The long-term costs associated with severe anti-social behaviour are significant. A New Zealand study has estimated that the life-time cost to society of a chronic adolescent anti-social male is \$3.0 million (Scott 2003). The second best investment we can make is the rehabilitation of very high-risk young male offenders. Investments in this area are probably the best the Government can make in any sector (Scott 2003).

Fergusson, Horwood et al (2005) conclude that there is a strong case for a substantial increase in funding and investment into the prevention, management and treatment of childhood conduct difficulties. Recent studies outlined in Fergusson, Horwood et al suggest there are a range of methods and strategies that appear to have the potential to reduce the levels of childhood conduct problems at both population and clinical levels. These methods include: home visitation; centre-based programmes for preschoolers; parent training programmes; programmes to improve family economic functioning; school-based programmes to improve classroom and home management of children; and specialised clinical programmes using therapies, including multi-systemic therapy and cognitive problem-solving skills training to manage children with clinically significant levels of conduct problems (Fergusson, Horwood et al 2005).

2 Existing Well Child / Tamariki Ora Framework

The existing framework is based on the assumption that most children are healthy and well most of the time, but that at times parents and families require additional advice or support. The primary objective of the framework is to support families/whānau to maximise their children's health status and developmental potential, and to establish a strong foundation for ongoing healthy development. The service is offered to all New Zealand children and their families/whānau from birth to five years of age.

The Well Child / Tamariki Ora Framework and the associated National Schedule have been in place since 2002. The framework consists of two parts:

- the service delivery framework, which describes the care to be delivered and expects providers to use needs assessment in order to allocate available resources most effectively to the population they serve
- the pricing framework, which describes how the money will be allocated in accordance with the 'degrees of deprivation' of each provider's enrolled population.

The schedule to the framework divides the care of children into three parallel streams: health education and promotion, health protection and clinical assessment, and family/whānau care and support. These streams incorporate the key public health concepts of supportive environments, disease prevention and health promotion.

The schedule contains the core screening, surveillance, education and support entitlements. It also outlines a total of 12 core contacts that every child and their family/whānau are entitled to receive from birth to five years. The focus of the review is on the eight core contacts provided from the time of handover from the lead maternity carer through to five years of age. An additional five contacts may be provided for first-time parents and/or when there are issues such as infant feeding or behaviour concerns requiring short-term additional contacts. An additional 5 to 10 contacts may also be provided to children and their families/whānau where there is an assessed need and an opportunity to improve health outcomes. The existing schedule is attached as Appendix 1.

The schedule currently excludes the delivery of immunisation, oral health services and other child health services, which are usually delivered in the primary health care setting, but does influence, facilitate and promote these services. The current framework is delivered by Plunket, under contract to the Ministry, and by other NGOs such as Māori and Pacific health providers contracted to DHBs. A few Well Child initiatives such as the six-week check are delivered in the primary health care setting. Most DHB-held contracts focus on tamariki Māori and Pacific children and their families/whānau.

Plunket Well Child service provision covers approximately 85 to 88 percent of New Zealand children. The remaining 12 to 15 percent of services are provided by DHB-funded Well Child providers, primary health organisation (PHOs) and Māori and Pacific non-government organisations. Individual DHBs purchase services for between 3 and 30 percent of children aged zero to five years in their districts. The DHB survey indicated that there are approximately 60 to 70 DHB-funded Well Child providers.

The level of expenditure for the year ending June 2006 for the delivery of the framework was approximately \$41.372 million, excluding general practitioner, oral health and immunisation services. This includes expenditure on both Plunket- and DHB-delivered services.

3 Current Well Child / Tamariki Ora Service Provision

At present Plunket is funded to provide close to 530,000 face-to-face Well Child contacts per annum to approximately 49,600 children. For 2005/06 Plunket reports providing 111,058, or 21 percent of its total contacts, to tamariki Māori and their whānau and 58,387, or 11 percent, to Pacific children and their families (Royal New Zealand Plunket Society 2006). By comparison, in 2005 Māori babies accounted for 23 percent of total live births in New Zealand and 12 percent were Pacific babies (Statistics New Zealand 2007). This suggests that Plunket are providing appropriate numbers of contacts to Māori and Pacific families/whānau based on their population proportions. The Ministry is purchasing 7.0 core contacts/visits per child from Plunket, with provision for additional contacts to first-time parents or families with additional needs. Plunket reports an average number of 10.7 contacts per new baby case.

The DHB survey recorded comments on where it was felt the framework is working well. Some DHBs commented that the schedule is comprehensive, clearly defined and easy to follow, and that the three service streams of health promotion and education, clinical assessment, and whānau care and support are well integrated. It was also noted that the framework encourages relationship building and networking between providers. However, the DHB survey also identified concerns with the pricing framework and the way funding is allocated based on degrees of deprivation. Some DHBs felt that this could disadvantage families in low deprivation areas.

The Ministry is reviewing the existing funding framework for Well Child / Tamariki Ora services. It is the intention in the next phase of the review to consider funding models that support flexibility, and are needs-based and outcomes-focused.

3.1 Barriers to effective delivery of Well Child services

The Ministry is aware of, and consultation with the sector has identified, areas where Well Child / Tamariki Ora services are not working as effectively as they could. As we have seen, the DHB survey also indicated key areas for improvement and review. Key issues that have been highlighted as current barriers to effective delivery are discussed below.

Fragmentation of services

The relative fragmentation of child health services has been identified as hindering the effective implementation of the framework. It appears that this fragmentation may be causing confusion to both providers of child care services and parents. There is sometimes duplication of services, especially with GPs, and a lack of clear information about what services families have received. DHBs commented in the survey that fragmentation has made it difficult to get a clear picture of total service delivery and to understand where there may be service delivery gaps.

Contributing factors to the fragmentation of services are contracting issues, health information system management issues, and limited communication between providers in some areas.

Links

Comments received from stakeholders have identified that there are problems in some areas with delayed referrals from lead maternity carers to Well Child providers. A range of Well Child providers indicated that these referrals often arrive too late (eg, in weeks five to seven), causing a delay in six-week contacts with families and affecting breastfeeding rates. There are also reported gaps in the communications between Well Child / Tamariki Ora services and primary and secondary health care services. There is a need to address the gaps in the systems supporting these referrals.

Sector feedback has also indicated the need to improve links and co-ordination between government agencies and community-based providers involved in delivering universal, targeted, intensive and statutory services for young children and their families.

Lack of a comprehensive quality plan for Well Child / Tamariki Ora services

The lack of quality management information for Well Child / Tamariki Ora services is resulting in an inability to assess the effectiveness of the service and to measure any improvement in child health outcomes. The lack of shared outcomes between the Ministry, DHBs and providers also makes it difficult to measure the effectiveness of the service, and child health outcomes. The DHB survey recorded that it was difficult to monitor and assess the performance of Well Child providers due to issues with reporting and lack of information systems.

Delivery of services to Māori children

Stakeholder feedback has indicated that there is room to improve the way health services are delivered for tamariki Māori and their whānau. Initial stakeholder consultation has reported that the current Well Child / Tamariki Ora model of service delivery is not inclusive of whānau ora and mokopuna ora, and that the review provides the opportunity to reframe the service specifications to align with Māori cultural values and Māori aspirations for wellbeing. Stakeholder feedback has also indicated that the health messages in relation to reducing sudden unexpected death in infancy (SUDI) and other health issues need to be discussed with Māori so that Māori are involved in research- and evidence-based health practice.

Delivery of services to Pacific children

Social, environmental, economic and cultural factors are all important influences on child health. Overall, the determinants of child health are much less favourable for Pacific children than for children of non-Pacific, non-Māori New Zealanders. Adverse socioeconomic circumstances increase exposure to risk factors for diseases and other negative health consequences, and too many Pacific children are living in less than optimal environments for the achievement of positive health outcomes.

Provider capacity and workforce development

Initial stakeholder consultation and the DHB survey reported a shortage of Well Child-trained registered nurses to assist with delivery of Well Child / Tamariki Ora services. Also of concern was the availability of training for Well Child providers. The comment was made that there is a general shortage of people with these skills in the workplace. Consultation with the sector has indicated that more Well Child training is required at all levels.

Stakeholder feedback has also indicated that workforce development needs to be reviewed to address the limited number of health workers employed to work with and improve the health of whānau and their children. Provider development is a fundamental basis of whānau ora (Minister of Health 2002). Comments in the DHB survey indicated that many Well Child providers are small organisations at different levels of development, and that there is little opportunity for capacity building, particularly for Pacific providers.

Referral pathways

Stakeholder feedback has identified a need for improved referral pathways. Although children with problems are being identified and referrals are being made, in many instances long waiting times are being experienced, making it difficult for referrals to be effective. Particular referral pathways cited where long waiting times are being experienced are referrals to and from child development/behaviour services, referrals to public ear, nose and throat services and audiology, and referrals to child and adolescent mental health services.

An increase in referrals to child and adolescent mental health services is likely to be one result of implementing the B4 School Check, and so long waiting times and lack of multidisciplinary service will need to be addressed to maximise the benefits of this check.

3.2 Determinants of infant and child health

The ecological model of health and wellness (Dahlgren and Whitehead 1991, cited in Public Health Advisory Committee 2004) emphasises the many factors that affect the health of individuals. Broadly speaking, and ranging from distant pervasive to local individualised factors, these are:

- the socio-political environment
- socioeconomic and societal influences
- the natural and built environment
- the community, extended and nuclear family, and life experiences
- antenatal, constitutional and genetic endowment.

All of these influences interact to affect the health and wellbeing of a child. There are a number of mechanisms through which health determinants affect health and wellbeing. Low income or poverty is a key mediator of poor child health outcomes. It often leads to poor-quality accommodation, with consequent overcrowding, and susceptibility to infectious diseases. It also leads to early cessation of breastfeeding because a mother may be required to return to work soon after the infant is born, and poor-quality food, leading to nutritional disorders (over- and under-nutrition). Poverty also leads to poorer access to health care, whether due to unpaid doctor's bills or difficulty in obtaining transport.

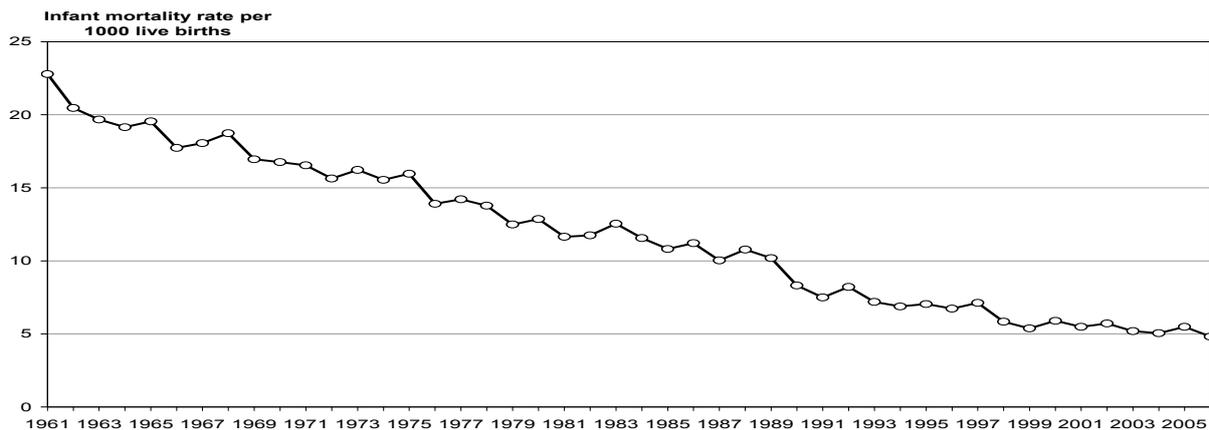
Poor parental education, especially maternal education, leads to low parental income and a reduction in access to health-promoting information due to lack of literacy, motivation or opportunity, and the adoption and continuation of unhealthy lifestyles. Unemployment is related to low income and has a negative mental health impact on parents, leading to loss of self-esteem, stress and restricted social contacts. Living in poorer neighbourhoods can be associated with unsafe natural and built environments; difficult access to community services such as supermarkets, libraries, schools and health services; poorer-quality housing; and reduced 'social capital', such as neighbourhood support groups, mothers' groups and volunteerism.

There is evidence that interventions to address these issues are available and effective, but require leadership and strengthened community development. One example of this is community injury prevention programmes, which have a broad community buy-in and have been shown to be effective in many settings. Community child health teams (including Well Child providers) have a role in the initiation and support of these initiatives. Agencies also have a role to support communities, and the development of service hubs, led by the Ministry of Social Development (Minister of Social Development 2006), is a key action that can be taken to assist poorer communities to improve their access to a range of services.

3.3 Current child health status

Infant mortality, while still high by OECD standards, is continuing to fall, and the last few years have seen the beginning of an improvement in infant mortality relative to other OECD countries. In the year ended June 2006 the infant mortality rate was 4.8 per 1000 live births. This is an improvement from 5.5 per 1000 in the June 2005 year and continues the decrease from 6.7 per 1000 in 1996 and 13.9 per 1000 in 1976. The Māori infant mortality rate was 6.7 per 1000 live births for the same period, down from 11.5 per 1000 in 1996.

Figure 1: Infant mortality rate, 1961–2006

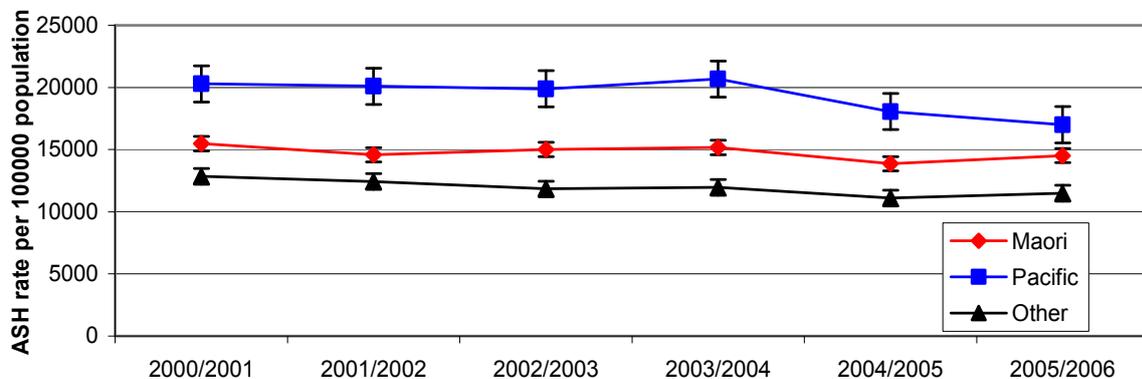


Source: Statistics New Zealand life tables, 2006

However, child health status in New Zealand is not as good or improving as fast as in many other OECD countries. Within New Zealand there are large disparities in health status between population groups. Tamariki Māori, Pacific children and children from low-income families and whānau are experiencing comparatively poorer health outcomes than the overall child population.

There is a statistically significant declining trend in ambulatory-sensitive admissions (hospitalisations avoidable through primary health care) for children aged under five, but admission rates are still higher for Māori and Pacific children.

Figure 2: Ambulatory-sensitive hospitalisations for children aged under 5, 2000–2006



Results from the National Childhood Immunisation Coverage Survey 2005 showed an improvement over previous coverage estimates. Fully immunised coverage at age two years had improved from less than 60 percent in 1992 to 77.4 percent in 2005. Māori were significantly less likely to be fully immunised at age two years (69 percent) compared with European/Other (80.1 percent).

Rates of death from abuse are highest for children under five years of age. From 1991 to 1995 the rate for this age group was 2.1 deaths per 100,000 compared with 2.4 per 100,000 for this age group between 1996 and 2000. The rates for older children are around 0.5 per 100,000 (Ministry of Social Development 2006).

Over the last two decades child health professionals have identified a significant change in the types of health and wellbeing concerns facing children and young people. This has been called the 'new morbidity'. Lethal infectious and chronic diseases are less common, or more readily treatable, and there has been a rise in diagnosis of mental health and disability-related conditions such as attention deficit hyperactivity disorder (ADHD), depression, anxiety and autism.

Good child health is important for children and families, and is vital for good later adult health. A number of the risk factors for many adult diseases such as diabetes, heart disease and certain mental health conditions, such as depression, arise in childhood. Poor child health and development also have an adverse impact on broader social outcomes, including family violence, crime and unemployment. Many of these conditions are intergenerational, in that unrecognised and untreated, many child victims will go on to repeat the cycles of disadvantage and illness in their own lives and those of their children.

Overall there is growing evidence that health and wellbeing in the antenatal, infancy and childhood stages can have significant and lasting effects on health and wellbeing throughout life. Effective health promotion, prevention, early detection and intervention are important strategies for reducing the impact of disease and disability in childhood and throughout the lifespan. A life-course approach to child health and wellbeing is now well accepted.

4 Well Child / Tamariki Ora Services

Outcomes Stakeholder feedback has highlighted difficulties in measuring the effectiveness of Well Child / Tamariki Ora services and assessing improvements in child health outcomes and reducing inequalities. The review of the framework is using an outcomes-based approach, with a focus on measuring the effectiveness of services and any proposed new interventions, rather than just relying on volumes to monitor service delivery.

On 1 July 2007 the Ministry and DHBs introduced health targets, which are aligned with strategic priorities. There are three different types of targets:

- compliance measures for DHBs (eg, improving elective services, reducing cancer waiting times)
- Ministry of Health-led targets (eg, improve nutrition, increase physical activity and reduce obesity)
- DHB-led targets that will be achieved by DHBs over time with Ministry assistance (eg, improving immunisation coverage, reducing ambulatory-sensitive admissions).

The proposed targets will remain in place for a number of years, but each target will be reviewed annually to confirm that its inclusion in the set continues to be appropriate. The review will check that improved outcomes have included improvements in Māori health and reduced inequalities. For those targets that will be achieved over time, the Ministry will negotiate local targets with DHBs. Ethnic-specific targets are set for all the indicators, where data allows. The targets and indicators that are applicable to child health outcomes and Well Child / Tamariki Ora services are listed below.

Table 2: Health targets and their indicators

Health target	Indicator
Improve immunisation coverage	95% of two-year-olds are fully immunised, with at least a 4 to 6 percentage point increase on 2005 national immunisation coverage
Improve nutrition	survey baselines DHB activity supports achievement of these health sector targets: proportion of infants exclusively and fully breastfed – 74% at six weeks, 57% at three months, 27% at six months
Reduce the harm caused by tobacco	DHB activity supports achievement of these health sector targets: to increase the proportion of homes containing one or more smokers and one or more children that have a smoke-free policy to over 75% in 2007/2008

Further information on health targets is detailed in the Ministry of Health's Statement of Intent 2007–2010 (Ministry of Health 2007c).

Some of the key priority areas for which targets have been set (eg, promotion of breastfeeding) are important components of the schedule. Data provided as a result of the introduction of targets will provide useful information to assess the effectiveness of Well Child services and whether services are resulting in improved child health outcomes.

In addition to the health target data listed above, the Ministry is proposing to develop performance indicators for the framework, which would encompass measurement of both the process of service delivery and child health outcomes. Any performance indicators that are adopted for the framework would need to be in alignment with the above health targets.

Listed below are some child health priorities and key components of the framework for which performance indicators could be developed:

- reduction in infant mortality rates
- reduction in sudden unexpected death in infancy (SUDI) rates
- reduction in ambulatory-sensitive (avoidable) admissions for the 0–5 years age group
- oral health: reduction in decayed, missing and filled teeth (DMF) scales at five years of age
- percentage of children registered at early childhood education centres at 3½ years (requires inter-agency collaboration)
- percentage of children who have undergone the B4 School Check (requires inter-agency collaboration)
- percentage of tamariki Māori, Pacific children, low socioeconomic group children and children with high health and disability support needs who have accessed all core contacts and additional visits, where necessary.

Any performance indicators developed would need to be able to measure performance in improving Māori and Pacific health and reducing inequalities. Some of these proposed performance indicators would require inter-agency collaboration (as noted). The Ministry will also consider developing a performance indicator that would attempt to measure how Well Child / Tamariki Ora services can develop effective links with other services.

5 Options for Changes to the Well Child / Tamariki Ora Schedule

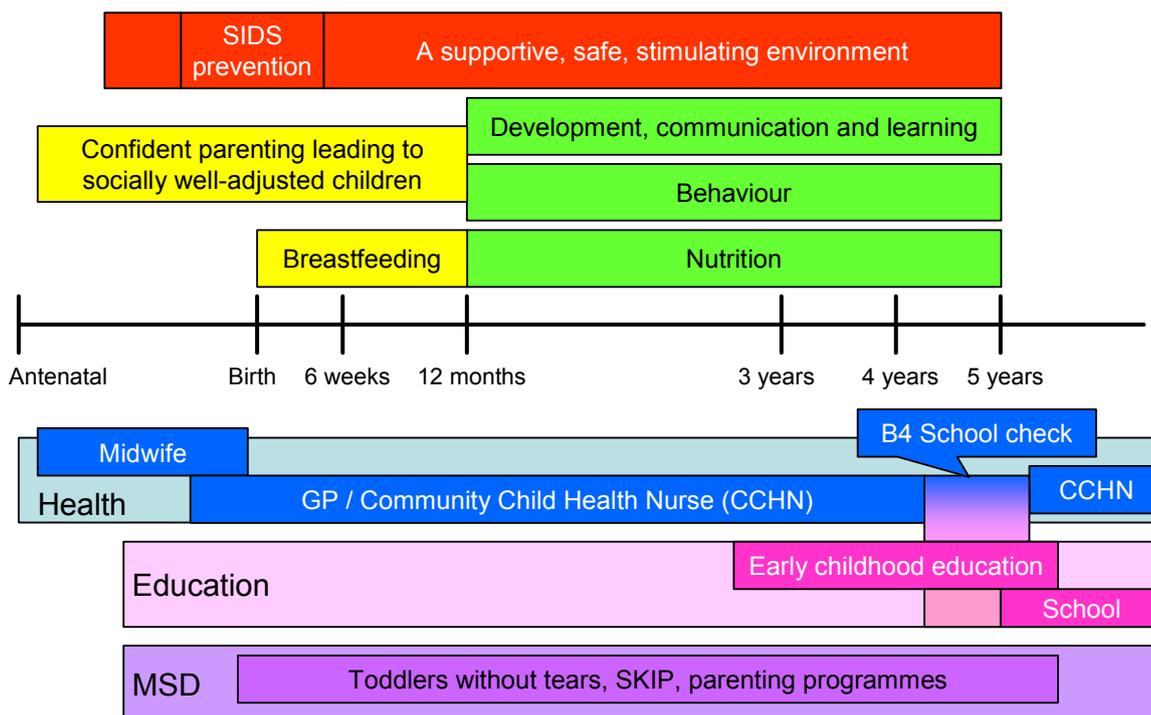
Currently the schedule from birth to five years of age is predominantly health-focused, with input from the education and social services sectors. However, based on the evidence, there is an opportunity to reconfigure the services to place a stronger emphasis on health only up to age three years, with input from the social development and educational sectors. After three years of age the focus will be more on educational and behavioural aspects of a child's development, with input from health as required.

