The B4 School Check

A handbook for practitioners

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Introduction

This handbook will guide clinicians through the standard protocols for each component of the B4 School Check. The protocols can be used for planning services, training nurses and vision and hearing technicians, and improving quality.

The handbook also describes the clinical pathways and referral processes for the screening and surveillance aspects of the B4 School Check.

The protocols will be reviewed regularly and, if necessary, revised as new information and practice improvements are identified. This review will be undertaken centrally to maintain high-quality and nationally consistent services. Some aspects of the care pathways need to be defined locally, but the pathways should be explicit and monitored locally and nationally to ensure quality.

Screening as part of the Well Child Tamariki Ora Framework

The Ministry of Health commenced the review of the Well Child/Tamariki Ora Framework in 2006. The review emphasised the importance of health promotion and early intervention. Areas needing greater emphasis were:

- maternal postnatal depression
- child maltreatment
- obesity, nutrition and breastfeeding
- dental care and oral health
- child mental health and attachment
- developmental delay and behavioural problems.

Some of the recommendations of the reviews related to the introduction of new or revised screening programmes, including vision and hearing, oral health and the introduction of questionnaires to identify any behavioural or developmental concerns.

In April 2003, the National Health Committee published guidelines that it expected all current and future screening programmes to follow. The criteria in the guidelines underpin the structure of national screening services and justify the allocation of limited resources to such services. The eight criteria are as follows.

- The condition is a suitable candidate for screening.
- There is a suitable test for the condition.
- There is an effective and accessible treatment or intervention for the condition identified through early detection.
- High-quality evidence, ideally from randomised controlled trials, shows that a screening programme is effective in reducing morbidity or mortality
- The potential benefit from the screening programme outweighs the potential physical and psychological harm caused by the test, diagnostic procedures and treatment.
- The health care system is capable of supporting all necessary elements of the screening pathway, including diagnosis, follow-up and programme evaluation.
- Social and ethical issues are considered.
- Cost-benefit issues are considered.

Principles underpinning the use of the questionnaires and scales

Clarity of purpose

The aim of any assessment must be clear. Aims can be broad-ranging or focused, depending on the timing and context of the assessment. However, generally, a key aim of an assessment is to gather a range of relevant information in a manner that promotes and sustains a working relationship between the health practitioner and the children and families/whānau being assessed.

In most circumstances, information will be of limited use if the health professional and the children and families/whānau being assessed are not working in partnership.

Assessment is not a static process

Effective assessment cannot be a one-off action, but is an ongoing process. The assessment process is the beginning of the therapeutic relationship with the child and family/whānau.

An assessment has many purposes. The information gained from an assessment informs future work and helps in the evaluation of interventions.

How an assessment is carried out is also important. It should enable those involved to gain fresh perspectives on their family/whānau situation and consider opportunities for change.

Partnership is informed by professional judgement

Although partnership between the health professional and the child and family/whānau being assessed is a fundamental principle, this does not mean that every detail of information gained, or the practitioner's judgement about that information, must be shared immediately and in full with those being assessed.

Sustaining partnership and positive therapeutic impact are overriding principles of assessment.

Assessment does not take place in a vacuum

Assessments benefit from multiple sources of information (eg, parents and teachers may provide different, complementary perspectives on a child's development and behaviour) and multiple assessment methods. Any one type of assessment used alone is likely to give a limited or an unbalanced view. This applies to all the main assessment approaches: interviewing, observation, and standardised tests and questionnaires.

Health professionals need to recognise the limitations of different assessment approaches, but still be able to compare data from different methods and/or sources. This helps to ensure they develop a deep and balanced understanding of the child's situation.

1 B4 School Check

Background

In the 2006 Budget, the Government announced additional funding to increase the number of Well Child core contacts from an average of 6.5 to 8.0 contacts per child, including a comprehensive health check, the B4 School Check, for all four-year-olds.

The B4 School Check will replace the School New Entrant Check and be the eighth and final core Well Child check.

The Ministry of Health surveyed providers of the School New Entrant Check and found it was not being provided universally, and that only a few children were receiving a full assessment. In some areas, the School New Entrant Check was being done by several different people among whom there appeared to be little communication.

Purpose of the B4 School Check

The purpose of the B4 School Check is to promote health and wellbeing in preschool children and identify behavioural, developmental or other health concerns that may adversely affect the child's ability to learn in the school environment.

This will ensure that children start school able to participate to the best of their ability.

Appropriate and timely referrals will be made when problems are identified.

Content of the B4 School Check

The B4 School Check includes:

- advice and support for parents about child health and development
- a child health questionnaire (see section 3)
- a hearing screen (see section 4)
- a vision screen (see section 5)
- an oral health screen (see section 6)
- questionnaires to identify developmental and behavioural problems (completed by parents and teachers in discussion with health professionals) (see section 7)
- height and weight measurement (see section 8)
- referral of the child to specialist services if the child appears to have problems that need further investigation.

The B4 School Check is not solely a physical health check, but also considers the child's community and environment. A child's ability to learn and communicate, their social development, and their family/whānau circumstances are part of the check.

Screening and surveillance in the B4 School Check

The B4 School Check incorporates three screening tests, surveillance of the child's growth and questionnaires about a child's development and behaviour. This handbook guides health professionals through the tests and surveillance processes.

- *Hearing screening* involves sweep audiometry followed by tympanometry, if indicated.
- *Vision screening* involves distance visual acuity using a single optotype (Parr) test.
- *Oral health screening* involves the 'lift the lip' oral health check and oral health promotion.
- *Growth surveillance* involves the regular measurement and recording of a child's height and weight and the routine provision of advice to parents about healthy eating and exercise within the framework of Well Child/Tamariki Ora services.
- *Identifying behavioural problems* using the Strengths and Difficulties Questionnaire which is a formal tool the parent and a teacher both complete.
- *Identifying Developmental issues* through regular use of the Parental Evaluation of Developmental Status tool which ascertains parents' concerns about their child's development.

Eligibility for the B4 School Check

The B4 School Check will be offered to all families with four-year-old children. Most children will be assessed at age four, but if they miss out they will be assessed at age five at school.

Person undertaking the B4 School Check

Registered nurses with experience in child health will do the B4 School Check, sometimes with help from other health professionals such as vision and hearing technicians.

Location of the B4 School Check

Registered nurses will undertake the B4 School Check in different locations, for example, preschools, kohanga reo, doctors' clinics and other community venues such as churches and marae, depending on the needs of the community.

Time needed for the B4 School Check

The B4 School Check usually takes 45–60 minutes.

2 Informed Consent

Introduction

Consent is a fundamental concept in the provision of health care services. It is based on ethical obligations which are supported by legal provisions as outlined in *Consent in Child and Youth Health: Information for Practitioners* (Ministry of Health 1998).

Consent is not a single act. It is a process involving the individual and/or their representative being appropriately informed and willing and able to agree to what is being suggested without coercion. The right to agree to treatment/services carries with it the right to refuse treatment/services.

The critical aspects of obtaining informed consent for health services for children are ensuring that parents/caregivers are well informed, have the capacity to give consent and do so freely. Children should be informed and involved in decisions affecting themselves at a level appropriate to their maturity and understanding, regardless of their capacity to consent.

Consent in the B4 School Check

A parent information pamphlet and consent form has been developed for use in the B4 School Check (see Appendix 1). This describes for the parent the B4 School Check and what will happen to information collected including who it will be shared with, where it will be stored and who will have access to it. This information will be provided to parents prior to the check to inform them of what is involved.

While a parent/caregiver may sign this consent form prior to the B4 School Check, full informed consent requires a discussion between the provider and parents/caregivers at the time of the check to ensure they understand what is involved. An informed consent standard has been developed to support providers in ensuring that parents/caregivers have given informed consent to their child having a B4 School Check (see Appendix 2).

The B4 School Check National Information System

The B4 School Check National Information System captures and stores data relating to the child, permission, checks (height, weight, hearing, vision, development and behaviour assessments), and any issues identified and referrals made.

The overall purpose of the B4 School Check National Information System is to track improved health outcomes from the B4 School Check. The system records any identified health, developmental or behavioural issues that may adversely affect the child's ability to learn in the school environment, and any referrals/follow up required to improve child health and education outcomes and reduce inequalities.

The system's capture and storage of data relating to the child and the B4 School Check is a lawful purpose connected with Ministry, DHB and their agents' functions of improving individual and population health. The creation of a reliable source of B4 School Check information history for each child at a local and regional level across New Zealand, available to authorised health professionals, will assist in tracking improved health outcomes and reduced inequalities.

The objectives of the B4 School Check National Information System are to:

1. accurately record all B4 School Check results and retain this information throughout the lifespan of that child (this information must be available to the parent/guardian through their health provider)

2. provide B4 School Check information to assist with the recall and follow up of individuals by health providers at the local and district level

3. provide information to providers that an individual has declined a B4 School Check and that follow up is not required

4. provide a readily available, accurate history for each child to approved health providers

5. provide accurate local, district and national B4 School Check coverage data by age and ethnicity

6. identify populations which are not accessing the B4 School Check so that services and resources can be targeted to assist those people to access the B4 School Check, and thus improve coverage.