There is also the opportunity to refocus the schedule on a number of key themes. These are:

- a supportive, safe, smoke-free, stimulating environment (including reduction in SUDI, child abuse and accidental injury) and an increase in securely attached, resilient children
- confident parenting leading to socially well-adjusted children
- breastfeeding
- promotion of development, communication and learning
- nutrition
- oral health.

As can be seen in Figure 3, these key themes are inter-related and utilise age-appropriate interventions. For example, confident parenting leading to socially well-adjusted children is a precursor to promoting healthy child development.

Figure 3: Configuration of the Well Child / Tamariki Ora Schedule



The Ministry is proposing a name change for Well Child / Tamariki Ora services. Stakeholder feedback has indicated that, in general, the Well Child name and brand is not well known or understood by families. The Ministry is proposing that the name of the services be changed to Community Child Health / Tamariki Ora services. It is considered this would better reflect the fact that the service is a family- and community-based child health service delivered by health providers in a family and community setting. The implication of the name change would be that providers would be known as Community Child Health / Tamariki Ora providers. However, the current names will continue to be used in this document.

Based on the evidence and consultation undertaken, the Ministry considers that there is an identified need for and continued support for a publicly-funded Well Child Framework, and that there is no need for a radical change to the schedule. The Ministry is proposing that many of the existing components of the current schedule not be changed because they remain important areas in which Well Child providers can provide health education and support; for example, for the promotion of SUDI prevention and immunisation.

However, there are a number of issues having a greater impact on the wellbeing of young children. These include maternal postnatal depression (PND), nutrition, dental care, mental health and developmental delay. Based on the evidence identified from the literature review, the Ministry is proposing to incorporate some changes to the schedule. These proposed changes have been discussed with sector focus groups and have been generally supported.

The components of the framework are discussed below, and where the Ministry proposes to make changes, these are outlined. The proposed revised schedule is attached as Appendix 2.

5.1 A summary of the framework and proposed changes

Universal service

The Ministry supports the provision of a publicly-funded nationwide framework, because it considers that a service available to everyone will deliver the best outcomes. However, those children and families who are at risk or have additional needs will need to receive more skilled and intensive help. Pregnancy, infancy and childhood are the best times to act to prevent the development of many of the long-term, chronic adult diseases and to reduce inequalities.

Three service streams

The Ministry is proposing that the three current streams (health education and promotion, health protection and clinical assessment, and family/whānau support) be retained. The three streams provide an integrated service to ensure that children grow and develop to their full potential. The health education and promotion component of the framework provides the parent with the knowledge and skills to respond to their child’s needs at the different stages of their development. The health protection and clinical assessments provide reassurance that the child is developing normally, and support or provide necessary immunisations. The whānau care and support part of the framework provides support to parents and links to the community and other services.

Core visits

The existing schedule for services delivered by Well Child providers has eight core contacts from four weeks to three years of age. A summary of the existing schedule and assessments is provided in Table 3.

Table 3: Existing schedule of core contacts

Core contact	Existing schedule (age of child)
1	2–4 weeks
2	6 weeks
3	3 months
4	5 months
5	8–10 months
6	15 months
7	21–24 months
8	3 years

The Ministry is proposing that the schedule will continue to consist of eight core contacts, but from around four weeks to five and a half years of age. The Ministry is also proposing some changes to the schedule (eg, a change to the age and some of the content of the health protection and clinical assessments), where the evidence from the literature review suggests a refocusing of current provision.

The major changes proposed are a greater focus on core contacts in the early development stages of the child's life, with the introduction of a new core contact proposed for nine weeks. It is also proposed to combine the two existing core contacts at 21 to 24 months and three years into one core contact at 30 months. In line with an improved multi-agency approach, most children between three and four years of age will have ongoing developmental and behavioural surveillance through early childhood education, with health services available on referral.

The proposed timing for extra visits for first-time parents has been listed in Table 4. The Ministry is also proposing themes for the contacts, related to the development stage at which the core contact takes place, as the evidence suggests that it is helpful to provide names for contacts which reflect a significant aspect of the infant's life. A summary of the proposed changes is given in Table 4.

Table 4: Proposed changes to the Well Child schedule

Core contact	Theme	Scheduled extra contact	Age limit	Content of visit	Location
5 weeks	Needs assessment and care plan		4 to 6 weeks	An earlier referral at four weeks from the lead maternity carer is required under Section 88. There is no reason why the lead maternity carer and Well Child provider cannot cross over care. Reminder about six-week immunisation.	Home
	First-time parents, becoming a parent	4 to 6 weeks		An extra visit or group-parenting session for first-time parents (including partners) that focuses on safe sleeping (especially prevention of SUDI), support breastfeeding and immunisation, and parenting.	Home
	Six-week GP check and immunisation	6 weeks			GP
	First-time parents, especially for Dads	8 weeks		An extra visit for first-time parents, especially for fathers and male partners, which provides advice on coping with crying and sleeping and child abuse prevention.	Optional
9 weeks	Safe and secure		8 to 10 weeks	A new core contact is proposed for nine weeks, linked to the early development of the child. An assessment at nine weeks would allow for early detection of maternal postnatal depression and allow for early discussion and guidance around issues relating to returning to work if this is planned by the parent. Reminder about three-month immunisation and breastfeeding support.	Home
4 months	Feeding and growing		3 to 5 months	A core contact visit at four months would provide the opportunity for an immunisation catch-up if needed, and screen for PND. Reminder about five-month immunisation.	Optional
	First-time parents, preparing for solids	5 months		An extra visit for first-time parents to support maintenance of breastfeeding and preparation for weaning to solids.	Optional
6 months	Let's play		5 to 7 months	A core contact visit at six months provides the opportunity for follow-up on the three- and five-month immunisations.	Optional
9 months	On the move		8 to 10 months	A core contact visit at nine months provides the opportunity for anticipatory guidance about the child's walking. Promotion of 15-month immunisation and oral health assessment.	Home

Core contact	Theme	Scheduled extra contact	Age limit	Content of visit	Location
18 months	Walking and talking		16 to 18 months	18 months is a critical stage if a child is going to develop behavioural problems. A check at the 16- to 18-month period would allow early detection of any mental health issues.	Clinic
2½ years	Learning for life		2 to 3 years	The focus of this core contact is on preparation for entry into early childhood education.	Clinic
4 years – B4 School Check	Spreading your wings		4 to 5½ years	The focus of this visit is on preparing the child and family for school and to identify any behavioural, developmental or health concerns that may affect the child’s ability to learn in the school environment. Follow-up for four-year immunisation.	Optional

New Zealand babies have traditionally had a six-week check from their GP. This is important to continue because it:

- ensures the baby is registered with a PHO
- is the first immunisation of the National Schedule
- provides an opportunity for a clinical assessment of the baby by a medical practitioner, which should include colour; a cardiovascular examination specifically looking for emergent congenital heart disease; weight; nutritional assessment; head circumference; fontanelles; hip joints; an ophthalmoscopic examination to elicit the red reflex; neurological assessment; genital assessment to identify undescended testes; and six-week immunisation.

First-time parents

The Ministry considers that being a first-time parent is not the best indicator for need for additional visits. However, there are some specific issues about which a first-time parent would benefit from discussion with the Well Child provider.

Currently, an additional five contacts may be provided for first-time parents and/or when there are issues such as infant feeding or behaviour concerns. The Ministry is proposing continuing three additional visits to the core contacts for first-time parents. These visits would take place in the first year of life and are scheduled (ie, not needs assessed). They would all support and promote breastfeeding, immunisation and smoke-free environments, and would specifically focus on safety in the sleeping environment at five to six weeks; advice on infant sleeping and crying between four and eight weeks, particularly for fathers and male partners; and maintenance of breastfeeding and weaning to solids at five months. These visits may be delivered in a variety of ways, from home visits to group sessions. This would leave the funding for two visits for first-time parents to be reallocated once the options outlined in the options paper have been agreed.

Additional visits

Additional visits are available in the existing framework where there is an assessed need. The Ministry is proposing to retain provision for additional visits based on a needs assessment, which has yet to be developed. The needs assessment determining the allocation of additional visits requires skill and professional judgement on the part of the Well Child provider, and the family's agreement that the additional service will assist in meeting their needs.

Initial needs assessment / health care plan

At the initial meetings between the family and the Well Child provider, a risk assessment is undertaken to identify needs and the level of service delivery required. At subsequent meetings this assessment is reviewed and adjusted as appropriate.

The current assessment factors are:

- low-income status
- lack of essential resources (eg, unstable or unsuitable housing situation, lack of access to a telephone or transport, lack of basic amenities)
- unsupported parent (eg, single parent, lack of or no whānau/family support)
- low maternal education qualification (eg, no formal educational qualification)
- relationship problems (eg, evidence of family violence or lack of support)
- frequent change of address
- mother is less than 18 years old
- no or minimal antenatal care
- mental ill health (eg, history of mental health problems or risk of PND)
- substance abuse
- family history of abuse
- high-risk SUDI factors (ie, mother smoked during pregnancy, baby not breastfed).

Sector feedback has indicated that the existing framework's risk assessment approach and the use of a deprivation index as a proxy for need and the targeting of services has limitations. The Ministry recognises that needs assessment is a complex process, and that factors such as PND, breastfeeding difficulties and social isolation cut across deprivation areas. It is important that Well Child providers have the flexibility to be more responsive to family and community needs.

The Ministry is therefore proposing that the initial assessment, which is undertaken by the Well Child provider at the first core contact, change its focus from the current *risk* assessment model to a *needs* assessment. From this initial needs assessment the Well Child provider, working with the family, would develop a family-based care plan, which would provide the basis for future provision of additional visits, referrals and provision of parental support. The Ministry recognises that the development of a family-based care plan relies on the Well Child provider having a partnership relationship with the family and will require skill in its implementation and evaluation.

The Ministry is commissioning a multidisciplinary group to develop a family-based care plan model by the end of 2007.

5.2 Family violence, including child abuse and neglect

Child abuse can include physical, sexual or emotional abuse, physical, emotional or educational neglect, or any combination of these. As well as the direct harm to the child, child abuse is also associated with adverse consequences among maltreated children, such as early pregnancy, drug abuse, school failure, mental illness and suicidal behaviour (Allen and Clarke 2006). It is also associated with a range of chronic illnesses in adulthood.

A number of studies identified in the literature review have shown that maltreating and abusive parents are less positive, supportive and nurturing of their children, and more negative, hostile and punitive than non-maltreating parents (Pianta 1989 and Burgess 1978, cited in Barlow et al 2005). They also tend to react more negatively to ordinary parental challenges, frequently have inappropriate expectations of a child, display an inability to be emphatically aware of the child's needs, have a strong belief in the value of punishment, and display significant role reversal in which the parent looks to the child for satisfaction of their own emotional needs (Bavolek 1989, cited in Barlow et al 2005).

Many studies show that child abuse is not only harmful to the child in their current life, but also has detrimental effects on later development. In fact no other social risk factor has a stronger association with developmental psychopathology (Brooker 2001, cited in Barlow et al 2005), and the negative sequelae have been documented across a range of developmental domains, including cognition, language, learning and socio-emotional development (Cicchetti 1989, cited in Barlow et al 2005).

During the 1990s New Zealand ranked third-highest among developed nations for its child abuse death rates. Between 1996 and 2000, 49 children under the age of 15 years died as a result of abuse, with the highest rates being among those under five years of age (Counties Manukau DHB unpublished 2005).

Table 5: Nature of injury for New Zealand children aged 0–4 years, hospitalised with assault, neglect and maltreatment, 2000–2004

Nature of injury	Number	%
Superficial head injury	60	17.3
Subdural haemorrhage	54	15.6
Fractured femur	29	8.4
Upper limb fracture	24	6.9
Skull/face fracture	21	6.1
Other injuries	158	45.7
Total	346	100

Source: Paediatric Society of New Zealand 2005

Hospital discharge rates for assault, neglect and abuse of children (aged 0–14 years) were highest among those living in the most deprived NZDep² areas, as well as Pacific and Māori children (Counties Manukau DHB unpublished 2005).

New Zealand's Family Violence Prevention Strategy, Te Rito, includes objectives to ensure that approaches to family violence prevention are culturally relevant and effective for Māori and Pacific peoples. The Ministry collaborates across agencies to progress programmes to minimise family violence, child abuse and neglect. The Ministry has developed a DHB toolkit to assist DHBs to reduce violence in interpersonal relationships, families, schools and communities. One of the priority initiatives in that

² The New Zealand Index of Deprivation.

toolkit includes Pacific-specific violence prevention programmes among young families, children and youth.

A Taskforce for Action on Violence within Families was established in June 2005, with representation from government, non-government, judiciary and Crown agencies to advise the Family Violence Ministerial Team on how to make improvements to the way family violence is addressed and how to eliminate family violence in New Zealand. A project led by the Ministry of Health is underway to design an ongoing process for reviewing family violence-related deaths. It is the Taskforce's view that a consistent process to examine family violence-related deaths will help agencies and service providers better understand how and why these deaths occur. This understanding and learning, may, in turn, be used to improve practice, policies and prevention strategies to help prevent future deaths. Currently New Zealand has no systematic mechanism to examine family violence-related deaths.

Early identification of children who are at risk of abuse continues to pose a challenge to the medical community. Options for prevention include:

- screening, involving a variety of techniques including assessment of risk indicators
- prevention programmes, including home visitation, comprehensive health care programmes, parent education and support, and combined services and programmes aimed specifically at preventing sexual abuse.

Screening is not recommended for child abuse because of high false positive rates and the risk of inappropriately labelling the caregiver as a child abuser. In 2000 the Canadian Task Force on Preventive Health Care updated its recommendations on the prevention of child abuse by reviewing the evidence for the effectiveness of interventions aimed at preventing child abuse described in the scientific literature from 1993 to 1999. The Task Force stated that because of the high false positive rates of screening for child abuse and the potential for mislabelling people as potential child abusers, the possible harms associated with the screenings outweigh the benefits (Canadian Task Force 2000). This position is supported by the *Family Violence Intervention Guidelines* (Ministry of Health 2002a).

Prevention: Screening for family violence (partner abuse)

The Ministry supports asking women about family violence when they present for routine health care. The Ministry has developed the *Family Violence Intervention Guidelines* as part of the Ministry's Family Violence project. Based on an extensive review of local and international protocols of care and consultation with health care providers, health professional bodies and family violence advocates, it presents a six-step model for identifying and responding to family violence within health care settings. Given the high co-occurrence of partner abuse and child abuse, the guidelines also outline an integrated response to addressing both of these issues. The guidelines have been endorsed by a number of health professionals and family violence intervention organisations.

Parenting programmes

The research suggests that early family support programmes, particularly programmes for families with young children aged zero to three years at risk for physical child abuse and neglect, produce a significant decrease in abusive and neglectful acts and a significant risk reduction in factors such as child functioning, parent–child interaction, parent functioning, family functioning, and context characteristics (Allen and Clarke 2006). Evidence suggests that parent education programmes improve parenting competence, effectively address risk factors for child abuse, and, in some instances (where direct measurements are made), result in fewer incidents of child abuse (Geeraert et al 2004; Holzer et al 2006).

In New Zealand, specifically targeted services for vulnerable families are well established. These services include Early Start, Family Start, and a variety of services specifically for Māori and Pacific families.

The research indicates that early support and home-visiting programmes show some success in preventing child abuse and neglect as long as the programmes are well designed and those implementing them are appropriately trained. Home-visiting programmes preferably should be conducted by trained professionals and be of reasonable duration. Early family support programmes for families with young children (up to three years) at risk for physical abuse are also effective (Allen and Clarke 2006).

The need to engage fathers and male partners more in parenting programmes is recognised. Although parenting programmes ideally involve both mothers and fathers, Shulruf (2004) draws on research evidence showing that mothers are more likely to participate in parent support and development programmes. The literature suggests that better outcomes occur if family members in addition to the mother and child are involved (such as fathers, male caregivers or grandparents). Moran et al (2004) point out that participation by only one parent (as opposed to a couple, if a couple relationship exists) may actually cause conflict in the household. It has also been noted that most evaluation samples contain insufficient numbers of men, making it very difficult to draw firm conclusions about what works for fathers. Further work is required to explore the parent support and development needs of fathers and other family members (Families Commission 2005).

Shaken baby syndrome

Shaken baby syndrome is the term commonly used to describe a type of inflicted traumatic brain injury that happens when an infant is violently shaken. This devastating form of child abuse has 10 to 25 percent mortality rates and significant morbidities, with brain damage in at least 50 percent resulting in enormous societal costs. Shaken baby syndrome in New Zealand has a prevalence comparable to that described in studies from the United Kingdom and North America, with rates between 14.7 and 19.6 per 100,000, and between 22.0 and 31.1 per 100,000 for those under one year (New Zealand Paediatric Surveillance Unit 2006).

Although prevention of child abuse is an appropriate part of the framework, the evidence suggests that a concerted effort educating parents immediately after the birth of their babies has the best impact in reducing the incidence of shaken baby syndrome. The Ministry is in the process of developing such a multi-agency initiative.

The existing schedule specifies that Well Child providers will work with families/whānau to identify their needs for support, and either provide or facilitate access to support from other health or community services, especially for those children of families/whānau at risk of adverse outcomes. Not all Well Child providers have specific training to recognise risk factors of child abuse, and not all Well Child providers are trained and supported to routinely ask about family violence.

5.3 Breastfeeding

Importance of breastfeeding

Breastfeeding is important for the health of the infant, mother and whānau/family. Breastfeeding provides optimal nutrition for infants because it meets the full-term infant's complete nutritional needs for up to the first six months of life. Breastfeeding encourages emotional attachment for both mother and infant, which is important for healthy child development. It promotes correct development of jaws, teeth and speech patterns and may have small long-term benefits for child cognitive development and visual acuity. Breastfeeding also decreases the incidence and severity of childhood infectious diseases such as otitis media, acute respiratory infections, diarrhoea and gastroenteritis, especially in less than optimal environments.

Breastfeeding is associated with reduced mortality during the first year of life and lower hospitalisation rates, and may reduce the risk of chronic diseases for infants in later life such as overweight and obesity, diabetes type 2 and cardiovascular disease. A longer duration of breastfeeding has been linked to reducing the risk of childhood chronic illness and obesity, and improving cognitive outcomes, although causality has not been established. Breastfeeding continues to make an important nutritional and health contribution well beyond the first year of life (Brown et al 1998).

The health benefits of breastfeeding for mothers include a reduction in the risk of post-partum haemorrhaging and breast and ovarian cancer.

Breastfeeding rates in New Zealand

New Zealand's breastfeeding rates changed very little between 1997 and 2001, with some overall improvement between 2001 (51 percent fully breastfed at three months) and 2006 (55 percent), including the rate for Māori (41 percent fully breastfed at three months in 2001 and 45 percent in 2006). However, the rates among Māori and Pacific peoples (48 percent fully breastfed) for 2006 are still lower than the rate among the European/Other group (60 percent).

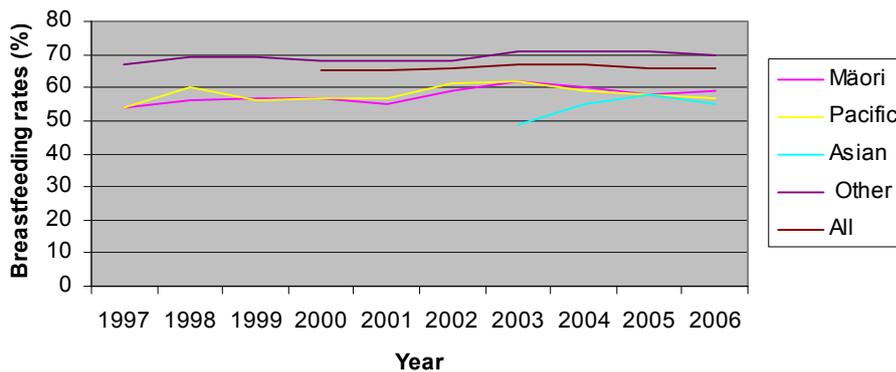
In 2002 the Ministry set targets to improve breastfeeding rates, both for initiation and duration. The rates were adapted in 2007 to set target rates for 2007/08. The 2007/08 breastfeeding targets for infants exclusively and fully breastfed are:

- 74 percent at six weeks
- 57 percent at three months
- 27 percent at six months.

Figure 4: Breastfeeding rates (%) at six weeks, three months and six months, by ethnicity, 1997–2006

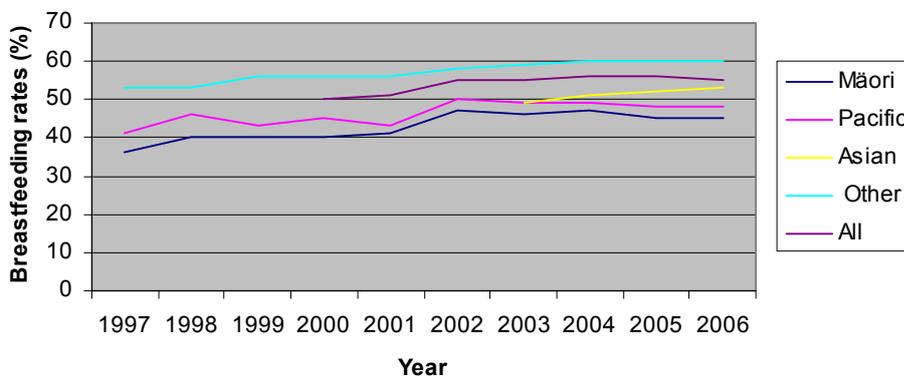
Target for all 2007/08: 74% at six weeks

Exclusive and full Breastfeeding at six weeks



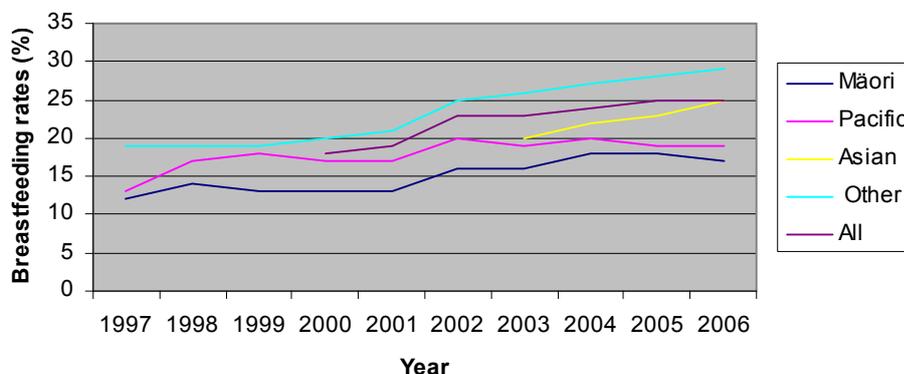
Target for all 2007/08: 57% at three months

Exclusive and full Breastfeeding at three months



Target for all 2007/08: 27% at six months

Exclusive and full Breastfeeding at six months



Source: Ministry of Health; based on data provided by Plunket

Research on breastfeeding support

The literature review commissioned by the Ministry indicated that antenatal structured breastfeeding education is effective for improving both the initiation and continuation of breastfeeding during the first two months after birth. This intervention (individual or group instruction) is effective when provided by a lactation specialist or a nurse, and both single and multiple sessions are effective (Canadian Task Force on Preventive Health Care 2003).

Elkan et al (2000) completed a meta-analysis of three studies where breastfeeding was one of the outcomes under scrutiny. The results of this analysis show an odds ratio of 1.34 (95% confidence interval [CI]: 1.03–1.74) in favour of the home-visited group. This led the authors to conclude that home visiting has the potential to encourage and support breastfeeding. Bull et al (2004), in their review of reviews, note the possibility of bias inherent in maternal self-report measures of breastfeeding. They concluded that there is some evidence to suggest that home visiting may positively influence rates of breastfeeding three months after delivery, but noted that further research is needed to assess this effect, taking into account the potential for reporting bias.

An evaluation undertaken of the Swedish Child Health Promotion Programme (Janssen et al 2002) indicated that advice on breastfeeding was of greater importance for the mothers receiving a home visit.

Ministry of Health activities to protect, promote and support breastfeeding

The Ministry strongly supports breastfeeding because of the health benefits to the infant, the mother and the whānau/family in the short and long term. The Ministry protects, promotes and supports breastfeeding in the health system through a number of measures, and intersectorally through the establishment of the National Breastfeeding Advisory Committee. The Committee is currently preparing a national strategic plan for breastfeeding. The review will need to be aware of the recommendations made by the National Breastfeeding Advisory Committee in its strategic plan.

A key initiative under the Healthy Eating – Healthy Action Implementation Plan (Minister of Health 2004) is the delivery of a national breastfeeding promotion campaign to improve the short- and long-term health benefits for the infant, the mother and the whānau/family, particularly through the duration of breastfeeding. The key population groups are high-need groups, Māori, and Pacific peoples. Scoping work is being undertaken by a provider (contracted by the Ministry) to inform the design of the campaign to be delivered during the 2007/08 financial year.

Some of the key Ministry breastfeeding initiatives for 2006/07 include a review of the *Food and Nutrition Guidelines for Healthy Infants and Toddlers (Aged 0–2): A background paper* (Ministry of Health 2000), for which a draft for consultation will be released later in 2007; scoping work to inform the design of the national breastfeeding promotion campaign; requiring all Well Child providers to collect and provide breastfeeding statistics to the Ministry as part of fulfilling their contractual obligations; and monitoring breastfeeding rates using the Maternal and Newborn Information Set (MNIS) data.

The Baby Friendly Community Initiative (BFCI) is related to the Baby Friendly Hospital Initiative (BFHI), a global campaign of the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). The goal is to protect, promote and support breastfeeding by following best practice, as expressed in the Ten Steps to Successful Breastfeeding. The Government requires that all New Zealand maternity facilities achieve baby-friendly accreditation. The BFHI mainly affects breastfeeding initiation. In order to maintain breastfeeding beyond initiation, strategies to increase breastfeeding duration must involve services provided outside the maternity facility. The BFCI encourages and supports such health services to follow best practice as expressed in the Seven Point Plan, which extends and builds on the principles of the Ten Steps to make them appropriate for health services in the community.

Currently the schedule provides for the promotion of breastfeeding and support and supervision of early postnatal breastfeeding, and advice on maternal nutrition by the Well Child provider as part of the core contacts.

5.4 Sudden unexpected death in infancy

Sudden unexpected death in infancy (SUDI) refers, as the name suggests, to a sudden and unexpected infant death. A thorough clinical history, a review of details of the circumstances of death, and an adequate post-mortem examination may provide a contributory or causative diagnosis. The term SUDI is now often used instead of sudden infant death syndrome (SIDS) because some coroners prefer to use the term 'undetermined' for a death previously considered to be SIDS. This change is causing a diagnostic shift in the mortality data. The terms SUDI and SIDS are both used in this document to show the transitional nature of the terminology.

The recognition of high rates of sudden unexplained infant deaths towards the end of the 1980s resulted in large-scale case control studies worldwide. The 1987–1990 New Zealand cot death study aimed to identify risk factors related to particular infant care practices (Mitchell et al 1992). Avoidance of the prone sleep position for infants, maternal smoking in pregnancy and not breastfeeding were identified as important risk factors and led to a successful New Zealand intervention programme. The study found that Māori infants had a 3.8 times higher risk of dying than non-Maori infants. Maternal smoking accounted for 50 percent of the higher rate, and bed sharing another 22 percent. Both were considered modifiable factors.

Since 1990 there has been a worldwide reduction in the incidence of SUDI/SIDS. 'Back to Sleep' campaigns were undertaken in many countries, and the resulting reductions in the incidence of SUDI/SIDS have shown that the infant's sleep environment strongly influences the risk of SUDI/SIDS (Li et al 2003).

The European Concerted Action on SUDI/SIDS (ECAS) study combined data from 20 regions in Europe and identified avoidable risk factors such as infant sleeping position, type of bedding used and sleeping arrangements (Carpenter et al 2004). The main risk factors were largely independent. For example, a prone sleeping position was found to carry highly significant risks of SUDI (odds ratio 13.1 [CI: 8.51–20.2]). If the mother smoked, there were significant risks associated with bed sharing, especially during the first two weeks of life. The odds ratios for SUDI when the mother smoked

were 27 (13.3–54.9), compared with 2.4 (1.2–4.6) for non-smoking mothers. This risk decreased with infant age.

Health practitioners are in a strong position to educate, promote and influence safe sleeping practices for infants. The Ministry's Child and Youth Mortality Review Committee recommend five actions parents can take to reduce the risk of SUDI, as follows.

Five actions to reduce the risk of SUDI

1 No smoking during pregnancy

Smoking during pregnancy is an important cause of SUDI because it damages babies before birth. Many women find it is easier to give up smoking when they are pregnant, and it is important to stop smoking as soon as possible after a pregnancy has been confirmed. A midwife or health practitioner can help pregnant women and other household members who smoke to quit smoking. Quitline (0800 778 778) is another service that can help people to stop smoking.

2 Sleeping position – 'back to sleep'

Babies should be put down to sleep on their backs. Babies who sleep on their backs are more likely to wake up if they are in unsafe situations, and are less likely to get their faces accidentally covered by sheets or bedding.

3 Sleeping environment

The recommended sleeping environment is to have the baby sleeping in a cot or bassinet near the parents' bed. Bed sharing is when a baby is brought into an adult bed for feeding or settling without the intention of sleeping. Co-sleeping is where an adult and baby sleep together in bed.

Mothers and babies sleeping in close proximity is a widespread historical and cultural practice, which has been shown to improve breastfeeding outcomes. Bed sharing is advocated for promoting breastfeeding. There is substantial evidence that breastfeeding promotes an infant's health and wellbeing, and it is strongly recommended. Bed sharing is fine for breastfeeding and cuddles, but babies should be in their own bed when parents go to sleep, preferably in a cot or bassinet beside the parents' bed until the baby is six months old.

Co-sleeping is dangerous when:

- the baby's mother has smoked during pregnancy
- the adult in bed with the baby has been drinking, or taking drugs or medicines that might reduce their awareness of the baby, or
- the co-sleeping adult is excessively tired.

A small increase in SUDI risk from co-sleeping is also present for babies less than three months old, whether or not the mother smoked during pregnancy. (See below for further discussion.)

4 Room sharing

Babies who sleep in the same room as parents for the first six months are at lower risk of SUDI.

5 Breastfeeding – ‘breast is best’

Breastfeeding is the best nutrition for babies and helps to keep them well.

Dummies (pacifiers)

The literature about dummies shows that this is a complex and often controversial topic of research. In 1979 Cozzi et al claimed that dummies might protect against SUDI/SIDS. Support for this hypothesis was first reported by Mitchell et al in 1993. Since then other studies have supported this observation, although evidence is lacking for a biological underlying mechanism and, outside this field, dummy use has mainly been associated with detrimental effects (Mitchell et al 2006).

A recent meta-analysis to identify whether dummies reduce the risk of SUDI/SIDS showed a strong correlation between giving an infant a dummy when placing them to sleep and reducing their risk of dying from SUDI/SIDS (Hauck et al 2005). The results indicate that the effect is strongest when the dummy is given at the infant’s night-time sleep. These results were part of larger studies examining potential risk and protective factors for SUDI/SIDS.

A California study (Li et al 2006), which involved interviewing the mothers of 185 infants who were victims of SUDI/SIDS and 312 randomly selected controls, identified that after adjusting for known risk factors, the use of a dummy during sleep was associated with a 90 percent reduced risk of SUDI/SIDS compared with infants who did not use a dummy. The study also suggested that using a dummy may reduce the impact of other risk factors, especially those related to other adverse sleep conditions.

How dummies may reduce the risk of SUDI/SIDS is unknown, but there are several hypotheses, including avoidance of the prone position, protecting the oropharyngeal airway, reducing the gastro-oesophageal reflux through non-nutritive sucking, and lowering the arousal threshold.

Concerns about recommending dummies have focused on breastfeeding, otitis media and other infections, and dental malocclusion. More research is needed to understand what may influence the use and non-use of dummies, including parenting behaviours and infant factors. Ongoing monitoring of SUDI/SIDS rates using population-based infant mortality statistics, as well as infants’ dummy use, will be needed to help evaluate the impact of this practice.

Breastfeeding and dummies

Observational studies have shown a clear relationship between frequent or continuous dummy use and a reduction in breastfeeding, although in one study introducing a dummy after one month of age was not detrimental to breastfeeding duration. Dummy use has also been associated with a significantly higher risk of infective symptoms. For example, there is a 1.2 to 2 times increased risk of otitis media associated with dummy use. Although some dental malocclusions, notably cross bite, have more commonly been found among dummy users than non-users, the differences generally disappear after cessation.

The American Academy of Pediatrics Task Force (2005) recommends using a pacifier (dummy) to reduce SUDI/SIDS risk throughout the first year of life, as follows.

- Pacifiers should be used when putting infants down for sleep and should not be reinserted once the infant falls asleep.
- If the infant refuses the pacifier, he/she should not be forced to take it.
- Pacifiers should not be coated in any sweet solution.
- Pacifiers should be cleaned often and replaced regularly.
- For breastfed infants, delay introduction until one month of age to ensure breastfeeding is established.

At this stage, the Ministry's Child and Youth Mortality Review Committee do not recommend dummy use in infants, although it seems appropriate to stop actively discouraging their use. Any possible reduction in SUDI/SIDS needs to be balanced against the established risks, especially the reduction of breastfeeding duration, with the attendant reduction in health benefits to the infant.

Advice on using dummies to reduce SUDI/SIDS risk

The Ministry's Child and Youth Mortality Review Committee do not recommend the routine use of dummies. If an infant is already being bottle fed, it is reasonable to discuss the use of dummies with the parents, especially if SUDI risk factors are present. For mothers breastfeeding their infants the benefits of breastfeeding and the risks of dummy use should be discussed. If breastfeeding mothers want to give their baby a dummy, it is best to recommend waiting until breastfeeding is well established.

5.5 Safety

Injuries are an important issue in childhood. Unintentional injuries – predominantly falls, burns and scalds, poisoning, motor vehicle crashes and drowning – cause about half the deaths and a similar proportion of hospital admissions for children between one and five years of age. Around half of these injuries and deaths occur in the home (Gulliver et al 2005). Annually, in New Zealand, more than 9800 children are hospitalised with an unintentional injury. Many more children are treated for injuries at accident and emergency clinics by their local GP and at home.³ Unintentional injury remains a cause of 36 percent of deaths in children under four years of age. There is a marked ethnic and gender difference in injuries in this age group, with Māori and Pacific children, and boys, more likely to be killed or injured.

There is an assumption that many of these injuries are preventable, and there is some evidence to support this for some types of injuries and some types of preventions.

Injury prevention can use a range of methods, which fall into three main categories:

- public health measures that improve the safety of the child's environment and do not require parent action, such as improved motor vehicle safety, or the mandated fitting of safety glass, or the reduction of household hot water temperature through mixing valves or thermostats
- interventions that require parents to voluntarily fit and use them, but which can be easily integrated into daily activity, such as infant and child car restraints and stair guards
- interventions that must be parent initiated continuously, such as supervision of children around unfenced water hazards, and checking that the child is not playing behind the car before driving away.

Within a community child health service context a number of activities can be undertaken by the practitioner and the community child health team. They can advocate for the implementation of actions in the first category, they can educate and support parents and caregivers about the importance of the second, and facilitate their uptake into the lives of the families they deal with. They can also educate parents about the third category, but this is difficult to maintain and evaluate, and its effectiveness is questionable.

There is a wide range of research into injury prevention in childhood, which has recently been summarised by a Cochrane review (Kendrick et al 2007). This review identified 80 studies meeting their criteria (randomised controlled trials and non-randomised controlled trials with historical controls) looking at home safety education for parents of children and young people. The study concluded that home safety education was effective (all reached statistical significance) at increasing the proportion of families who had:

- safe hot-water temperatures (OR 1.35)
- functional smoke alarms (OR 1.85)
- medications (OR 1.58) and cleaning products (OR 1.63) stored out of reach

³ SafeKids website: www.safekids.org.nz

- IPECAC (OR 3.34) and poisons centre number (OR 3.66) accessible
- fixed stair gates (OR 1.26)
- socket covers on unused sockets (OR 3.73)
- sharp objects stored out of reach (OR 1.52).

Despite the effectiveness of education in changing parent behaviours, there was no evidence that home safety education reduced rates of thermal injuries, poisoning or the range of injuries. There was also no consistent evidence that interventions were less effective in families whose children are commonly believed to be at a greater risk of injury, such as single-parent families. This is encouraging because it suggests that the intervention is unlikely to widen disparities. There was also some evidence that the provision of free or discounted safety equipment is protective.

David Olds and his co-workers have undertaken a number of studies, generally randomised controlled trials, which have examined the outcomes of intensive home visiting. In a recent study (Olds et al 2002) they specifically measured injury outcomes and found a reduction when intensive nurse-based home visitation was provided for high-risk mothers. Another study (LeBlanc et al 2006) suggested that the presence of some risks may serve as markers for homes with higher than average rate of injuries. The major markers were the presence of a baby-walker and the absence of smoke alarms (OR 3.2). Homes with a baby walker had a nine-fold higher rate of the child suffering an injury than those without.

5.6 Nutrition, physical activity and obesity

Improving nutrition, increasing physical activity and reducing New Zealand's rates of obesity could make a real difference to improving our health. Obesity is an important risk factor for many chronic, debilitating and life-threatening diseases.

Childhood obesity has become a worldwide problem, including in New Zealand, and so promoting healthy eating and good nutrition has gained even greater importance than ever before. In light of the need to identify children who are at risk of health issues because of their weight, consideration has been given to including a measurement of height and weight in the B4 School Check. The information collected can be used both to identify possible health risk in the individual child and also used as data for a national database to provide information on trends (see section 6, B4 School Check).

Providing support to parents to help them with feeding their children healthy foods and ensuring adequate physical activity is important. This may include low-income parents having access to income assistance to enable them to purchase healthy foods. The Ministry produces a number of health education materials that can be provided to parents to help them with information on choosing healthy foods (www.health.govt.nz). Sport and Recreation New Zealand (SPARC) also produces a number of physical activity resources under its early childhood programme, called Active Movement (<http://www.sparc.org.nz/getting-active/push-play-parents>). It is known that overweight and obesity have clear links to deprivation (Ministry of Health 2003b and 2006a).

There are no recent published national data on the prevalence of overweight and obesity in New Zealand preschool children. The 2002 National Children’s Nutrition Survey (NCNS) collected data from 3275 children aged 5 to 14 years. The NCNS found that 16.4 percent of five- to six-year-old boys and 21.8 percent of five- to six-year-old girls were overweight, and that 8.7 percent of boys and 6.7 percent of girls in this age group were obese (Ministry of Health 2003b).

Table 6: Prevalence of overweight and obesity in boys and girls at five to six years of age, by ethnicity

	Pacific (%)		Māori (%)		New Zealand total (%)	
	Boys	Girls	Boys	Girls	Boys	Girls
Prevalence of overweight	31.0	33.0	16.8	33.2	16.4	21.8
Prevalence of obesity	21.3	23.4	18.3	14.7	8.7	6.7

Source: 2002 National Children’s Nutrition Survey, Ministry of Health 2003b.

In April 2007 the Canadian Medical Association recommended that a national surveillance system be set up to determine the prevalence of overweight and obesity in Canada (CMAJ 2007). The Australian National Health and Medical Research Council has concluded that population approaches to prevention of obesity may be more successful than strategies to improve detection of individual obese children, and screening for obesity in childhood was not recommended (National Health and Medical Research Council 2002).

The *Guidelines for Healthy Infants and Toddlers (Aged 0–2): A background paper* (Ministry of Health 2000) and *Food and Nutrition Guidelines for Healthy Children (Aged 2–12 years): A background paper* (Ministry of Health 1997) provide Ministry policy on food and nutrition for children aged 0–5 years. The 0–2 Guidelines are under review, and the Ministry released a draft paper for consultation at the end of June 2007.

The background papers support three of the 13 priority population health objectives in the New Zealand Health Strategy (Minister of Health 2000), and form an important technical and policy basis to support the Healthy Eating – Healthy Action (HEHA) Strategy and Implementation Plan (Minister of Health 2003, 2004).

HEHA is intended to bring about changes in the environment in which New Zealanders live, work and play to improve nutrition, increase physical activity and reduce obesity. The HEHA Plan outlines the steps to achieve these goals. HEHA aims to engage and initiate a range of across-government programmes in schools (including kura kaupapa Māori), early childhood education services (including kōhanga reo and Pacific Island early childhood centres), workplaces, and communities around New Zealand. The priority groups for HEHA are Māori, Pacific peoples, children, young people and their whānau and lower socioeconomic groups (Minister of Health 2004).

The HEHA Implementation Plan includes a number of initiatives for Māori and Pacific peoples, including supporting community development approaches to address Māori and Pacific needs, which recognise the holistic view of environmental influences. Another key action is the provision of education and training programmes, including ensuring the workforce for Māori and Pacific peoples incorporate knowledge of culturally appropriate ways to improve nutrition and increase physical activity.

In 2006 the Government launched Mission-On, an inter-agency campaign, co-ordinated by SPARC in partnership with the Ministries of Health and Education and supported by the Ministry of Youth Development. It is aimed at children and young people from birth to 24 years, and has the goal of establishing healthy behaviours before a child enters school, and embedding healthy decision-making after young children leave the school and family environments.

The existing practice under the schedule is to undertake weight and nutritional assessments as part of the early core contacts and provide advice on maternal and infant nutritional needs. Height assessments are recorded at some of the later Well Child assessments.

5.7 Oral health

Promoting good oral health in young people shows benefits over a lifetime. High levels of dental caries in childhood predict greater oral disease levels in adulthood, even when other factors are controlled for. The community-based child and adolescent oral health service is strongly focused on prevention and early intervention, particularly during the preschool years. Improving the oral health of younger children in this way will positively influence the oral health of children and adults over the long term.

New Zealand has a history of providing publicly funded free dental care for children and adolescents. However, there is strong evidence showing that tamariki Māori, Pacific children, and children from rural and low-income families have poorer oral health outcomes than other groups. This disparity is even greater in non-fluoridated areas.

In August 2006 the Ministry released its Strategic Vision for Oral Health in New Zealand 'Good oral health for all, for life'. This document sets the new direction for oral health services with a view to improving child oral health and reducing oral health inequalities. The new strategic vision encourages oral health activities to start at birth, and states that the best way to achieve this is through greater links with providers of primary care. Anticipatory guidance on oral health issues and oral hygiene education should be provided to parents and whānau as a standard part of such contacts. Enrolment in community dental services could also be facilitated in this way.