7. provide accurate information so providers may evaluate/audit their services, and

8. provide an information base to improve programme policy and the delivery of services.

The benefit of the B4 School Check National Information System for a parent/guardian is that the information is portable. Providers they consult about their child's health throughout New Zealand can access that child's information if required.

Because services will be provided by a range of providers working together, the benefit of the B4 School Check National Information System to a provider is that they will be able to access the data that their colleagues have generated and be able to track frequent movements of the child and respond if necessary.

Each DHB and its agents will have access to the information for their population. The DHB and its agents will use, analyse and monitor the data about their own population to inform their planning and delivery of the B4 School Check service.

Health Information Privacy Obligations for users of the B4 School Check System

The collection, exchange and management of health information about identifiable individuals held on the B4 School Check Information System falls within the provisions of the Health Act 1956, the Privacy Act 1993 and the Health Information Privacy Code 1994 (HIPC). The HIPC and Privacy Act 1993 can be accessed from the Privacy Commissioner's website (www.privacy.org.nz).

The HIPC provides a broad framework of controls for the management of information about identifiable individuals, which is briefly summarised here as a guide to users' information privacy obligations when delivering the B4 School Check.

B4 School Check providers must ensure that the child and their parents/guardians are informed about the B4 School Check information system, the information being collected and what that

information may be used for (see Appendix 2). The overall purpose and objectives for why information is being collected and stored is described above.

Those collecting information will ensure that it is collected in a professional, considerate and respectful manner, sensitive to cultural differences. Users of the B4 School Check information system must take all reasonable steps to provide accurate information to the system and to check the accuracy of the information with the child and parent/guardian prior to relaying the information. An individual will also be able to access their (or their child's) information on the B4 School Check information system and be able to update/correct their individual details.

The Ministry of Health will ensure that storage and security safeguards will prevent unauthorised access to and use of the information contained on the B4 School Check Information System. All employees of the Ministry of Health, DHBs and their agents who have access to the system will be required to show that they understand and will adhere to all privacy requirements.

The *B4 School Check Privacy Policy* provides further details on the use, disclosure and retention of information collected as part of the B4 School Check (Ministry of Health 2008).

3 Child Health Questionnaire

Information obtained from the Child Health Questionnaire

The B4 School Check includes the two-page Child Health Questionnaire (CHQ), which seeks general information about the child and their family/whānau, including information about existing health conditions and access to services.

The CHQ was developed specifically for the B4 School Check and is reproduced in Appendix 3.

Any concerns that arise from the CHQ are likely to result in the child's referral to the child's GP or a child health specialist.

Immunisation

The CHQ asks about the immunisations the child has received. The B4 School Check is an opportunity to give any of the scheduled immunisations that the child has missed.

Look up the child's routine childhood vaccine schedule records on the National Immunisation Register (NIR) before the B4 School Check.

Screening tests may not be necessary

The CHQ asks about medical treatment the child is receiving for pre-existing eye or ear conditions.

If the child is under the care of an oto-rhino-laryngologist (an ORL or ENT specialist) or an audiologist or is wearing a hearing aid, has a cochlear implant, or currently has grommets inserted, it is not necessary to carry out audiometry or tympanometry.

Note the reasons for not undertaking the audiometry or tympanometry screen in the child's B4 School Check record.

If the child is already under the care of an ophthalmic practitioner (an opthalmologist or optometrist), a vision screening test is not necessary, whether the child is wearing glasses or not. However, ask the parent whether the child has had a recent check-up.

Inform the child's primary health care provider if screening was not undertaken and the reason/s for this.

4 Hearing Screening

National preschool hearing screening protocols

Definition of hearing loss and impairment

Hearing loss is divided into two types: sensorineural and conductive hearing loss. They may co-exsist in a hearing impaired child.

Hearing impairment is expressed as decibels (dB) of hearing loss across a range of frequencies. Normal hearing is defined as between 0 and -10 dB (ie, up to a 10dB reduction). Mild hearing loss is defined as 26 to 40 dB, moderate loss is 41 to 65 dB, severe hearing loss is 66 to 95 dB and any loss greater than this is considered profound. A hearing level better than 15 dB hearing loss is considered an adequate level of hearing for normal language development.

A 35–40 dB hearing loss in the better ear is usually considered to be educationally significant (NHMRC 2002).

A bilateral moderate to severe hearing impairment is known to affect a child's speech, language and general development. The consequences of unilateral mild hearing impairment are not clear (NHMRC 2002).