Dental decay is slowly increasing in prevalence and severity in five-year-olds, and there are significant disparities between ethnic groups. In 2004 52 percent of all five-year-olds in New Zealand were caries free, but for Māori the rate was significantly lower at approximately 30 percent (Ministry of Health 2006a). Māori and Pacific oral health is not as good as that in other population groups, and improving the oral health of these groups is a particular priority in realising the Ministry's strategic vision for oral health.

The Ministry of Health Oral Health Toolkit recommends that children from Māori, Pacific and new migrant backgrounds or children living in low decile areas be enrolled in the school dental service at age one. Children in other groups should be enrolled before their third birthday. Enrolment data suggest that enrolment levels for children under five are less than 60 percent, and in some areas this is much lower.

Evidence from two studies suggests that home visiting shows benefits for dental health. Fergusson, Grant et al (2005) in their study of Early Start, a New Zealand home-visiting programme, found greater use of preschool dental services among intervention families than among those in the control group. In the evaluation of Starting Well, a Scottish programme, mothers reported registering their children with a local dentist. Non-European ethnicity was a factor in fewer dental registrations, and families that were unemployed or had never worked were more likely not to have registered (Shute and Judge 2005). The authors concluded that although it is encouraging that the results indicate more Starting Well children had apparently been registered, follow-up evaluation, based on actual attendance and health outcomes, is needed to test whether the assumption of greater registration is associated with better oral health.

Any proposed changes the Ministry recommends for preschool children's oral health in the context of the review will need to take into account the recommendations from the Oral Health Promotion Technical Advisory Group, which is due to release its findings towards the end of 2007. The Advisory Group's terms of reference include undertaking a wider dental literature review, which will provide additional evidence on the interventions to improve dental health.

There is evidence to show that oral health promotion can play an important role in the early intervention and prevention of oral health disease. Currently the Well Child / Tamariki Ora programme does not deliver, but has a role in facilitating, the enrolment into child health services and the promotion of good oral health through healthy eating messages. A dental assessment/enrolment is undertaken at 21–24 months, and at three years if this assessment has not been done earlier, and a further dental assessment is carried out for the school New Entrant Check.

5.8 Maternal postnatal depression and infant mental health

Postnatal depression

Early in a child's life the mother's and child's wellbeing are inextricably linked, and any prolonged disturbance of this relationship can lead to profound, lifelong difficulties, especially for the infant. There is an increasing recognition of the need to support mothers to care for their infant, and to recognise disturbances in the relationships and intervene. We have valid and reliable tests for postnatal depression (PND) and well-tested initiatives for mothers and babies. The Well Child Framework is ideally suited to identify PND and attachment difficulties and make referrals, or act to assist.

Postnatal (or postpartum) depression (PND) is a specific term used to describe a continuum of depressive symptoms and conditions that occur in the weeks or months after childbirth (Allen and Clarke 2006). PND can have lasting effects on women, children and families. PND rates from well-designed, cross-sectional and prospective studies typically range from 12 to 16 percent during the first 6 to 12 weeks postpartum (NHMRC 2000; O'Hara et al 1996; O'Hara 1997, cited in Abbott and Williams 2006). Previous New Zealand studies using the Edinburgh Postnatal Depression Scale (EDPS) obtained prevalence estimates of 8 and 13 percent (Webster et al 1994; McGill et al 1995, cited in Abbott and Williams 2006).

A study undertaken by Abbot and Williams (2006) indicated that women with PND are at increased risk of future depression, having thoughts of harming their infants, difficulty with maternal–infant bonding, and change plans for future children. PND may also have a negative impact on infants' cognitive, emotional and behavioural development, including increased rates of behavioural disturbance among school-aged children, particularly in boys and disadvantaged groups (Abbott and Williams 2006).

Minkovitz et al (2005) undertook a prospective cohort study to determine if PND symptoms reported at two to four and 30 to 33 months postpartum are associated with children's receipt of acute and preventive health care services in the first 30 months. There were high levels of participation in the study and loss to follow-up was minimal. The study recorded that approximately 18 percent of mothers reported depressive symptoms at two to four months, 15.5 percent reported symptoms at 30 to 33 months and 6.45 percent reported symptoms at both points in time. It was reported that children whose mothers had depressive symptoms at two to four months used fewer preventive services, including age-appropriate Well Child visits and up-to-date vaccinations at 24 months. Minkovitz et al concluded that maternal depressive symptoms in early infancy contribute to unfavourable patterns of health care seeking for children.

Abbott and Williams (2006) conducted a study to assess the prevalence of and risk factors for PND symptoms in a cohort of mothers of Pacific Island infants in Auckland. The data were collected as part of the Pacific Island Families Study, in which 1376 mothers were interviewed when their babies were six weeks old. The study recorded that 16.4 percent of mothers were assessed as probably experiencing depression. Prevalence rates varied from 7.6 percent for Samoan people to 30.9 percent for Tongan people. The authors were unable to explain this variation, and anecdotal evidence from the Tongan community suggests that it is not correct, and so the results need to be viewed with caution.

The study also noted risk factors, other than ethnicity, as being: low acculturation; first birth; stress due to insufficient food; household income less than \$40,000 per annum; difficulty with transport; dissatisfaction with pregnancy; birth experience; baby's sleep patterns; and partner relationship and home. The authors concluded that Pacific women are likely to be at high risk for PND, but suggested that some risk factors identified in Western populations might not apply to this group and concluded that traditional family and cultural supports, affordable childcare and antenatal education are probably important protective factors.

PND often persists undiagnosed, but there are readily administered, validated screening tools to assess PND. Available screening tools include the Edinburgh Postnatal Depression Scale (EPDS) and the Two Question Patient Health Questionnaire (PHQ-2). The PHQ-2 is currently used in GP training in New Zealand.

Internationally the EPDS is the most widely accepted screening tool used in the perinatal period. It was developed initially to screen for PND in the primary care setting. Validation studies have demonstrated 68 to 86 percent sensitivity and 78 to 96 percent specificity, and, in an Australian sample, 100 percent sensitivity and 89 percent specificity. When studies have included the EPDS in primary care, the questionnaire has been administered by health care visitors (ie, maternal child health nurses, midwives and psychologists) and by researchers (Buist et al 2002).

The PHQ-2 is a depression risk-screening tool derived from a longer, nine-item, self-administered patient health questionnaire depression diagnostic tool. The PHQ-2 has been validated in both primary care and obstetric populations, and has been shown to perform as well as longer screening measures in comparison with a research psychiatric interview (Olson et al 2006). Olson et al conducted a two-phase study on the implementation of brief depression screening of mothers at well child visits for children at all ages in three rural American medical practices using the PHQ-2. Two screening trials introduced screening (one-month pilot period) and then determined whether screening could be sustained (six months). The US Preventive Services Task Force (Pignone 2002, cited in Olson et al 2006) recommended that all adults receive depression screening with two questions that assess mood and anhedonia, with follow-up services provided.

Olson et al found that practices were able to screen in the majority of well child visits (74 percent in trial one and 67 percent in trial two). Of the 1398 mothers screened, 17 percent had one of the depressive symptoms and 6 percent scored as being at risk of a major depressive disorder. The authors concluded that findings from the study suggest that routine, brief, maternal depression screening conducted during well child visits is feasible. It detects mothers who are willing to discuss depression and stress issues with their paediatrician. The discussion conducted after screening revealed other mothers who felt depressed among those with lesser symptoms. The additional discussion time was usually brief and resulted in specific actions by the paediatrician. It was noted that the study had several limitations, one important one being that it was conducted in one region, in a small number of practices located in small towns. Olson et al noted that in an urban, low-income, clinical setting, a 50 percent increase in clinician screening discussion time might be expected. Additional on-site social services and referral resources may also be needed (Olson et al 2006).

Screening for PND during well child visits using the PHQ-2 was discussed at a focus group of child mental health professionals in March 2007, and use of the PHQ-2 was generally supported. The PHQ-2 is attached as Appendix 3. However, the timing of screening is crucial. Chaudron et al (2004) recommend that screening occur early enough in the postnatal period to detect women at the beginning of their depressive period. As many depressive episodes occur later in the postpartum period, and the highest prevalence is recorded between the third and fifth month after childbirth,

Chaudron et al also noted that screening more than once in the first year postnatal may be necessary.

The US Preventive Services Task Force (cited in Chaudron et al 2004) has noted that formal screening improves detection of depressed patients in primary care settings, and that the benefits of screening likely outweigh the potential harm.

There is some evidence to indicate that home visiting may be effective in managing PND, particularly after a longer period of intervention. The results from the Starting Well (a Scottish home-visiting programme) evaluation support a number of studies showing the positive impact of home-based preventive interventions delivered by trained health visitors. These also appears to improve sensitive maternal behaviours towards the child and co-operation with the child, but seem to rely on a positive and trusting relationship between the mother and the health visitor (Shute and Judge 2005). A recent evaluation of data from a Karitane Volunteer Home Visiting Programme in Australia shows improved mental health and wellbeing for mothers as a result of the programme (Black et al 2004).

Infant mental health

Infant mental health is the developing capacity of the child from birth to age three to:

- experience, regulate and express emotions;
- form close and secure interpersonal relationships; and
- explore the environment and learn –

all in the context of family, community, and cultural expectations for young children.

Infant mental health is synonymous with healthy social and emotional development.

The above definition of infant mental health has been adopted by the World Association of Infant Mental Health (Zero to Three Infant Mental Health Task Force 2002).

Role of parenting and attachment

Infancy is increasingly recognised as a crucial period for the development of a range of emotional and psychological capacities and as a critical period for brain development and a range of abilities, including the capacity to form intimate relationships, empathy and cognition (Mares et al 2005). An attachment relationship is an enduring affective relationship with a particular preferred individual, usually the person who provides most of the primary care giving, and from whom the infant seeks security and comfort. A major developmental task for an infant in the first year of life is the establishment of an affective interaction with his/her caregiver and the development of an attachment relationship (Mares et al 2005).

Infant development is complex and involves a process of mutual interaction between the infant and the environment. Attachment theory describes three types of 'organised' attachment and a pattern of disorganised or disoriented attachment. Organised attachment refers to strategies the child develops in response to the relationship with his/her caregiver. These are classified as secure, insecure/ambivalent or insecure/avoidant (Mares et al 2005).

A child's insecure attachment with its parents prior to age two is related to a range of poor outcomes at preschool age, including conduct, sociability, peer relations, anger, and behavioural self-control during preschool (Carlson 1995 and Astington 1994, cited in Barlow and Parsons 2003). A child's insecure attachment with its parents is also related to adolescent anxiety (Warren 1997), dissociation (Ogawa 1997), and drug use and delinquency (Garnier 1998, all three cited in Barlow and Parsons 2003).

Disorganised attachment refers to the child who fails to develop coherent or effective strategies to deal with attachment anxiety, usually where the caregiver is simultaneously the source of comfort and distress or anxiety (Mares et al 2005). The disorganised pattern of attachment behaviour is the only one directly linked to the development of emotional and behavioural disturbance and externalising disorders in early childhood (Mares et al 2005).

Attachment disorders are seen as generalised difficulties in relationships, which may emerge from disturbed interactional patterns in the child's primary caretaking experiences (Mares et al 2005). Infants and children exposed to disturbed and traumatising early care may have long-term difficulties in emotional interaction and relationships. A child's secure attachment with their parents early in life provides the basis for secure attachment later in life (Stein 1991 and Murray 1990, cited in Barlow and Parsons 2003). The caregiver environment is an important factor here. This is consistent with social learning and attachment theories, both of which suggest that deficits in the care-giving environment can result in severe conduct problems in early childhood (Shaw 2001, cited in Barlow and Parsons 2003).

Mares et al (2005) describe approaches to interventions in infant mental health as having the core aim of promoting infant development and motivating infant potential. Interventions are described as likely to occur or be targeted at multiple levels of the individual, family and social system. For example, the focus may be the infant individually, the infant-parent relationship, the family, the social group or community, or may involve broad-based population approaches that support infants and families. A comprehensive programme for infant mental health is described as involving support across the community for parenting and early childhood, preventive interventions and targeted services for high-risk infants and parents (Mares et al 2005).

The Ministry will consider maternal and infant mental health as part of the review and update of the framework for child and youth mental health and addiction service provision set out in *Te Kokiri: The Mental Health and Addiction Action Plan 2006–2015* (Minister of Health 2006b).

Existing practice under the schedule is not to undertake any routine or universal screening to detect PND or early identification of attachment difficulties in children. This practice results in PND not being detected in many instances, and therefore not able to be treated, which may have negative impacts on infants' cognitive, emotional and behavioural development. Attachment difficulties in children are unlikely to be detected early.

5.9 Child mental health, development and behaviour

Child mental health

Emotional and behavioural problems are a key cause of functional disability in children (Bone 1989, cited in Barlow and Parsons 2003). The four most common groups of childhood psychiatric disorders are: attention deficit hyperactivity disorders, oppositional defiant and conduct disorders, anxiety disorders, and depressive disorders (Egger and Angold 2006).

The first few months and years of a child's life are important for establishing social, cognitive and emotional patterns of functioning, which influence the child and their future mental health (Bricker et al 2004). The importance of early intervention is also critical if mental health problems are to be detected and successfully dealt with.

Research has shown that greater proportions of mental health problems tend to manifest in children living in high-risk environments (Raver 2002, cited in Bricker et al 2004), and that there is a correlation between the environmental and biological risk factors in a child's life and the risk of developmental problems.

Screening

Screening for mental health problems in children is not formally done within the framework. Mental health screening and surveillance are very difficult in young children, primarily because of their behaviour variation: children's behaviour can vary widely depending on their developmental level and age, the time and setting, individual differences, and family and cultural expectations (Squires et al 2002, cited in Bricker et al 2004). Screening for behavioural and mental health issues is, however, possible during middle childhood and is proposed as part of the B4 School Check.

A number of barriers to mental health screening programmes for young children have been documented in Bricker et al's report. These observations are based on the work of these authors with community-based programmes (Squires 2000, cited in Bricker et al 2004) and a literature review they conducted. Those barriers that may have relevance in New Zealand include:

- paediatric gate-keeping
- poor levels of family involvement in screening
- the availability of effective and low-cost screening measures.

Some segments of the population are at greater risk than others, and therefore while the consensus is still against universal screening for mental health, greater use of screening tools – particularly in at-risk populations of children – would appear to have merit in light of the evidence that early intervention can be crucial.

Six studies identified in the literature review (Allen and Clarke 2006) discussed the efficacy of interventions in relation to mental health outcomes for children, either directly or indirectly. These included three meta-analyses (Bull et al 2004; Sweet and Appelbaum 2004; Elkan et al 2000), two programme studies, and two papers on other aspects of mental health.

Specific mental health interventions that have been shown to have some beneficial outcomes include:

- information provision
- manualised parent programmes
- group-based parent programmes
- home visiting
- combined approaches (home- and centre-based interventions)
- centre-based service delivery.

Parenting programmes

Doughty (2005) observed that manual-based parenting programmes such as Triple P and Incredible Years have been found to produce significant reductions in childhood problem behaviours and represent a promising strategy for addressing such behaviours.

In light of the importance of parenting to a child's mental health, both when the child is of preschool age and later, the provision of validated parent education programmes shows some promise. A meta-analysis on five randomised controlled trials by Barlow and Parsons found some evidence that group-based parenting programmes may improve the emotional and behavioural adjustment of children under age three years. In a later paper based on the same study, the authors suggest that the review findings show the potential of parenting programmes when they are provided on a primary and secondary preventive basis during the first three years of life (Barlow and Parsons 2003).

The authors see two key benefits in group-based parenting programmes:

- the potential cost effectiveness of these programmes (Barlow and Stewart-Brown 2000, cited in Barlow et al 2005)
- evidence that parents value the support provided to them by other parents (Barlow and Stewart-Brown 2001, cited in Barlow et al 2005).

Home-visiting programmes

Parenting that involves harsh and inconsistent discipline, little involvement between parent and child, and poor monitoring and supervision is associated with delinquency and substance abuse. Parenting and family interaction variables can account for up to 30 to 40 percent of a child's anti-social behaviour (Patterson 1993 and Patterson 1989, cited in Barlow and Parsons 2003).

The literature review (Allen and Clarke 2006) found evidence in favour of home visiting as a child health intervention to improve the mental health of children. Bilukha et al (2005), in their study looking at violence prevention, listed improved social-emotional development among other possible beneficial effects of home-visiting programmes. Sweet and Appelbaum (2004) found specific benefits from home visiting for both higher cognitive and social outcomes, and reduced child abuse. It was noted that, in particular, parents benefited in terms of parenting attitudes and behaviour. There was also some evidence indicating that home-visiting programmes encouraged mothers to return to

school or to seek out some form of education. There were a few instances when targeting a certain population of families did result in greater benefit, including families with low birthweight children, where better results were found for both child cognitive and parenting behaviour outcomes.

Bull et al (2004) found some positive effects on specific dimensions of parenting or mother–child interaction (eg, greater success in managing their child’s behaviour), although it was noted that more work is needed on which types of programme or programme components lead to these results.

Although the literature review (Allen and Clarke 2006) showed evidence demonstrating that well-designed, well-targeted home-visiting programmes can have a positive impact on child development, it is less clear what the specific factors are that have the most influence on the success or otherwise of a home-visiting programme. Bull et al (2004) summarise evidence suggesting targeted, multi-outcome programmes of medium- to long-term duration appear generally more successful than other types of home-visiting programme.

The Ministry considers that any intervention to improve children’s mental health outcomes needs to focus on both the family and the child.

Child development and behaviour

The term ‘developmental delay’ is frequently used to describe children who experience delays in meeting developmental milestones in one or more streams of development. There is, however, no consensus on a specific definition (Allen and Clarke 2006).

Child development is a powerful determinant of health in adult life, as indicated by the strong relationship between measures of educational attainment and adult disease (Anderson et al 1999, cited in Anderson et al 2002). In addition to known risk factors for developmental dysfunction, such as premature birth and low birthweight, exposure to an impoverished environment is also recognised as a socio-cultural risk factor (Behrman et al 1987 and Brooks-Gunn et al 1999, cited in Anderson et al 2002). Children in poverty are particularly vulnerable. Low socioeconomic status during childhood interferes with cognitive and behavioural development, and is a modifiable risk factor for lack of readiness for school (Hertzman 2001, cited in Anderson et al 2002).

The link between early developmental delay and later school learning difficulties is also well established (Nelson 2000 and Shonkoff and Phillips 2000, cited in Williams and Holmes 2004). The development of competent language skills is critical for young children. Early language delays are associated with both difficulties in school and poor behavioural and social outcomes in adolescence and adulthood (Stothard et al 1998 and Tomblin et al 1997, cited in King et al 2005).

Factors such as poverty, low parental education levels and high levels of parenting stress are associated with greater risk of language delay. Despite this, few studies have adequately documented the incidence of language delays in the presence of such contextual factors (King et al 2005).

The draft *Evidence-Based Guideline for Autism Spectrum Disorder (ASD)*, which was jointly developed by the Ministries of Health and Education and released for consultation in December 2006, proposes that a developmental services co-ordinator be appointed in each local area to manage the referral process for all children about whom there are developmental concerns. The role of the development services co-ordinator would be to collect more information, ensure that assessment occurs in a timely manner, and support the family through the assessment process. The co-ordinator would also arrange onward referral to appropriate agencies.

If a developmental services co-ordinator is appointed, it will be important to ensure that effective links are established between Well Child providers and the co-ordinator.

Screening

Although routine developmental screening examinations may detect extreme variations from normal development, most disabilities and disorders are found by other means. They can often be identified by examination in the period immediately after birth. They are also often detected by a child's parents or family, or professionals who are in regular contact with the child by close observation and follow-up of children at risk, or noted opportunistically when a child is presented to health services for other reasons. Children's development occurs along a wide continuum, and it is at times difficult to separate 'normal' from 'abnormal' presentation at any precise age (Allen and Clarke 2006).

Child health programmes do not currently recommend developmental screening because evidence suggests that formal universal screening for developmental delay and disorder, speech and language delay, autism and co-ordination disorder make little contribution to the detection of serious impairments (Hall 2004). However, other studies refute this conclusion. An Australian review of child health screening concludes that although there is insufficient evidence to recommend for or against developmental screening, there is evidence that the earlier the intervention, the better the outcome. The same review makes similar observation for language delay, the evidence of which is again insufficient to recommend for or against screening (National Health and Medical Research Council 2002).

Developmental surveillance is a process of eliciting and attending to parents' concerns, making accurate and informative longitudinal observations of children, and promoting development. Developmental surveillance may include the use of developmental screening tests.

Most screening tools recognise the importance of a child's early years for their long-term development and learning. In recognition that a child's development is continual, most tools recommend that screening be undertaken more than once. Developmental delays may occur at and be identifiable from birth, or they may develop as a child ages. Changes to a child's environment, and potentially the environmental risk factors to which they are exposed, may require that the screening be repeated (Allen and Clarke 2005).

The Parental Evaluation of Developmental Status (PEDS) is a 10-item parent questionnaire for detecting developmental and behavioural problems in children from birth to eight years of age. PEDS can be used periodically for development surveillance and as a means to elicit and respond to parental concerns. A copy of the PEDS questionnaire and scoring form is provided in Appendix 4.

PEDS is norm referenced and was developed out of four cross-validated studies on a representative sample of American families. The authors claim sensitivity of 74 to 79 percent and specificity of 70 to 80 percent (Glascoe and Shapiro 2004). It has recently been adopted, with small adaptations, in Australia, where PEDS is accepted as a reliable way to elicit information from parents and undertake developmental surveillance. In Melbourne a number of early childhood educators have been trained in and have been trialling the use of PEDS since 2003. Initial feedback indicates that educators are finding the tool useful in their interactions with parents because it allows for the discussion of concerns in a more focused way (Australian Institute of Family Studies 2003). PEDS has also been used in the Fit 4 School programme in the Waikato region.

If PEDS raises concerns about the child, then a more formal developmental assessment needs to take place before any firm clinical conclusions can be made.

Home visiting

The literature review conducted by Allen and Clarke (2006) reported on five papers considering the effectiveness of home visiting for a variety of measures of child development. These included four meta-analyses (Sweet and Appelbaum 2004; Bull et al 2004; Elkan et al 2000; Kendrick et al 2000), and one programme evaluation (King et al 2005).

The outcomes of these studies suggest that home visiting can improve development outcomes, but that factors that make a home-visiting programme more effective need further investigation, including clearer identification as to whether the setting of the intervention (in the home) is a factor alongside others in making one intervention for development delay more effective than another.

In summary, the evidence presented in the literature review (Allen and Clarke 2006) indicated that home visiting appears to enhance both the quality of the home environment (a factor in development delay) and other measures of child cognitive development. Home visiting is particularly effective for improving development delays in premature children. The evidence of poor language outcomes from one recent home-visiting trial (Hawaii Healthy Start), however, reinforces the need for further research to pinpoint the factors leading to some home-visiting programmes being more effective than others (Allen and Clarke 2006).

A study conducted by Elkan et al (2000) concluded that home visiting is associated with improvements in the intellectual functioning of children. It appears to be most effective in overcoming delay in cognitive or intellectual functioning associated with prematurity, low birth weight or failure to thrive.

Screening for developmental and behaviour problems in children is not formally conducted in the framework. The existing schedule specifies that Well Child providers work with families/whānau to identify their needs for support, and either provide or facilitate access to support from other health or community services, especially for those children of families/whānau at risk of adverse outcomes. Currently, Well Child providers do not have specific training to recognise symptoms of developmental and behavioural problems.

Currently, development assessments are undertaken from six weeks onwards as part of the health protection and clinical assessment part of the existing schedule. From 15 months onwards the checks include developmental observation/questioning (including language, mobility and behaviour). No formal developmental screening tools are used.

5.10 Vision and hearing screening

The current schedule for hearing and vision screening, as outlined in the *National Schedule Handbook*, includes the following procedures, which are provided by Well Child providers (Ministry of Health 2002b).

Table 7: Schedule for hearing and vision screening

Age	Investigation
Birth	Referral for ABR by audiologist if there are risk factors for congenital deafness (LMC) Red reflex testing for vision (LMC)
6 weeks	Can Your Child Hear? questionnaire (WCP, GP) Can Your Child See? questionnaire (WCP, GP) Red reflex testing if not done at birth by LMC (GP)
8 months	Can Your Child Hear? questionnaire (WCP) Can Your Child See? questionnaire (WCP)
15 months	Can Your Child Hear? questionnaire (WCP) Can Your Child See? questionnaire (WCP)
21–24 months	Can Your Child Hear? questionnaire (WCP) Can Your Child See? questionnaire (WCP)
3 years	Screening tympanometry (VHT) Can Your Child Hear? questionnaire (WCP) Can Your Child See? questionnaire (WCP)
4 years	Distance visual acuity (VHT) Penlight/cover test for squint (VHT)
5 years	Screening tympanometry (VHT) Screening audiometry (VHT) Distance visual acuity (VHT) Penlight/cover test for squint (VHT)

Age	Investigation
11 years	Distance visual acuity (VHT) Colour vision testing (VHT)
Any age	Referral to VHT, optometrist or audiologist if any parental or professional concern about vision or hearing

Notes: ABR = auditory brainstem response; LMC = lead maternity carer (midwife/GP); GP = general practitioner; WCP = Well Child provider (Plunket nurse/iwi provider/other); VHT = vision hearing technician.

Hearing screening

Screening for otitis media with effusion (OME)

Otitis media with effusion (OME) refers to a continuum of conditions ranging from asymptomatic middle ear effusion to recurrent episodes of acute otitis media and persistent middle ear effusion, all of which lead to chronic middle ear inflammation.

It is a common condition in children under the age of 15 years. It has a prevalence of about 20 percent at two years (Greville 1996), and this reduces to around 5 percent at seven years of age. The Dunedin Multidisciplinary Health and Disability Study showed an incidence of 25 percent among children aged zero to five years (Chalmers et al 1989). OME has a bimodal distribution of incidence, peaking at the ages of two years and five years and is most evident in the autumn and winter months. It is the commonest cause of acquired conductive hearing loss in childhood. It is estimated that 80 percent of children develop OME during their first year of life, and 100 percent will have had at least one episode by three years of age.

Ethnic disparities

OME is more prevalent in certain ethnic populations. Overseas, these include North American Indians, Alaskans, Aborigines and Eskimos. In New Zealand, the incidence of OME seems to be greater in Māori and Pacific children. The New Zealand Hearing Screening Statistics Report 2003 revealed that the school entry hearing test failure rate for Māori children was 12.1 percent and for Pacific children it was 17.1 percent, both well above the figure of 7.7 percent for all children (National Audiology Centre 2003). The reasons for this are not well understood.

Sequelae

Most cases of OME resolve spontaneously, with a median duration of three months (Butler et al 2003). The major long-term consequences of OME fall into two types: those related to potential hearing loss and those related to physical deterioration in the middle ear cavity.

Hearing loss may lead to delays in speech and learning, as well as behavioural problems due to inattention. The effect of OME on each of these conditions has been investigated and a number of well-controlled prospective randomised trials indicate that

the long-term developmental effects of OME suffered in infancy are minor, at least in infants without severe disadvantage.

One review of the literature on the effects of conductive hearing loss on language and scholastic skills found that very few of these studies examined actual language acquisition or structure, and few considered the socioeconomic status of the children or their cultural environment. Diagnostic criteria were lacking with regard to the severity, age of occurrence and duration of effusions. As a measure of linguistic loss, only indirect criteria such as the number of grades children were kept back, reading/vocabulary levels on achievement tests, and verb and performance scales of IQ tests were utilised (Rapin 1979; Butler and MacMillan 2001).

The Dunedin Multidisciplinary Health and Disability Study followed over 1000 children aged 0–18 years and found that there were some associations between OME and antisocial, neurotic and inattentive behaviour at 10–13 years of age. It also found that OME was linked to reading scores (a two-year delay in teenage years), phonological coding deficits if the condition occurred between five and seven years of age, and reduced intelligence testing at 11 and 13 years of age (especially in the area of verbal IQ) (Silva et al 1986).

Teele et al (1984) found few long-term effects of OME on communication when the age of onset of the condition was greater than three years. These data have been used by many hearing advocates to support the theory that a critical period exists for the development of language and communication skills between zero and three years.

Paradise and Heidi (2001) prospectively measured middle ear status by pneumatic otoscopy in 6350 healthy children between two months and three years of age. They found a weak to moderate correlation between the cumulative duration of OME, in or including the children's first year of life, and scores on formal tests of receptive vocabulary and verbal aspects of cognition at three years of age. There have been a number of subsequent publications from the same study group which found little evidence that early OME had any effect on developmental progress when measured in 11- to 12-year-old children. The home environment was identified as the major contributor (Feldman and Paradise 2006).

The effect of unilateral hearing loss on educational and social outcomes is even less well understood due to inadequate levels of specification in research papers, or exclusion of this group of children from outcome measurement. Most audiologists feel that unilateral hearing loss due to OME is unlikely to lead to clinically significant consequences.

Diagnosis and screening for OME

OME may be diagnosed by one or a combination of the following methods:

- audiograms or distraction tests (not very accurate below four years of age)
- tympanometry (sensitivity and specificity approximately 80 percent)
- acoustic reflectometry (not as sensitive or specific as tympanometry)
- pneumatic otoscopy (sensitivity 90 percent, specificity 80 percent).

Pneumatic otoscopy in the hands of a trained clinician is the gold standard for the diagnosis of OME, but tympanometry is the most commonly used method for screening for OME. This involves the emission of sound waves from a probe inserted into the external auditory canal and the rebound of these sound waves off the eardrum to a sensor on the probe. It tests the compliance/mobility of the eardrum and provides an indication of middle ear pressure. Tympanometry may be performed from a few months of age upwards and is not associated with any known risks.

In New Zealand, tympanometry has been used by vision–hearing technicians to screen three- to four-year-olds and school entrants for OME. This programme began in 1991 following the launch of a government document, *Child Hearing in New Zealand: Strategic directions* (Department of Health 1991). The aim at the time was to test at least 90 percent of all children by the year 2000. Unfortunately, this has proved difficult to achieve with current screening methods. From 2002 to 2003 only 76 percent of preschool children were screened for middle ear dysfunction, although screening at school entry was more successful, with 94 percent of school-aged children screened.

Although there have been no real data available in New Zealand to prove whether or not screening for OME has made a difference to hearing impairment in children, there is some evidence from overseas to challenge its value, as follows.

O'Mara and Chambers (1992) screened a cohort of 1635 children by audiometry over an 18-month period and found that out of 35 failures, 28 of whom were followed up successfully, two were already receiving treatment for hearing impairment before the study and only eight were confirmed to have an underlying clinical problem. Of these, three had previously been identified and only five had new problems (0.3 percent of the original cohort). They concluded that there is serious doubt about the potential benefits of such programmes.

The Australian National Health and Medical Research Council (NHMRC) critical review of evidence undertaken in Melbourne in 2002 concurred that there is good evidence to recommend against screening for OME, especially with a universal programme (NHMRC 2002).

A Canadian Task Force investigated the use of tympanometry, microtympanometry, acoustic reflectometry and pneumatic otoscopy in early diagnosis of OME (in children below the age of four years). They found insufficient evidence to recommend the early detection of OME to prevent delayed language development, their major outcome measure (Feighner 1994).

A recent review of published research on screening for OME in the first four years of life (Butler et al 2003) found no evidence that screening children for OME and intervening had any clinically important effect on language development. The researchers' conclusions were that:

identified randomised trials do not show an important benefit on language development from screening the general population of asymptomatic children in the first four years of life to undergo early treatment for OME. Screening asymptomatic children in the first four years of life for OME is not recommended.

McCormack et al (2006) tested the hypothesis that children with early persistent middle ear effusion (MEE) are at risk for later deficits in academic performance. They recruited 698 newborns and monitored them for MEE every two to four weeks at home until age three years. At age seven years there was no significant relationship between early MEE and measures of school achievement. School achievement was strongly associated with ethnicity, home environment and socioeconomic status. These researchers concluded that early persistent MEE does not appear to affect achievement in school at age seven years.

In May 2004 the American Academy of Pediatrics, the American Academy of Family Physicians and the American Academy of Otolaryngology – Head and Neck Surgery combined to publish a clinical practice guideline (Rosenfeld et al 2004). This group made the following recommendations about screening for OME:

Screening: Population-based screening programmes for OME are not recommended in healthy asymptomatic children. Aggregate evidence quality: B, randomised controlled trials with minor limitations and consistent evidence from observational studies.

The same group considered that screening children who were at risk for speech language or learning problems from OME was justified, although the rationale was less robust than their previous recommendation about population-based screening.

Child at risk: Clinicians should distinguish the child with OME who is at risk for speech, language or learning problems from other children with OME, and should promptly evaluate hearing, speech, language and the need for intervention. Recommendation based on case studies, preponderance of benefit over harm and ethical limitations in studying children with OME who are at risk.

The group identified children at risk (see Table 8). The aggregate evidence quality was C (observational studies – case control and cohort design).

Table 8: Risk factors for developmental difficulties

Risk factor
Permanent hearing loss independent of otitis media with effusion
Suspected or diagnosed speech and language delay
Autism spectrum disorder or other pervasive developmental disorders
Syndromes (eg, Down) or craniofacial disorders that include cognitive, speech and language delays
Blindness or uncorrectable visual impairment
Cleft palate, with or without associated syndrome
Developmental delay

Cost of screening for OME

A New Zealand pilot of OME screening in a population of low socioeconomic status carried out in 1996 estimated the cost of screening per child tested to be NZ\$46, and the cost of detecting a case of OME warranting referral to be NZ\$117 (Crampton 1996).

Current consensus about the prevention or mitigation of OME

GPs and Well Child nurses have an important role in increasing individual resistance by means of advice on illness behaviour, household smoking, breastfeeding and diet, and by preventing excessive use of antibiotics, nose drops and unnecessary medical and surgical interventions. Host factors can be addressed by health education and promotion policies to improve the standard of health and housing, especially in high-prevalence communities.

Population-level measures for overcoming the potential adverse effects of OME have been suggested as an alternative to merely concentrating on detection and treatment of the condition. A study of classroom acoustics undertaken by the Oticon Foundation in 1999 led to two new methods of improving classroom acoustics being proposed for children identified as having OME/hearing impairment.

- *Sound-field amplification* – this is a system whereby the voice of the teacher is magnified by the use of a microphone and loudspeaker system. This system benefits all children in the classroom, not just those with hearing impairment. A Ministry of Education innovations funded study of this system in a school of 288 pupils from 1999 to 2000 found that it had a positive influence on language acquisition and educational achievement in most children, especially those with known hearing impairment (Oticon Foundation 2002).
- *Personal FM systems (radio aids)* – these have been around for longer and help individual children with hearing impairment to improve the level of the teacher's voice over background noise. They are usually only supplied to children with moderate to severe hearing impairment, but current opinion is that even children with milder degrees of hearing loss may benefit from their use. Considering the prevalence of mild hearing loss due to acute and chronic otitis media in New Zealand classrooms, sound-field amplification may be a more cost-effective option.

A number of New Zealand studies have examined the effect of sound-field reinforcement in classrooms. New Zealand has high numbers of relocatable classrooms, which are acoustically poor and often have poor noise insulation, meaning that external noises are also a potential source of noise pollution for children and teachers. Sound-field reinforcement is a sound distribution system, not sound amplification, and distributes the teacher's voice around the classroom as though he or she was close to each child.

A recent cluster randomised study in the Rotorua area⁴ enrolled classes of children over a school year. Parental report indicated that 32 percent of the children had treated middle ear dysfunction, and surveillance indicated that 49.7 percent of children in other areas had bilateral OME over the 13-month period. A range of methods was used to evaluate the impact of the sound-field enhancement, including progressive achievements tests (PAT), which measure listening, reading, comprehension, vocabulary and maths.

⁴ Personal communication, Heeney, 2006.

The students were scored at the beginning of the trial and then the assessment was repeated one year later. The intervention group (students in amplified classrooms) had significant increases in all areas in comparison to the control group, especially in listening and phonologic skills. Teachers and students also noted subjective improvements from amplification. Teachers noted that it was easier to keep noise levels down in the class room, and remarked about increased calmness in the children. Of considerable interest was that children from decile 1 schools (the lowest socioeconomic group) improved more than children from decile 10 schools. The positive benefits applied to all students, including those with OME.

The students' feedback was 98 percent positive. They remarked that it was easier to hear the teacher's voice, easier to hear over competing noise, and there was increased classroom harmony.

Vision screening

The current screening for visual impairment under the Well Child Schedule comprises the tests outlined below. If there is any parental or professional concern at any age, referral is recommended to either an optometrist or an ophthalmologist, depending on the nature of the concern.

Refractive errors

A questionnaire (Can Your Child See?) which identifies behaviours that may indicate visual difficulties is discussed with parents by Well Child nurses. The effectiveness of this questionnaire is unknown. Preschool children in most areas of New Zealand are screened for distance vision at around three and a half to four years of age by Well Child nurses. Distance visual acuity screening is carried out at around five years of age on school entry, and at 11 years of age by vision–hearing technicians. Any child who fails this test is referred to an optometrist or ophthalmologist for further evaluation.

Strabismus

Cover testing for squint is done on school entry at the age of five years, and in some areas at four years of age. Any child who fails this screening is referred to an ophthalmologist for further assessment.

Amblyopia

Distance visual acuity testing and cover testing are undertaken at three to four years of age and at school entry. In South Auckland a photoscreening pilot was introduced as part of the South Auckland Vision Screening Project in Mangere, Papatoetoe, Otara and Manurewa (Hope 2002). However, this is now only used for children who are difficult to test using the usual screening protocols.

Congenital cataract

Current screening for congenital cataract entails inspection of the eyes and red reflex testing at birth and six weeks of age. In a recent study of children in the United Kingdom with newly diagnosed congenital cataract, less than half were detected at the

routine newborn check or six-week examination. Interdisciplinary development of programmes for training and assessment of health professionals involved in ophthalmic screening and surveillance has been advocated but not widely undertaken. There is inadequate reporting on the uptake and accuracy of this screening. A recent study from Nelson indicates that red reflex testing is generally poorly done and recorded in New Zealand (Fry and Wilson 2005).

The rationale for screening for visual impairment

The purpose of vision screening in infants and preschool children is to:

- detect preventable and treatable conditions that may lead to amblyopia
- detect significant refractive errors.

New Zealand census data from 2001 showed that 4 percent of children have a sensory impairment (31,500). Almost half of these (13,200) are due to blindness or a visual impairment that cannot be corrected. The few data available indicate that there are delays in the diagnosis of sensory impairment, and significant ethnic disparities. Unfortunately, information relating to visual impairment is a lot less easily available than data for hearing impairment.

Over the past 20 years preschool screening programmes for vision have been instituted in an expanding fashion, although recent negative reviews have tended to curb enthusiasm for extending or developing new programmes. Unfortunately, there is still limited evidence about the efficacy of such programmes in terms of their outcomes. A number of major reviews have since questioned the value of school vision screening programmes (Hall 2003; Powell 2003; Snowden and Stewart-Brown 1997).

Two United Kingdom studies examining the impact of the withdrawal of a preschool vision service suggested that most new deficits detected by screening are minor, and most children with vision problems were known to the health system by the time the vision screening was undertaken (Cummings 1996 and Jewell 1994, cited in Powell 2003).

Overall, less than 1 percent of 8- to 13-year-old students in the two United Kingdom studies referenced above had newly identified vision problems on screening, and most who were identified with a problem were already known to the health service. Of the children who had been prescribed glasses, only one-third of children wore them regularly.

Refractive errors

Hyperopia in a young child, especially if unilateral, is significantly associated with amblyopia. Amblyopia is most easily detected by visual acuity tests (the earliest reliable age is around three and a half to four years), hence the use of visual acuity tests in screening. The association between hyperopia and reading ability has been investigated by a number of researchers. Although most of their studies were methodologically flawed, there has been recent evidence from Rosner and Rosner (1997) which showed that hyperopia greater than 1.25 dioptres is associated with poorer ability to read books. Hyperopia of all degrees is readily corrected by the use of glasses.

Myopia of less than 0.5 dioptres does not cause any impairment in the ability to read books, or in school performance, but does affect a child's ability to read letters on the classroom blackboard (Grisham and Simons 1986). It, too, is readily corrected with glasses. By 13 years of age cognitive development reaches an adequate level for children to self-report visual disturbance, so screening of children from four years of age is well placed to detect asymptomatic individuals.

There is little evidence to relate astigmatism to limited reading ability and only a small amount of evidence to link anisometropia to educational impairment. Neither of these is directly identified currently, although visual acuity screening will generally detect significant astigmatism and anisometropia that is causing amblyopia. Any parental or teacher concerns about reading or learning in a child should prompt a health assessment, including a full eye examination.

Photoscreening has been shown to have the same or better success as letter matching in identifying children with visual disturbance. Because of its relative simplicity, it is a useful tool for vision screening in children who do not co-operate with traditional testing methods. Its use is unproven in the hands of lay screeners, and no studies have been done to prove its value in a primary care setting. Currently it is perceived as not being cost-effective and is not recommended for use by a national screening programme.

Treatment of refractive errors following identification

Few researchers have investigated the ideal age for correcting refractive error to prevent its progressive consequences. Theoretically, the earlier the better, as there is a great deal of visual development between zero and two years of age. Unfortunately, the little evidence available has shown that early investigation and treatment of hyperopia by one year of age does not reduce the incidence of amblyopia.

The South Auckland Vision Screening Project (Hope 2002) concluded that the most important factors in determining the success of treatment for amblyopia were:

- compliance with glasses/patches
- compliance with appointments.

The age at which the child is identified was significantly associated with better outcomes (under five years being better).

Strabismus/amblyopia

Of all the forms of visual impairment, amblyopia is thought to be the most preventable and treatable. However, the natural history of amblyopia has been subject to more speculation than investigation. No prospective studies have been carried out in preschool children to assess the progress of untreated strabismus and amblyopia, and it is possible that amblyopia due to small degrees of squint or refractive error may resolve spontaneously.

At least 21 large studies have been done to identify the extent to which amblyopia causes disability. It has been proposed that unilateral amblyopia leads to reduction in depth perception while having little impact on space perception and contrast – thereby

being unlikely to affect everyday living. However, animal studies have proved that blurred vision at critical stages of development can lead to the impairment of relevant brain functions. NZHTA (1998) concluded that there is no convincing evidence that amblyopia causes disability.

Nevertheless, screening for amblyopia is undertaken both in New Zealand and overseas on the understanding that it fulfils the standard criteria for such a programme. The National Health Committee (2003) has published guidelines on the characteristics of a suitable screening programme.

Summary

There remains much controversy surrounding the relationships between visual functioning and reading and learning difficulties. The national infant and preschool vision screening programme is intended to identify congenital cataract, amblyopia and significant short-sightedness.

Although hyperopia greater than 1.5 dioptres is known to affect the ability to read books, current screening tests do not identify the condition, although amblyopia due to anisohypermetropia is detected by the current screening programme. Modern teaching methods probably disadvantage children with hyperopia, and there have been calls to include screening for hyperopia in the national programme. Unfortunately, there is very little evidence for the effectiveness of screening for hyperopia and it is difficult to test preschool children for this condition. Until such evidence becomes available it would seem unjustifiable to add it to current screening programmes.

There is adequate evidence that screening for visual defects reduces the incidence of amblyopia. The available evidence suggests that screening in preschool years is most effective and that treatment before the age of five years leads to the best outcomes. In some studies, however, screening of preschool children did not achieve high rates of uptake, and this limits justification of the programme.

Photoscreening has been proposed as an alternative method of identifying visual disturbances, especially in the younger age population. However, the current balance of evidence does not favour the implementation of photoscreening.

The current screening process for detecting congenital cataracts is poorly implemented and there is no systematic responsibility for training, data collection or audit. In the absence of robust evidence, there is a general consensus that this screen is important and useful, but that this aspect of the vision screening programme must be improved.

Proposed vision screening

The Ministry is proposing the following preschool vision screening programme.

(a) Screening for congenital cataract

The red reflex should be elicited as part of the routine ocular examination. An ophthalmoscope is necessary for this examination.

- *Timing*: the red reflex should be tested for at birth and six weeks of age.
- *Data recording and collection*: the outcome of the examination should be recorded in the relevant clinical notes and the Well Child / Tamariki Ora book.
- *Referral pathway*: the red reflex should be tested for by the midwife, GP or paediatrician. Failure to visualise the red reflex should lead to an urgent referral to an ophthalmologist.

(b) Testing for distance visual acuity

Distance acuity should be tested using a single optotype test without confusion bars and/or the Kay picture test at 4 metres. Each eye should be tested separately (right eye first). A pass is defined as 6/6 in each eye. A refer is 6/12 in either or both eyes. A child with 6/9 in one or both eyes should be tested again at five to six years of age.

- *Timing*: testing for distance visual acuity should be undertaken at four to five-and-a-half years as part of the B4 School health check.
- *Data recording and collection*: information should be recorded in the school database (ENROL) if the test is done in the school setting, and in the Well Child health record.
- *Referral pathway*: any child with a 'refer' should be referred for further assessment to an optometrist or ophthalmologist.

(c) Screening for strabismus (squint)

Screening for a squint using the penlite test for corneal reflections should be undertaken as part of the newborn eye examination along with the red reflex.

- *Timing*: testing for squint should be undertaken at birth and six weeks. No further screening tests for squint are recommended, but parents should be asked about any asymmetric deviation of the eyes at the routine Well Child visits.
- *Data recording and collection*: information should be recorded in the Well Child health record.
- *Referral pathway*: any infant with a squint or parental or clinical concern should be referred to an ophthalmologist for further assessment.

Other issues relating to the proposed vision screening programme

Competencies and training

Until recently all vision screeners were trained at the National Audiology Centre (NAC) and then reassessed every two years. Annual study days with refresher workshops were held for technicians. Now that Auckland DHB has disbanded the NAC, the Ministry and DHBs will need to reconsider how best to ensure this vital service is retained and enhanced. Ophthalmologists and orthoptists need to be involved in evaluation and training. Local supervision and national oversight are probably the most appropriate ways to achieve this.

There is no formal training for orthoptists in New Zealand. Internationally, they are required to undertake a three-year training programme. In order to organise similar

training locally, New Zealand Qualifications Authority accreditation would be mandatory. One way to overcome such training deficiencies and the complexity of creating a new curriculum for orthoptist development may be to institute a system of modular training, whereby different components of screening receive separate accreditation and review (eg, newborn hearing testing, vision testing and tympanometry).

Evaluation and audit

All DHBs/regions need to be reviewed for screening programme performance. Data collection for vision screening and treatment is still lacking. As a minimum there need to be national guidelines on screening methodology, referral criteria, data collection and analysis at a DHB and national level. Areas with poor coverage must be identified and coverage remedied. Waiting times for symptomatic assessment and treatment must be as short as possible, and routinely monitored.

Referral and follow-up

The number of referrals to optometry and ophthalmology services are rising and so are waiting lists. Multiple referral and exit routes from the secondary service (orthoptists and ophthalmologists) allow children to receive variable care without any real systemic oversight.

Adverse effects

All screening programmes can cause harm. With respect to screening for visual defects, there are very few clinical studies that specifically address this issue. Ingram et al (1991) have suggested that inappropriate treatment of children with refractive errors may prevent normal emmetropisation (development of normal visual acuity in adulthood). This is supported by animal studies, but the implications for screening tests in childhood are not known.

Recently there have been a number of private optometry screening campaigns targeting schoolchildren. These campaigns may not be based on accepted screening principles and may do more harm than good, by raising parental concern unnecessarily or by suggesting expensive treatments that may not have any clinical or educational benefit to the child.

5.11 Other initiatives

There are other child health programmes affecting zero to five year olds, which are not part of the Well Child Review, including universal newborn hearing screening.

The hearing surveillance between birth and four years and the audiometric screen at four years must be considered integral parts of a national child hearing programme. To that end, it will be essential to ensure that the hearing status of all children, as identified by the newborn hearing screening, is known prior to the B4 School Check at four years. It will also be essential that only sensori-neural hearing difficulties identified after the newborn hearing screening has been completed are notified to the newborn hearing screening database.

6 B4 School Check

6.1 Purpose

The purpose of the B4 School Check (previously referred to as the Ready for School check) is to adequately prepare the child and family for school, and it also provides the opportunity for the school to prepare for the child. For example, a child may need support with language or behaviour in order to successfully access the school curriculum. The aim of the assessment is to ensure that children start school able to participate and enjoy it to the best of their ability.

The intention is that the B4 School Check not become just another health check, but considers the community and environment of the child, identifies any behavioural, developmental or health concerns that may adversely affect the child's ability to learn in the school environment, and ensures appropriate referrals are made to support the child, their family and school. The B4 School Check will look at a child's ability to learn and to communicate, their social development and family/social circumstances. The B4 School Check is also an opportunity to involve parents and caregivers with the health and education services.

The B4 School Check will replace the existing school new entrant assessment. This assessment is usually conducted after the child has started school. A survey of providers of the school new entrant assessment was conducted by the Ministry to find out how well it is currently being performed. The assessment is provided mainly by public health nurses and vision–hearing technicians. The survey indicated that this assessment is no longer universally provided and that the total number of children receiving a full assessment is small. The content of the check is variable and provided in different ways, and there is no universal mechanism for recording the number of children who are seen or the number needed to be seen. In some areas assessments are done by a number of different people, and there appears to be little communication between those involved.

6.2 Key outcomes

The key desired outcomes from the B4 School Check are as follows:

Child

The check provides:

- detection of vision and hearing problems and existing health and disability conditions that could impact on learning and school attendance
- detection of behavioural problems that could impact on learning
- promotion of four-year-old immunisation uptake.

Family

- Family/whānau is supported to maximise their child's educational potential and health status.

School

- School is prepared for the child, and the resources required for successful learning are identified.

Health and educational professionals

- Health and educational professionals have a greater awareness of the child's needs and are supported to deliver high-quality care.

6.3 Consultation

The Ministry of Health consulted with the Ministry of Education on what readiness for school means and the key requirements from an educational perspective, and to assist with the formulation of options for the B4 School Check. In addition, consultation was undertaken with the health and social services sectors. Input into the B4 School Check was also sought during the round of focus groups that were held from October 2006 to May 2007, including Māori child health issues / mokopuna ora, mental health issues, vision and hearing, and primary health care. Expert input from clinicians was also sought on the proposed clinical assessment changes to the programme.

Two focus groups that concentrated solely on the proposed changes to the School New Entrant check were also held with representatives of the Ministry of Education, Ministry of Social Development, public health nurses, practice nurses, vision and hearing technicians, Māori and Pacific providers, paediatricians and social workers in school. A specific primary care providers meeting comprising GPs, PHO representatives and practice nurses was also held to ensure their input into the proposals.

The Ministry of Health conducted a literature review of other countries' school entry assessments. Information was obtained on well child programmes operating in Australia, the United Kingdom, Sweden, Finland and the United States of America. These countries were chosen because of similarities to New Zealand in their approach to health care.

6.4 Existing school new entrant assessment

The existing schedule provides for assessments to take place under the three streams of health education and promotion, health protection and clinical assessment, and family/whānau care and support.

Health education and promotion continues from earlier childhood and includes education on a variety of topics, including management of common childhood illness, promotion of home and environmental safety and dental health, education about and promotion of the developmental needs of young children, and promotion of parenting skills.

Health protection and clinical assessment includes a review of immunisations, effective handover between Well Child providers, a physical check, a psychosocial check, a developmental assessment if indicated, a dental assessment, and tympanometry and an audiological assessment. Distance visual acuity screening is carried out by vision–hearing technicians. Any child who fails this test is referred to an optometrist or ophthalmologist for further evaluation. Cover testing for squint is also conducted, and any child who fails this screening is referred to an ophthalmologist for further evaluation.

Key elements of the family/whānau care and support stream are promoting family/whānau support, community development issues that relate to child health, assessment of need for additional support, and facilitation of community networking.

6.5 Naming the B4 School Check

International literature suggests that it is helpful to identify and name developmental stages. Feedback from consultation with the early childhood education sector suggests that there may be negative connotations with emphasising entry to school as a milestone. Learning starts at birth, and while the school setting may have more structured focus and be more intensive than early childhood education, it is not a completely new situation for children. At four to five and a half years of age, children are starting to show their independence. This is acknowledged in *Te Whāriki: He Whāriki Mātauranga mō ngā Mokopuna o Aotearoa: Early Childhood Education Curriculum*, and in *kōhanga reo*. Therefore, it may be more appropriate to reflect this emerging move towards independence in the theme of the check.

The Ministry proposes that the theme of the B4 School Check be ‘Spreading Your Wings’, acknowledging the child’s progression towards independence and movement into a wider world.

6.6 Content of the B4 School Check

The Ministry is proposing that the content of the B4 School Check comprise the following.

A general health questionnaire

The general health questionnaire will comprise questions relating to immunisation status, chronic illness and disability conditions, and any general health concerns that may affect learning and school attendance. The content of this questionnaire is included as Appendix 5.

Hearing and vision screening

Sweep audiometry testing is proposed. It is also proposed that children with hearing difficulties identified at the B4 School Check should have tympanometry undertaken as part of the diagnostic assessment.

Testing for distance visual acuity is proposed. Referral for further assessment to an optometrist or ophthalmologist should be made if a child is suspected of having a vision problem.

Screening to detect behaviour problems

A key aspect of the B4 School Check is to identify any behavioural concerns that could affect a child's learning in the school environment. The factors that may affect a child's learning cannot be addressed until they have been identified. Screening is the first step in the process of identifying children who are at risk for poor educational outcomes. The Ministry is proposing to introduce a formal screening tool to identify social–emotional and behavioural concerns.

There is a wide range of potential screening tools and processes used internationally to identify children at risk of poor learning outcomes, such as the Ages and Stages Questionnaire, Brigance screens, and Denver Developmental Screening – II. Allen and Clarke (2005) found that there is no consensus on what constitutes best practice in screening, and even tools for which concerns about accuracy have been raised are widely used, such as the Denver Developmental Screening – II. The most accurate screening tools seem to be those that elicit information from a number of sources (such as observation and parental comments), consider a multitude of variables, and are designed for a specific, limited age range (Allen and Clarke 2005).

Allen and Clarke (2005) conclude that the most promising screening tools would seem to be those that consider the greatest number of variables, such as the Ages and Stages Questionnaire (ASQ), Early Screening Inventory – Revised (ESR-1), or the Brigance screens. A more recent screening tool, the Strengths and Difficulties Questionnaire (SDQ), while behavioural in focus, contains good principles for considering a child's strengths as well as any areas of difficulty. The SDQ also reflects current academic thought about risk and resilience and the impact this has on a child's development and learning (Allen and Clarke 2005).

The SDQ is based on the Child Behaviour Checklist and the Rutter questionnaires, which have long been used in clinical and educational practice. The SDQ considers five dimensions: conduct problems, emotional symptoms, hyperactivity, peer relationships and prosocial behaviour (Goodman 1997). It is used by a number of countries and is available in a number of languages. The SDQ is more recent, so it is still being evaluated for predictive validity, reliability, sensitivity and specificity. Only one study was identified that evaluated the SDQ's sensitivity and specificity. This showed the SDQ to be particularly effective at predicting oppositional disorders, hyperactivity disorders, depression, pervasive developmental disorders, and some anxiety disorders. For these factors, sensitivity of 70 to 90 percent was reported. The SDQ was less accurate at identifying specific phobias, panic disorder/agoraphobia, eating disorders and separation anxiety, where it has a sensitivity of 30 to 50 percent (Goodman et al 2000).

Hawes and Dadds (2004) undertook a study of 1359 Australian children aged four to nine years in an attempt to investigate the applicability of the SDQ in the Australian context. The results of the study showed sound psychometric properties with moderate to strong internal reliability and stability, and good external validity with diagnostic assessments. The SDQ has been studied in relation to its effectiveness with a wide range of populations, including British, Finnish, Swiss, German and Arabic. In their review of the psychometric properties of the SDQ, Hawes and Dadds cite a number of international studies on its reliability and validity and have found that the evidence largely supports the reliability and validity of the SDQ, particularly in European countries.

The Ministry is proposing to screen for behavioural concerns either using the SDQ or the Parental Evaluation Development Status (PEDS) questionnaire. The SDQ would be completed by the parent, and either the early childhood education teacher or new entrant teacher depending on when the B4 School Check takes place. Consent would be needed from the parent to complete the questionnaire. Scoring of the SDQ would be completed by the health professional undertaking the B4 School Check, who would need to liaise with either the preschool or new entrant teacher to ensure completion of the form. A copy of the SDQ is attached as Appendix 6.

PEDS is a 10-item parent questionnaire for detecting developmental and behavioural concerns in children from birth to eight years of age. PEDs can be used periodically for development surveillance and as a way to elicit and respond to parental concerns. A copy of the PEDS questionnaire and scoring form is attached as Appendix 4. Further information on the PEDS can be found on page 52 of this paper, where the Ministry is proposing routine use of PEDS for developmental surveillance from three months until three years. The PEDS would be completed by the health professional undertaking the B4 School Check.

Training in the use and scoring of either the SDQ or PEDS would be needed for the health and educational professional carrying out the check. Use of either questionnaire would need to recognise cultural relevance and specific environmental influences for Māori and Pacific communities, and translation into Māori and Pacific languages would be necessary.

Screening would need to be complemented by an appropriate assessment if a number of risk factors are identified. It would therefore be necessary to ensure that the appropriate referrals are made to the relevant providers of secondary services to support the child, their family and school.

Height and weight measurement

Height and weight measurement will be recorded and provided to parents. Body mass index (BMI) will be calculated for use as population-level monitoring. The information will be included in a national database and will be used as a population health indicator to provide information on trends. If there is a concern about obesity, then the appropriate referrals can be made. Parents would be provided with advice about healthy eating and exercise using HEHA resources. Referral for GP or paediatric assessment would be on the basis of concerns about height and weight, as currently occurs.

Oral health assessment

An oral health assessment would be undertaken, and enrolment in a school dental service checked.

Further content for consideration

An area that has been identified for further consideration for inclusion in the B4 School Check is the provision of speech therapy. The need for speech therapy is increasingly being detected at early childhood education centres, and it is reported that there are long delays being experienced for referrals to services.

6.7 Who should provide the B4 School Check?

The existing school new entrant assessment is provided by a range of health professionals, including public health nurses, practice nurses, Well Child providers, vision–hearing technicians and GPs. Each of these delivery models has advantages and disadvantages. Well Child providers are based in the community and are therefore familiar with the community, and are mobile. Currently they are not usually linked to a PHO and do not usually have strong connections with early childhood education. Although they may know the family concerned, they may not have had contact for a few years, as Well Child services are less utilised in older children.

Practice nurses are well linked with PHOs or general practices. They are likely to know the family and child and will know the community. Most practice nurses are not mobile and have no formal connection with early childhood education. This also applies to GPs.

Māori and Pacific providers are currently providing early Well Child checks and may be well positioned to provide B4 School Checks. They usually have strong links with local communities and PHOs and can be influential in improving access for some families.

Public health nurses have strong links with the community and are mobile. They usually already have some connection with early childhood education and in some places perform the function of a school nurse. They have a broad health promotion and personal health focus. Most public health nurses are not linked with a PHO and may be new to the child and family.

The Ministry is proposing that the qualifications for the health professionals conducting the B4 School Check would need to include nursing or medical registration, community experience, child health experience, and the ability to communicate with children and families. The health professional would need to have links with education – both early childhood and primary – and links with other services (eg, social workers in schools). It would be beneficial if they could also perform vision and hearing screening and immunisations in some situations.

It will be important to ensure the workforce is well supported by training and administrative support. Care will need to be taken to ensure that this 'new' workforce is not set up in competition with an existing workforce with the same competencies and functions. Public health nurses are the group most likely to be undertaking this type of work now, and their expertise and local knowledge must be utilised in setting up the programme. This should not, however, preclude entry of other health professionals into the programme as long as they demonstrate the required competencies.

The Ministry is developing a standards/competency framework for registered nurses involved with delivering the B4 School Check. The standards/competency framework will identify the competencies needed for the delivery of the B4 School Check.

6.8 Where should the B4 School Check take place?

Currently New Entrant Checks are mainly performed at school or in the home. A few children are seen in the GP clinic, PHO, public health nurse clinic setting, in early childhood education centres or at kōhanga reo. There are several options (not mutually exclusive) for where the B4 School Check could be undertaken.

Home visit

Home visiting has many advantages. A home visit may be less threatening and time consuming for the family, and the family is not required to travel to a centre for the check. The disadvantages are that it is time consuming for the health professional, only one family can be seen at a time, and there may be safety issues. Some families do not like having strangers visiting at home, and any equipment would have to be taken to the home. A home visit may be an option for families that are hard to reach any other way.

Early childhood education (ECE) centres and kōhanga reo

Checks could take place at early education centres (ECE) or kōhanga reo. The ECE teacher will have seen the child over a period of time and know the child well. Some difficulties associated with undertaking this check at ECE centres are the lack of a suitable room and the fact that parents may not be available. Again, any equipment would have to be brought in. However, the check would not necessarily have to take place during education time and could be arranged for before or after the session.

General practice

The advantage of performing the check in a general practice setting is that parents are usually present, the room and equipment would be available, and linking with the doctor or other professionals (if in a PHO) would be easy. Children could be seen in groups. However, creating links with the ECE sector or school is likely to be more difficult.

Community settings

Examples of community settings are community halls, churches, marae, and community services hubs. A community site provides ease of access and may be less intimidating to the child and family/whānau. A caregiver would be present for the assessment, and checks could occur after hours. The disadvantages are that a room would need to be available and equipment brought in.

The check could be undertaken in an early years service hub once these are established. Early years service hubs are a planned Ministry of Social Development initiative to provide a central point for families to access a range of services. The hubs will be situated in high-needs areas and provide a group of services, including antenatal services and ECE. Referral to other services (eg, social workers) that are housed in the same building would be made easier because of co-location. A disadvantage is that service hubs will not be available in every area.

School setting

The check could be undertaken in a primary school setting, in recognition that there will be a small group of children for whom the check is unlikely to take place until they start school and a catch-up check in the school setting may therefore be necessary. A disadvantage is that if the check is performed after children start school, any problems identified would not be able to be remedied before starting school.

A combination of approaches

The Ministry recognises that one single approach is not going to be suitable for every situation and that a combination of approaches may be needed. Overall, it will be important to ensure a needs-based approach is followed. The key consideration will be for the provider and DHBs to know the particular community where the check is to be delivered and the best approach for that community. Delivery will need to be flexible as well as consistent.

6.9 When should the B4 School Check take place?

The check ideally needs to take place with enough time before the child starts school to alert the family/whānau and school to any issues that might affect the child's preparedness for starting school. If the child is too young, any testing undertaken for vision and hearing may be unreliable. The timing of the check also needs to be flexible up to six years of age due to the legislative requirement for a child to attend school by age six. However, some children don't attend early childhood education, and a catch-up check once a child has started school may be necessary if the check has not been able to be completed earlier. Follow-up time is also needed if risk factors are identified.

The Ministry is proposing that the B4 School Check take place between four and five-and-a-half years of age, preferably between four and four-and-a-half years of age, but allowing more time for those children who are difficult to find or who are unable to attend. As noted, a catch-up check may be necessary once a child has started school for a small percentage of children if the check has not been able to be completed earlier.

6.10 Links

There are opportunities to improve child health outcomes from the B4 School Check if this is more closely linked with early childhood education, social services and parenting programmes.

The content of the Well Child Framework needs to support the key themes in the Ministry of Education's *Te Whāriki: He Whāriki Mātauranga mō ngā Mokopuna o Aotearoa: Early Childhood Education Curriculum*. New initiatives proposed, such as the Strengths and Difficulties Questionnaire, will need to be consistent with the Ministry of Education's project to identify barriers to learning and its key resource, *Do You Know Me?*

Links will need to be made with the *Interagency Plan for Conduct Disorder / Severe Antisocial Behaviour 2007–2012* (Ministry of Social Development 2007). This work, led by the Ministry of Social Development, involves Child Youth and Family and the Ministries of Health, Education and Justice. It recommends behavioural screening for children in early education and primary education settings. Links to parenting programmes and intensive home-visiting programmes such as Family Start and Early Start also need to be strengthened for parenting issues to be effectively dealt with.

6.11 Information management for the B4 School Check

Currently, problems experienced in the delivery of the school New Entrant Check include an inability to adequately identify and follow-up children who have not had the check, particularly mobile and hard-to-reach children and families. Estimates of the number of children receiving a school New Entrant Check are presently inaccurate. There is also an inability to measure the effectiveness of the check and whether it is achieving its outcomes, or even to know what outcomes are sought or intended.

The Ministry recognises the importance of national standards and information management to ensure all children are identified and offered a B4 School Check. The Ministry is still considering options for how information management requirements can best be developed to support the B4 School Check.

The information management requirements for the B4 School Check are a subset of the wider Well Child and child health information management requirements. Ideally, B4 School information will link with other programmes associated with the framework, such as newborn hearing screening, the National Immunisation Register, metabolic screening, and, potentially, with the Ministry of Education ENROL programme.

The type of information to be collected for a B4 School Check information system is likely to include:

- National Health Index (NHI) number and demographic information (eg, the child's name, address, date of birth, ethnicity)
- date and location of check
- B4 School Check findings
- action taken, if required (eg, referrals and follow-up)

- name of the B4 School Check provider
- name of the child's primary care provider
- name of the child's preschool/school – intended or actual
- pre-existing issues (eg, disability)
- other health conditions (eg, asthma, allergy)
- hearing and vision problems
- oral health.

The Ministry considers that the key requirements for information management are to enable:

- all eligible children to be identified and offered a B4 School Check, especially mobile children, or children not accessing primary care or early childhood education services
- information to be properly collected and analysed
- integration between B4 School Check providers, to ensure the service is delivered in a timely and well co-ordinated fashion
- providers to target additional resources to communities and children missing out on health services
- improved links within the primary care sector
- evaluation and monitoring of the effectiveness of the check
- measurement of coverage and a reduction in inequalities in coverage
- support for service development within the community.

Consideration will need to be given to whom the information from the B4 School Check system should be shared with. Privacy and confidentiality issues will need to be taken into account.

6.12 Next steps for the B4 School Check

The B4 School Check is to be piloted from August 2007 onwards. The Ministry is engaging with DHBs to plan for implementation of the pilot. The pilot will trial the content of the B4 School Check, including both the SDQ and PEDS questionnaires. Following an evaluation of the pilot, phased implementation of the check is planned from early 2008.

7 Well Child Service Implementation

The review of the Well Child Framework has highlighted the need for improvements in the way Well Child services are delivered. Focus group discussion with sector stakeholders has highlighted that the framework in its current form is not adequately reaching all families with greater need. Effective implementation and delivery of Well Child services is essential to improve child health outcomes and reduce inequalities.

The review to this point has largely focused on reviewing the content of the framework and proposing options for changes to the framework based on evidence and sector input. The next phase of the review will focus on service delivery, quality and implementation.

Service delivery issues to be considered in the next phase of the review include:

- service configuration and delivery models
- quality
- improving links
- workforce development
- regional co-ordination
- information management
- funding models.

Input will also be sought from parents and family/whānau to inform recommendations for service delivery as part of this next phase.

The following section briefly outlines these issues to provide some insight into where the Ministry is heading with the service delivery component of the review. However, we are not looking for feedback on this section as these issues will be addressed and discussed further in the next phase of the review.

7.1 Service configuration and delivery models

Home visiting

The existing service delivery model for Well Child Services is based on home visiting, with the contacts being delivered initially in the home setting by a registered nurse, and then in the clinic or school. The Ministry is proposing that home visiting remain the principal mechanism for delivering Well Child services.

Family Partnership model

The Family Partnership model, as developed in the United Kingdom (Davis et al 2002) and used by Plunket, provides a framework that enables those working with families/whānau to use a range of skills and techniques in a structured way. It provides a means for parents to find new ways of exploring issues and solving problems. The professional/helper is encouraged to engage with family/whānau to recognise their strengths and abilities and at the same time support family/whānau to make choices and plans so that they are better equipped to meet the needs of their children.

Access to services

The review has highlighted that not all Well Child services are reaching those with high need. Inequity in access occurs when services do not adequately identify those needs and meet them in an appropriate way. Access to high-quality, timely, affordable and culturally appropriate health care is vital, especially for populations with less than optimal health status.

Services need to be configured to support easy access for the whole population. The review has highlighted that there are issues that affect access to Well Child services, including lack of continuity between services, transient populations, and the responsiveness of services to the needs of family/whānau. A key driver for this review needs to be addressing these barriers to access.

Innovative service delivery and community-based services

A national 'one-size fits all' approach is not appropriate for all populations. Services must consider the specific needs of the family/whānau. The Ministry and providers will need to work together to come up with innovative and flexible models of service delivery to ensure the needs of all families are met.

Some Māori and Pacific health providers have demonstrated a model of care that is community-based and responds to local need, co-located or integrated with other health services such as GPs, and has strong links to primary care and public health initiatives. A community-based model that has strong links to, or is part of, the primary health care setting (including PHOs) will be encouraged as a service delivery option.

There is evidence that health education and promotion work well in group settings, and this is already provided to parents through a range of providers and settings. The Ministry considers that this delivery model should have greater emphasis in the revised framework and is proposing that group parenting sessions form a core part of the revised framework, operating alongside and supporting core contact visits and being supported by them.

Universally available parent support and education programmes help build parenting skills, support secure attachment and improve outcomes for children. The expansion and enhancement of universally available parenting programmes is being considered as part of cross-government initiatives being led by the Ministry of Social Development.

7.2 Quality framework

The Ministry is developing a quality framework that will encompass the assessment of Well Child service delivery along with measurement of outcomes. This will provide a mechanism to evaluate the effectiveness of Well Child services, including the ability of the services to reach high-needs families/whānau.

The Ministry intends to use the quality framework developed by the National Screening Unit within the Ministry of Health as a template for developing the Well Child quality framework. It is based on the Ministry of Health's *Improving Quality: A systems approach for the New Zealand health and disability sector* strategy.

7.3 Improving links

The Ministry considers that there are opportunities to improve child and family health outcomes through implementation of the framework, especially if Well Child services are more closely linked with primary health care providers, early childhood education, social services and parenting programmes. Sector feedback has indicated the need to improve links between government agencies and community-based providers that are involved in delivering universal, targeted, intensive and statutory services for young children and their families. The next phase of the review will identify ways that services links can be improved.

Sector feedback and input into the review has also highlighted the need to develop better links between Well Child providers and intensive home-visiting programmes such as Family Start, Early Start and Parents as First Teachers, to ensure providers are well engaged and working well for families. The Ministry would like to optimise the ways in which the Well Child providers and Family Start providers can work together. Both programmes share similar philosophies and common outcomes.

Work would need to be carried out to consider how existing links to intensive home-visiting services for vulnerable families can be further improved and enhanced, and to clarify areas of responsibility. Another issue to consider is the availability of services/resources for families in a location where there is currently no intensive home-visiting programme.

Participating in high-quality early childhood education provides strong learning foundations for all children. Access to high-quality early childhood care and education provides children with cognitive, social and emotional development. The Ministry of Education's *Pathways to the Future: Nga Huarahi Arataki – A 10-year plan for early childhood education* seeks to promote collaborative relationships that improve the development and educational achievement of children by forming strong links between early childhood education services, parent support and development, schools, health services, and social services (Ministry of Education 2002).

Regional co-ordination across health, education and social services for children and their families/whānau will be essential for improving links and enhancing delivery to improve child health outcomes and reduce disparities in child health. Best options for achieving co-ordination will be considered in the next phase of the review.

7.4 Referral pathways

Ensuring children and their families have access to effective referral pathways will be essential to achieving the aims of improving child health outcomes and reducing inequalities. The implications of referrals from Well Child services to health, education and social services will need to be considered, including the availability and capacity of resources and workforce.

7.5 Workforce

A shortage of Well Child-trained registered nurses and concern regarding the availability of ongoing support for the workforce has been noted. Ways to improve workforce capacity and capability will be considered in the next phase of the review.

7.6 Information management

The review has identified a lack of quality data to assess the effectiveness of Well Child services and to determine whether services are resulting in improved child health outcomes. Sector feedback supports the development of an information environment that will measure performance and support the ability to demonstrate improved health outcomes.

The information environment required to support agreed outcomes in child health is part of the scope of the Primary Health Care Strategy: Key Directions for the Information Environment project. The Key Directions project will provide an overarching information direction and development plan to support the achievement of the Primary Health Care Strategy. The Ministry has made a formal commitment to cover the community and primary child health information environment, including Well Child services, within the Key Directions project. The *Primary Health Care Strategy: Key Directions for the Information Environment: Policy consultation document* (Ministry of Health 2007b) is the first step in describing the future development of a primary health care information environment. This document is now available on the Ministry's website at www.moh.govt.nz.

7.7 Funding framework

The Ministry is reviewing the existing funding framework for Well Child services. It is the intention in the next phase of the review to consider funding models that support flexibility and are needs based and outcomes focused.

7.8 Proposed timing of implementation

Implementation of any changes to the framework is likely to occur in two stages. The B4 School Check is to be piloted from August 2007 onwards. Following an evaluation of the pilot, phased national implementation of the check is planned from early 2008. Any other changes to the existing framework that are made will take some time to implement, and a phased implementation approach would be undertaken.

Abbreviations

ADHD	attention deficit hyperactivity disorder
ASD	autism spectrum disorder
BFCI	Baby Friendly Community Initiatives
BFHI	Baby Friendly Hospital Initiatives
BMI	body mass index
DHB	District Health Board
DMF	decayed, missing, filled
ECE	early childhood education
ENROL	the School Student Enrolment Register
EPDS	Edinburgh Postnatal Depression Scale
GP	general practitioner
HEHA	Healthy Eating – Healthy Action
IQ	intelligence quotient
LMC	lead maternity carer
MEE	middle ear effusion
MNIS	Maternal and Newborn Information Set
NAC	National Audiology Centre
NCNS	National Children’s Nutrition Survey
NGO	non-government organisation
NHI	National Health Index
NHMRC	National Health and Medical Research Council
NZDep	the New Zealand Index of Deprivation
NZHTA	New Zealand Health Technology Assessment
OECD	Organisation for Economic Co-operation and Development
OME	otitis media with effusion
PAT	Progressive Achievements Tests
PEDS	Parental Evaluation of Developmental Status
PHO	primary health organisation
PHQ-2	Patient Health Questionnaire -2
PND	postnatal depression
SDQ	Strengths and Difficulties Questionnaire
SIDS	sudden infant death syndrome
SKIP	Strategies with Kids – Information for Parents
SUDI	sudden unexpected death in infancy
UNICEF	United Nations Children’s Fund
VHT	vision hearing technician
WCP	Well Child provider
WHO	World Health Organization

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Appendix 1: Existing Well Child National Schedule

Well Child Tamariki Ora National Schedule

From birth to 15 months

Health education and promotion	Health protection and clinical assessment	Family or whānau care and support
<p>Key topics to include:</p> <p>Recognition of illness</p> <p>Management of minor illnesses including colic, crying, minor skin complaints, fever</p> <p>Breastfeeding promotion – support and supervision of early postnatal breastfeeding</p> <p>Advice on maternal nutrition</p> <p>Support of infant feeding – instructions as necessary</p> <p>Contact plan for emergencies – include local agencies list plus 24-hour advice contact numbers</p> <p>SIDS prevention, including:</p> <ul style="list-style-type: none"> • sleep position • smoke-free environment and bed sharing • breastfeeding promotion <p>CPR information/education</p> <p>Promotion of parenting skills, including:</p> <ul style="list-style-type: none"> • behaviour in first six weeks and other development stages • dealing with temperament • healthy sleep patterns • understanding why babies feed • infant/toddler behaviour: management strategies • clothing, nappies • bedding, room temperature • ear health <p>Education and promotion of infants' developmental needs</p> <p>Promotion of immunisations: culturally-appropriate explanation sessions on immunisation and screening process for all parents or whānau</p>	<p>Birth:</p> <p>Brief clinical assessment, including Apgar score</p> <p>Initial breastfeed</p> <p>Vitamin K (IM)</p> <p>Within 24 hours *See Note 1 re Vitamin K</p> <p>Full clinical examination including:</p> <ul style="list-style-type: none"> • observe infant • weight • head circumference • hips • cardiovascular system • eyes <p>Hepatitis B vaccine and immunoglobulin for infants of hepatitis B antigen +ve mothers</p> <p>BCG if indicated, per national TB guidelines</p> <p>Assessment of risk of sensorineural hearing loss or blindness and referral if necessary</p> <p>5 days *See Note 1 re Vitamin K</p> <p>Review:</p> <ul style="list-style-type: none"> • antenatal and family history • birth events <p>Full clinical examination including:</p> <ul style="list-style-type: none"> • observe infant • weight • head circumference • hips • cardiovascular system • eyes <p>Metabolic screening ('Guthrie') test must be done by 5 days; can be taken 48 hours after feeding introduced</p>	<p>Key elements:</p> <p>Support person with mother at birth</p> <p>Opportunity to discuss parental or whānau concerns at all contacts</p> <p>Listen and respond to family or whānau concerns</p> <p>Review of psychosocial and environmental circumstances, including cultural support</p> <p>Assessment of risk/presence of postnatal depression; ensure appropriate referral/management</p> <p>Promote family or whānau support</p> <p>Assessment of need for additional support for families in difficult circumstances or infants at higher risk of adverse health outcomes</p> <p>Crisis intervention if needed</p> <p>Promotion of community networking</p> <p>Assessment of parental relationship with child</p> <p>Mutually agreed plan of services between provider and family or whānau</p> <p>Contact numbers for: crisis support and intervention, eg,</p> <ul style="list-style-type: none"> • GP/midwife • NZ Children and Young Persons' Service • public health/rural district nurse

Health education and promotion	Health protection and clinical assessment	Family or whānau care and support
<p>Promotion of smoke-free environment</p> <p>Dealing with caregiver stress and fatigue</p> <p>Contraceptive advice for mother/parents</p> <p>Community networking with other Well Child care providers</p> <p>Promotion of safe environment:</p> <ul style="list-style-type: none"> • car seats • fire safety • prevention of falls • hot water • sun exposure • lead exposure • poison, drugs, etc • ensure safe and appropriate child care <p>Promotion of appropriate nutritional needs:</p> <ul style="list-style-type: none"> • introduction of solids • prevention of iron deficiency, etc <p>Recognise rights of the child</p> <p>Ensure resources are:</p> <ul style="list-style-type: none"> • culturally and socially appropriate • delivered in a culturally and educationally appropriate manner <p>Collaboration with other providers</p>	<p>2–4 weeks *See Note 2 re additional services</p> <p>Growth/weight and nutritional assessment (includes maternal nutrition)</p> <p>Observe infant</p> <p>6 weeks *See Note 1 re Vitamin K</p> <p>Informed consent to Immunisation Programme</p> <p>Fill in Immunisation Certificate if non consent</p> <p>Immunisation (as per Immunisation Schedule)</p> <p>Clinical examination including:</p> <ul style="list-style-type: none"> • observe infant • weight • head circumference • hips • cardiovascular system • eyes • testicular descent <p>Developmental assessment:</p> <ul style="list-style-type: none"> • observation and questioning <p>Questioning on hearing and vision (audiology check for infants assessed at birth as at risk of hearing loss; and/or ophthalmology check if assessed risk of blindness)</p> <p>Ongoing review of growth and nutrition</p> <p>3 months</p> <p>Immunisation (as per Immunisation Schedule)</p> <p>Nutritional assessment/weight</p> <p>Questioning of hearing and vision</p> <p>Developmental assessment – observation and questioning</p>	<p>Support groups such as:</p> <ul style="list-style-type: none"> • La Leche • Karitane Unit • Home Help • Pregnancy Help • play groups • coffee clubs <p>Provision of care activities, and link with culturally safe support networks, and/or referral as necessary</p> <p>Support for families in their contact with agencies such as NZ Income Support Service for child care subsidies, etc</p>

Health education and promotion	Health protection and clinical assessment	Family or whānau care and support
	<p>5 months</p> <p>Immunisation (as per Immunisation Schedule)</p> <p>Nutritional assessment/weight</p> <p>Questioning on hearing and vision</p> <p>Developmental assessment – observation and questioning</p> <p>8–10 months</p> <p>Check immunisations</p> <p>Nutritional assessment/weight</p> <p>Questioning on hearing and vision</p> <p>Check for squint</p> <p>Developmental assessment – observation and questioning</p> <p>Tympanometry (in line with <i>Preventing Child Hearing Loss</i>, PHC 1995)</p>	

From 15 months to school new entrant

Health education and promotion	Health protection and clinical assessment	Family or whānau care and support
<p>Key topics to include:</p> <p>Education on the management of common childhood illness</p> <p>Promotion of home and environmental safety</p> <ul style="list-style-type: none"> • home hazards • water • medicines, poisons • hot water • car seat • road • sun • safe home/neighbourhood • safe playgrounds • water safety/pool fencing, etc 	<p>15 months</p> <p>Immunisation (as per Immunisation Schedule)</p> <p>Sign Immunisation Certificate for completed early childhood immunisations</p> <p>Weight</p> <p>Questions on hearing and vision</p> <p>Check for squint</p> <p>Developmental assessment – observation/questioning (including language, mobility, behaviour)</p> <p>Tympanometry (in line with <i>Preventing Child Hearing Loss</i>, PHC 1995)</p>	<p>Key elements:</p> <p>Listen and respond to family or whānau concerns</p> <p>Review psychosocial and environmental circumstances</p> <p>Assessment of need for additional support for families or whānau in difficult circumstances, and provide support, link with community resources/support groups, and refer to other agencies if necessary</p> <p>Support for families or whānau in their contact with agencies such as NZ Income Support Service for child care subsidies, etc</p>

Health education and promotion	Health protection and clinical assessment	Family or whānau care and support
<p>Education about and promotion of developmental needs of young children:</p> <ul style="list-style-type: none"> • play • language • appropriate nutrition, etc <p>Promotion of dental health and enrolment with dental service</p> <p>Promotion of parenting skills, including:</p> <ul style="list-style-type: none"> • behaviour management • toileting • sleeping • socialisation with others • eating • minor illness management, etc <p>Promotion of 'Keeping Yourself Safe'</p> <p>Discussion and promotion of preschool education facilities, kōhanga reo, PAFT, etc</p>	<p>21–24 months</p> <p>Questions on hearing and vision</p> <p>Check for squint</p> <p>Weight/height</p> <p>Developmental assessment – observation/questioning (including language, mobility, behaviour)</p> <p>Review immunisation</p> <p>Dental assessment/enrolment</p> <p>3 years</p> <p>Questions on hearing and vision</p> <p>Weight/height</p> <p>Developmental assessment – observation/questioning (including language, mobility, behaviour)</p> <p>Tympanometry</p> <p>Visual acuity and check for squint</p> <p>Dental enrolment/assessment if not done earlier</p> <p>Review immunisation</p> <p>School new entrant</p> <p>Review immunisation</p> <p>Review child's history with parents/caregiver and school, taking regard of privacy legislation</p> <p>Effective hand-over between Well Child care providers</p> <p>If indicated: physical/ psychosocial/developmental assessment</p> <p>Dental assessment</p> <p>Tympanometry and audiology assessment</p> <p>Test eyes for acuity and squint.</p>	<p>Mutually agreed plan of services between provider and family or whānau</p> <p>Facilitate involvement in child's preschool, kura kaupapa Māori activities</p> <p>Promote family or whānau support, community development issues that relate to child health</p> <p>Facilitation of community networking</p>

Note 1: If IM Vitamin K is not given then a total of three oral doses of Vitamin K are to be given/offered at intervals marked with *

Note 2: Additional discretionary services may be purchased and used as needed in the early weeks, or later.

Appendix 2: Proposed Revised Well Child Schedule

	Provider/location	Health education and promotion	Content	Family/whānau support
Birth	Lead maternity carer (LMC) Hospital/home	Promote and support breastfeeding Smoke-free environment	Clinical assessment, including Apgar score Initial breastfeed Vitamin K (IM) Hepatitis B vaccine and immunoglobulin for infants of Hepatitis B surface antigen +ve mothers (refer to the <i>Immunisation Handbook</i>) within 12 hours of birth BCG if indicated for infants at risk of tuberculosis (refer to the <i>Immunisation Handbook</i>)	Support person for mother at birth Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)
Within 2–24 hours of birth	LMC Birthing unit/home	Promote and support breastfeeding and maternal nutrition Promotion of a safe environment (ie, discuss cot, home and car safety) Promotion of a smoke-free environment 'Back to Sleep' Rooming in	Systematic and thorough clinical examination including: <ul style="list-style-type: none"> • observe infant • weight • head circumference • hips • cardiovascular system • eyes. Screen for sensorineural hearing loss Observe parent–child interaction * Dose 1 oral vitamin K if not given IM at birth	Opportunity to discuss and respond to parental/whānau concerns Assessment of need for additional support (ie, families in difficult circumstances or infants at high risk of adverse health outcomes) Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)

	Provider/location	Health education and promotion	Content	Family/whānau support
5 days	LMC Home / birthing unit / hospital	Promote and support breastfeeding and maternal nutrition CPR education Recognition of childhood illnesses and management of minor illnesses Promotion of parenting skills and infant development during the first six weeks Promotion of infant and maternal mental health Promotion of a safe and smoke-free environment	Systematic and thorough clinical examination including: <ul style="list-style-type: none"> • observe infant • weight • head circumference • hips • cardiovascular system • eyes Metabolic screening must be done by five days; can be taken 48 hours after feeding introduced Assess maternal wellbeing Family violence screening questions Assessment of parental attachment with the child * Dose 2 oral vitamin K if not given IM at birth	Dealing with caregiver stress and fatigue Opportunity to discuss and respond to parental/whānau concerns Review of psychosocial and environmental circumstances Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)
2–4 weeks	LMC / home	Promote and support breastfeeding Recognition of childhood illnesses and management of minor illnesses Promotion of parenting skills and infant development from 2 to 6 weeks Promotion of safe and smoke-free environment	Measure weight Observe infant Discuss maternal wellbeing and parental attachment with the child	Dealing with caregiver stress and fatigue Opportunity to discuss and respond to parental/whānau concerns Assessment of need for additional support (ie, families in difficult circumstances or infants at high risk of adverse health outcomes) Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)
4–6 weeks	Handover from LMC to community child health provider for core community child health visits			

	Provider/location	Health education and promotion	Content	Family/whānau support
5 weeks (age limit 4–6 weeks) Needs assessment and care plan CORE 1	Well Child provider / home	Promote and support breastfeeding and maternal nutrition Manage minor illnesses Promotion of parenting skills and infant development from 4 to 12 weeks Promotion of infant and maternal mental health Promotion of safe and smoke-free environment	Assess breastfeeding status Assess maternal wellbeing Observe parent–child interaction Formal needs assessment and care plan Promote six-week immunisation Measure weight	Well Child provider introduction to family/whānau Dealing with caregiver stress and fatigue Opportunity to discuss and respond to parental/whānau concerns Review psychosocial and environmental circumstances Promote family/whānau support and links to community networks Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)
5 weeks (age limit 4–6 weeks) 'Becoming a parent' Additional visit for first-time parents (FTP)	Well Child provider / home	'Back to Sleep' Promote breastfeeding Discuss parenting	Weight Discuss coping with both parents Discuss crying, sleep and any other concerns	Support parents and refer to parenting programme

	Provider/location	Health education and promotion	Content	Family/whānau support
6 weeks GP check and immunisation	General practitioner and practice nurse / clinic	<p>'Back to Sleep'</p> <p>Rooming in</p> <p>Promote breastfeeding</p> <p>Immunisation</p> <p>Safe and smoke-free environment</p>	<p>Clinical examination including:</p> <ul style="list-style-type: none"> • weight • head circumference • fontanelles • hip joints • eyes – red reflex • check that newborn hearing screening has been done <p>Six-week immunisation event</p> <p>Ask the Two Question Patient Health Questionnaire about postnatal depression (PHQ-2)</p> <p>Assess maternal wellbeing and deal with caregiver stress and fatigue</p> <p>Observe parent–child interaction – attachment</p> <p>Assessment of need for additional support (ie, families in difficult circumstances or infants at high risk of adverse health outcomes)</p> <p>* Dose 3 oral vitamin K if not given IM at birth</p>	<p>Opportunity to discuss and respond to parental/whānau concerns</p> <p>Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)</p>
8 weeks 'Especially for Dads' Additional visit for first-time parents (FTP)	Optional	Safe and smoke-free environment	<p>Weight</p> <p>Coping</p> <p>Discuss crying, sleep, etc</p>	Support family

	Provider/location	Health education and promotion	Content	Family/whānau support
9 week (age limit 8–10 weeks) 'Safe and secure' CORE 2	Well Child provider / home	Breastfeeding Immunisation Infant development six weeks to three months Safety Rooming in Smoke free 'Back to Sleep'	Discuss crying and other concerns Weight	Discuss and respond to family and whānau concerns and make appropriate referral
4 months (age limit 3–5 months) 'Feeding and growing' CORE 3	Well Child provider / optional location	Breastfeeding and maternal nutrition Immunisation Infant development between three and six months Safe and smoke-free environment Recognition of childhood illnesses and management of minor illness	Weight Head circumference PEDS development surveillance 1 Next immunisation event Assessment of risk / presence of postnatal depression – ask questions about postnatal depression (PHQ-2)	Review of psychosocial and environmental circumstances and make appropriate referral
5 months Additional visit for first-time parents (FTP)	Optional	Breastfeeding support and weaning advice Promotion of oral health	Weight Immunisation	Discuss concerns
6 months (age limit 5–7 months) 'Let's play' CORE 4	Well Child provider / optional location	Education and support of infant feeding Safe and smoke-free environment Child development between six months and one year (eg, teething) Recognition of childhood illnesses and management of minor illnesses Promotion of oral health	Weight Head circumference PEDS development surveillance 2 Oral health – 'Lift the Lip' Parenting support Check immunisation status	Opportunity to discuss and respond to parental/whānau concerns Assessment of need for additional support (ie, families in difficult circumstances or infants at high risk of adverse health outcomes) Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)

	Provider/location	Health education and promotion	Content	Family/whānau support
9 months (age limit 8–10 months) ‘On the move’ CORE 5	Well Child provider / optional location	Feeding Safety Development Immunisation Parenting Promotion of parenting skills, including child development between eight months and one year Promotion of safe environment Promotion of a smoke-free environment Recognition of childhood illnesses and management of minor illnesses Oral health screening check	Clinical examination as indicated Weight PEDS developmental surveillance 3 Oral health – ‘Lift the Lip’	Opportunity to discuss and respond to parental/whānau concerns Review of psychosocial and environmental circumstances Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Toddlers Without Tears, Family Start, WINZ)
18 months (age limit 16–18 months) ‘Walking and talking’ CORE 6	Well Child provider / optional location – home	Promotion of Healthy Eating – Healthy Action Promotion of safe environment (eg, prevention of falls, poisoning, drowning, and traffic accidents, use of car seats) Education about the developmental needs of young children Promotion of oral health Promotion of parenting skills, including child development between one and two years	Clinical examination as indicated Weight Observation of gait PEDS development surveillance 4 Oral health – ‘Lift the Lip’ Dental enrolment	Opportunity to discuss and respond to parental/whānau concerns Promote family/whānau support and links to community networks Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Parenting Programme Family Start, WINZ)

	Provider/location	Health education and promotion	Content	Family/whānau support
2½ years (age limit 2–3 years) 'Learning for life' CORE 7	Well Child provider	<p>Promotion of Healthy Eating – Healthy Action</p> <p>Recognition of childhood illnesses and management of minor illnesses</p> <p>Promotion of safe environment (eg, prevention of falls, poisoning, drowning, and traffic accidents, use of car seats)</p> <p>Education about the developmental needs of young children between two and five years</p> <p>Promotion of oral health</p> <p>Promotion of parenting skills</p> <p>Promotion of reading, etc</p> <p>Promotion of a smoke-free environment</p>	<p>Clinical examination as indicated</p> <p>Weight</p> <p>Height</p> <p>PEDS developmental surveillance 5</p> <p>Dental assessment – 'Lift the Lip'</p> <p>Check dental enrolment</p>	<p>Opportunity to discuss and respond to parental/whānau concerns</p> <p>Assessment for child safety</p> <p>Assessment of need for additional support</p> <p>Promote family/whānau support and links to community networks</p> <p>Support and referral for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)</p> <p>Link with early childhood education services</p>
4 years – B4 School (age limit 4–5½ years) 'Spreading your wings' CORE 8	Preschool setting / clinic / other	<p>Promotion of Healthy Eating – Healthy Action</p> <p>Recognition of childhood illnesses and management of minor illnesses</p> <p>Promotion of oral health</p> <p>Education about the developmental needs of a child preparing for school entry</p> <p>Promotion of parenting skills</p> <p>Promotion of a safe environment – ongoing use of car booster seats</p> <p>Family violence and child abuse</p> <p>Promotion of immunisation</p>	<p>Vision screening</p> <p>Hearing screening</p> <p>Height, weight (BMI calculation)</p> <p>Oral health assessment</p> <p>General health questionnaire</p> <p>Strengths and Difficulties Questionnaire (SDQ)</p> <p>Parental Evaluation of Developmental Stages (PEDS)</p> <p>Dental enrolment</p> <p>Referral pathways for children requiring further assessment and support</p> <p>Four-year immunisation event</p>	<p>Opportunity to discuss and respond to parental/whānau concerns</p> <p>Assessment for risk of family violence and/or child abuse</p> <p>Assessment of need for additional support</p> <p>Promote family/whānau support and links to school</p> <p>Support for families in their contact with other health providers and agencies (eg, primary or secondary care, Family Start, WINZ)</p>

Appendix 3: The Two Question Patient Health Questionnaire (PHQ2)

The PHQ-2 asks the two questions endorsed by the United States Preventive Services Task Force about the key *Diagnostic and Statistical Manual of Mental Disorders Fourth Edition* determinants of depression: altered mood and anhedonia (the inability to experience pleasure or interest in activities usually enjoyed) occurring in the previous two weeks (Olson et al 2006).

The Patient Health Questionnaire (PHQ-2)

Over the past two weeks, you have felt down, depressed or hopeless (true or false).

If true, have you felt this way for (several days, more than half the days, or nearly every day)?

Over the past two weeks, you have felt little interest or pleasure in doing things (true or false).

If true, have you felt this way for (several days, more than half the days, or nearly every day)?

Appendix 4: Parental Evaluation Developmental Status (PEDS)

PEDS RESPONSE FORM

Child's Name _____ Parent's Name _____

Child's Birthday _____ Child's Age _____ Today's Date _____

1. Please list any concerns about your child's learning, development, and behaviour.

2. Do you have any concerns about how your child talks and makes speech sounds?

Circle one: No Yes A little COMMENTS:

3. Do you have any concerns about how your child understands what you say?

Circle one: No Yes A little COMMENTS:

4. Do you have any concerns about how your child uses his or her hands and fingers to do things?

Circle one: No Yes A little COMMENTS:

5. Do you have any concerns about how your child uses his or her arms and legs?

Circle one: No Yes A little COMMENTS:

6. Do you have any concerns about how your child behaves?

Circle one: No Yes A little COMMENTS:

7. Do you have any concerns about how your child gets along with others?

Circle one: No Yes A little COMMENTS:

8. Do you have any concerns about how your child is learning to do things for himself/herself?

Circle one: No Yes A little COMMENTS:

9. Do you have any concerns about how your child is learning preschool or school skills?

Circle one: No Yes A little COMMENTS:

10. Please list any other concerns.

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PEDS SCORE FORM – AUTHORISED AUSTRALIAN VERSION

Child's Name: _____ Date of Birth: _____ Date(s) of scoring: _____

Find appropriate column for the child's age. Place a tick in the appropriate box to show each concern on the PEDS Response Form. See Brief Scoring Guide for details on categorising concerns. Shaded boxes are significant predictors of difficulties. Non-shaded boxes are non significant predictors.

Child's Age:	0-3 mos	4-5 mos	6-11 mos	12-14 mos	15-17 mos	18-23 mos	24-35 mos	36-47 mos	48-53 mos	54-71 mos	72-83 mos	84-96 mos
Global/Cognitive	<input type="checkbox"/>											
Expressive Language and Articulation	<input type="checkbox"/>											
Receptive Language	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
Fine Motor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
Gross Motor	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>						
Behaviour	<input type="checkbox"/>											
Social-emotional	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				
Self-help	<input type="checkbox"/>											
School	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>								
Other	<input checked="" type="checkbox"/>											

Count the number of ticks in the small shaded boxes and place the total in the large shaded box below.

<input checked="" type="checkbox"/>												
-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------	-------------------------------------

If the number shown in the large shaded box is 2 or more, follow **Path A** on PEDS Interpretation Form. If the number shown is exactly 1, follow **Path B**. If the number shown is 0, count the number of ticks in the small unshaded boxes and place the total in the large unshaded box below.

<input type="checkbox"/>												
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

If the number shown in the large unshaded box is 1 or more, follow **Path C**. If the number 0 is shown, consider **Path D** if relevant. Otherwise, follow **Path E**.

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Appendix 5: General Health Questionnaire

B4 School Check – information for parents

As part of the continuum of care provided for your child in the Well Child / Tamariki Ora framework, a free Well Child check is being introduced. This will be done at the age of four years. This aims to ensure that any issues related to your child’s health and wellbeing are identified and addressed before he/she starts school at the age of five years.

The service provided by the Well Child provider at this check will include:

1. **Health assessment:**
 - a. general health questionnaire
 - b. vision and hearing check
 - c. growth – height and weight
 - d. dental – ‘Lift the Lip’ and dental clinic referral
 - e. Strengths and Difficulties or Parental Evaluation Developmental Status questionnaire
2. **Provision of health information** related to safety, behaviour and other specific issues if required
3. **Referrals to other professionals if required** (eg, GP, audiologist, optometrists, specialist services, parenting programmes, social workers)
4. **Advocacy, support and advice with health concerns**
5. **Linking and support with the school** if specific education/support needs identified
6. **Linking and support** with other agencies as required.

The Strengths and Difficulties Questionnaire for parents is attached. Please also request your child’s teacher at the Early Childhood Education centre to fill in the questionnaire for teachers before the assessment.

If you have any questions prior to the appointment for assessment please do not hesitate to contact:.....

Contact details:

Please fill and bring this general health questionnaire for the appointment along with the Strengths and Difficulties Questionnaires completed by yourself and the preschool teacher prior to your visit.

Thank you for taking the time to complete the general health form outlined below.

General Health Questionnaire

Section 1 – to be filled and signed by parent/caregiver

Name of child.....

Date of birth..... Ethnicity..... Sex M F

Address

Parent's/caregiver's name

Address Phone.....

Does your child have brothers and sisters? Yes No

Names Ages

.....

GP name Preschool name.....

Contact details..... Contact details

Planned school name and contact details

.....

Immunisation: Are your child's immunisations up to date? Yes No

Please tick which immunisations your child has had:

6 week 3½ month 5 month 15 month 4 year

Meningococcal B 1 2 3

Has your child spent time in hospital? Yes No

If yes, details.....

.....

Do you have any concerns about your child?/

Is your child on any medications that could impact on attending school?

Condition	Yes	No	Regular medications
Asthma	<input type="checkbox"/>	<input type="checkbox"/>
Allergies / food intolerance	<input type="checkbox"/>	<input type="checkbox"/>
Eczema / other skin conditions	<input type="checkbox"/>	<input type="checkbox"/>
Heart condition	<input type="checkbox"/>	<input type="checkbox"/>
Epilepsy / fits	<input type="checkbox"/>	<input type="checkbox"/>
Learning problems	<input type="checkbox"/>	<input type="checkbox"/>
Sleep problems	<input type="checkbox"/>	<input type="checkbox"/>

	Yes	No
Glasses prescribed? <i>(if yes, vision test will not be done)</i>	<input type="checkbox"/>	<input type="checkbox"/>
Grommets inserted/planned? <i>(if yes, a hearing test will not be done)</i>	<input type="checkbox"/>	<input type="checkbox"/>
Any other conditions/disabilities?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, details.....		

	Yes	No
Do you consent to the information being shared with the school?	<input type="checkbox"/>	<input type="checkbox"/>
Parent's/caregiver's name		
Signature		
Date		

Section 2 – to be filled by community child health practitioner

Date of enrolment (information sent to parents)

NHI Name.....

Date of assessment Planned/actual.....

Location of assessment.....

Date of follow-up Planned/actual.....

Location of follow-up.....

Date referral sent for.....

Referral actioned

Other needs/referrals identified.....

Immunisation status? Complete Incomplete Not immunised

	Yes	No
Hearing assessment completed?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, score: Right ear Left ear.....		
Action required?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, details.....		

	Yes	No
Distance vision assessment completed?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, score: Right eye Left eye.....		
Action required?	<input type="checkbox"/>	<input type="checkbox"/>
If yes, details.....		

Appendix 6: Strengths and Difficulties Questionnaire

Strengths and Difficulties Questionnaire

P4-10

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of your child's behavior over the last six months.

Your child's name

Male/Female

Date of birth

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children, for example toys, treats, pencils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often loses temper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, prefers to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally well behaved, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries or often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, depressed or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often offers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets along better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good attention span, sees chores or homework through to the end	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Overall, do you think that your child has difficulties in any of the following areas: emotions, concentration, behavior or being able to get along with other people?

	No	Yes - minor difficulties	Yes - definite difficulties	Yes - severe difficulties
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

	Less than a month	1-5 months	6-12 months	Over a year
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties upset or distress your child?

	Not at all	A little	A medium amount	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties interfere with your child's everyday life in the following areas?

	Not at all	A little	A medium amount	A great deal
HOME LIFE	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
FRIENDSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
LEISURE ACTIVITIES	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties put a burden on you or the family as a whole?

	Not at all	A little	A medium amount	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature Date

Mother / Father / Other (please specify:)

Thank you very much for your help

Strengths and Difficulties Questionnaire

T4-10

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behavior over the last six months or this school year.

Child's name

Male/Female

Date of birth

	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Restless, overactive, cannot stay still for long	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often complains of headaches, stomach-aches or sickness	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shares readily with other children, for example toys, treats, pencils	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often loses temper	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Rather solitary, prefers to play alone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally well behaved, usually does what adults request	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many worries or often seems worried	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Helpful if someone is hurt, upset or feeling ill	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Constantly fidgeting or squirming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has at least one good friend	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often fights with other children or bullies them	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often unhappy, depressed or tearful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Generally liked by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Easily distracted, concentration wanders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nervous or clingy in new situations, easily loses confidence	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Kind to younger children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often lies or cheats	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Picked on or bullied by other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Often offers to help others (parents, teachers, other children)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thinks things out before acting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Steals from home, school or elsewhere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gets along better with adults than with other children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Many fears, easily scared	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Good attention span, sees work through to the end	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you have any other comments or concerns?

Please turn over - there are a few more questions on the other side

Overall, do you think that this child has difficulties in any of the following areas: emotions, concentration, behavior or being able to get along with other people?

	No	Yes - minor difficulties	Yes - definite difficulties	Yes - severe difficulties
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

If you have answered "Yes", please answer the following questions about these difficulties:

- How long have these difficulties been present?

	Less than a month	1-5 months	6-12 months	Over a year
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties upset or distress the child?

	Not at all	A little	A medium amount	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties interfere with the child's everyday life in the following areas?

	Not at all	A little	A medium amount	A great deal
PEER RELATIONSHIPS	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CLASSROOM LEARNING	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Do the difficulties put a burden on you or the class as a whole?

	Not at all	A little	A medium amount	A great deal
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Signature Date

Thank you very much for your help

Scoring the Informant-Rated Strengths and Difficulties Questionnaire

The 25 items in the SDQ comprise 5 scales of 5 items each. It is usually easiest to score all 5 scales first before working out the total difficulties score. Somewhat True is always scored as 1, but the scoring of Not True and Certainly True varies with the item, as shown below scale by scale. For each of the 5 scales the score can range from 0 to 10 if all 5 items were completed. Scale score can be prorated if at least 3 items were completed.

<u>Emotional Symptoms Scale</u>	Not True	Somewhat True	Certainly True
Often complains of headaches, stomach-aches ...	0	1	2
Many worries, often seems worried	0	1	2
Often unhappy, downhearted or tearful	0	1	2
Nervous or clingy in new situations ...	0	1	2
Many fears, easily scared	0	1	2

<u>Conduct Problems Scale</u>	Not True	Somewhat True	Certainly True
Often has temper tantrums or hot tempers	0	1	2
Generally obedient, usually does what ...	2	1	0
Often fights with other children or bullies them	0	1	2
Often lies or cheats	0	1	2
Steals from home, school or elsewhere	0	1	2

<u>Hyperactivity Scale</u>	Not True	Somewhat True	Certainly True
Restless, overactive, cannot stay still for long	0	1	2
Constantly fidgeting or squirming	0	1	2
Easily distracted, concentration wanders	0	1	2
Thinks things out before acting	2	1	0
Sees tasks through to the end, good attention span	2	1	0

<u>Peer Problems Scale</u>	Not True	Somewhat True	Certainly True
Rather solitary, tends to play alone	0	1	2
Has at least one good friend	2	1	0
Generally liked by other children	2	1	0
Picked on or bullied by other children	0	1	2
Gets on better with adults than with other children	0	1	2

<u>Prosocial Scale</u>	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	0	1	2
Shares readily with other children	0	1	2
Helpful if someone is hurt, upset or feeling ill	0	1	2
Kind to younger children	0	1	2
Often volunteers to help others	0	1	2

The Total Difficulties Score:

is generated by summing the scores from all the scales except the prosocial scale. The resultant score can range from 0 to 40 (and is counted as missing if one of the component scores is missing).

Interpreting Symptom Scores and Defining "Caseness" from Symptom Scores

Although SDQ scores can often be used as continuous variables, it is sometimes convenient to classify scores as normal, borderline and abnormal. Using the bandings shown below, an abnormal score on one or both of the total difficulties scores can be used to identify likely "cases" with mental health disorders. This is clearly only a rough-and ready method for detecting disorders – combining information from SDQ symptom and impact scores from multiple informants is better, but still far from perfect. Approximately 10% of a community sample scores in the abnormal band on any given score, with a further 10% scoring in the borderline band. The exact proportions vary according to country, age and gender – normative SDQ data are available from the web site. You may want to adjust banding and caseness criteria for these characteristics, setting the threshold higher when avoiding false positives is of paramount importance, and setting the threshold lower when avoiding false negatives is more important.

	Normal	Borderline	Abnormal
Parent Completed			
Total Difficulties Score	0 - 13	14 - 16	17 - 40
Emotional Symptoms Score	0 - 3	4	5 - 10
Conduct Problems Score	0 - 2	3	4 - 10
Hyperactivity Score	0 - 5	6	7 - 10
Peer Problems Score	0 - 2	3	4 - 10
Prosocial Behaviour Score	6 - 10	5	0 - 4
Teacher Completed			
Total Difficulties Score	0 - 11	12 - 15	16 - 40
Emotional Symptoms Score	0 - 4	5	6 - 10
Conduct Problems Score	0 - 2	3	4 - 10
Hyperactivity Score	0 - 5	6	7 - 10
Peer Problems Score	0 - 3	4	5 - 10
Prosocial Behaviour Score	6 - 10	5	0 - 4

Generating and Interpreting Impact Scores

When using a version of the SDQ that includes an "Impact Supplement", the items on overall distress and social impairment can be summed to generate an impact score that ranges from 0 to 10 for the parent-completed version and from 0-6 for the teacher-completed version.

	Not at all	Only a little	Quite a lot	A great deal
Parent report				
Difficulties upset or distress child	0	0	1	2
Interfere with HOME LIFE	0	0	1	2
Interfere with FRIENDSHIPS	0	0	1	2
Interfere with CLASSROOM LEARNING	0	0	1	2
Interfere with LEISURE ACTIVITIES	0	0	1	2
Teacher report				
Difficulties upset or distress child	0	0	1	2
Interfere with PEER RELATIONSHIPS	0	0	1	2
Interfere with CLASSROOM LEARNING	0	0	1	2

Responses to the questions on chronicity and burden to others are not included in the impact score. When respondents have answered "no" to the first question on the impact supplement (i.e. when they do not perceive the child as having any emotional or behavioural difficulties), they are not asked to complete the questions on resultant distress or impairment; the impact score is automatically scored zero in these circumstances.

Although the impact scores can be used as continuous variables, it is sometimes convenient to classify them as normal, borderline or abnormal: a total impact score of 2 or more is abnormal; a score of 1 is borderline; and a score of 0 is normal.