Diagnosis of hearing loss

Hearing loss is diagnosed using:

- audiometry for toddlers and young children
- auditory evoked potentials (usually auditory brainstem response) for infants aged under six months and young children with intellectual disabilities (NHMRC 2002).

Prevalence of hearing loss

The prevalence of short-term hearing loss which is mainly caused by otitis media with effusion (OME or glue ear) in preschoolers varies considerably by socioeconomic situation, but has been estimated at 15 percent and long-term problems at 3 percent. Long-term problems are defined as persistent middle ear effusions and sensorineural deafness (Feightner 1998).

Sensorineural hearing loss

It is estimated 60 percent of sensorineural hearing loss has a genetic basis. The incidence of congenital hearing loss in New Zealand is 2–3 per 1000 live births. The Universal Newborn Hearing Screening and Early Intervention Programme will identify many of those with congenital hearing loss in the neonatal period. The remainder will be identified in early childhood (Thabrew 2003).

About 15 percent of children with sensorineural hearing loss have progressive hearing loss. Forty percent of sensorineural hearing loss is due to environmental factors such as prematurity and meningitis (NHMRC 2002).

Preschool audiometry assessment is an important part of the long-term follow-up process of the Universal Newborn Screening and Early Intervention Programme.

Conductive hearing loss

The most common cause of conductive hearing loss is OME, which is a chronic inflammation and fluid collection of the middle ear. It is diagnosed by tympanometry and otomicroscopy or pneumatic otoscopy (Butler et al 2003).

OME fluctuates in severity, but tends to resolve spontaneously. The mean duration of otitis media with effusion is about three months, but 50 percent of children who have otitis media with effusion will have a further episode.

OME may be associated with significant hearing loss (20–30 dB) especially when it is bilateral and lasts longer than one month, but not all children with OME suffer clinically significant hearing loss.

Audiometry screening of preschool children (four-year-olds)

Audiometry screening using the sweep test is the initial screen to be used for screening asymptomatic preschool children for hearing loss.

Audiometry screening may be unnecessary for some preschool children. If the preschool child is currently under the care of an ORL/ENT specialist or an audiologist, wears a hearing aid, or has a cochlear implant or grommets, audiometry screening (or tympanometry) is unnecessary.

Note the reasons for not undertaking the screening test in the child's B4 School Check record.

Test result is normal

If the sweep test result is normal, no further tests are needed.

Test result is equivocal or abnormal

If the sweep test result is equivocal or abnormal, undertake tympanometry and follow the clinical referral pathway (see Figure 1).

Audiometry screening of new entrants and year 1 children (five- and six-year-olds)

Audiometry screening for new entrants and year 1 children is catch-up screening for children who have not had the B4 School Check as a preschooler or need a follow-up test as a result of equivocal audiometry test results.

Audiometry screening using the sweep test is the initial screen for hearing loss in asymptomatic new entrants and year 1 children.

Screening audiometry and tympanometry for new entrants and year 1 children follow the same protocols as for preschoolers.

As noted above, audiometry screening will be unnecessary for some new entrants and year 1 children If the new entrant or year 1 child is under the care of an ORL specialist or an audiologist, wears a hearing aid, or has a cochlear implant, audiometry screening (or tympanometry) is unnecessary.

Note the reasons for not undertaking the screening test in the child's B4 School Check record.

Test result is normal

If the sweep test result is normal, no further tests are needed.

Test result is equivocal or abnormal

If the sweep test result is equivocal or abnormal, undertake tympanometry and follow the clinical referral pathway (see Figure 1).

Older school-aged children on request and children new to New Zealand

In situations where there is concern about hearing from parents, teachers, and others in an older primary school aged child, or the child is new to New Zealand, a threshold audiometric test may be requested. For information on the technique for Threshold Audiometry please refer to the National Vision and Hearing Screening Protocols available on the Ministry of Health website (www.moh.govt.nz/moh.nsf/indexmh/vision-and-hearing-screening-protocols-nov09).

Informed consent

Vision and hearing technicians are covered by section 125 of the Health Act 1956, which allows a medical officer, at reasonable times, to enter a school or childcare centre and examine a child attending the school or centre. The medical officer may notify the child's parent or guardian if the officer thinks the child has a condition that is affecting the child's health or normal development.

Most regions have implemented consent forms that a parent or guardian must sign before their child is examined by a health professional. The aim of these forms is to encourage parents to make informed choices about their child's health. Section 125 should be used only in exceptional circumstances, for example, when the school or health services have serious concerns for a child's welfare and attempts to contact or engage the parents have failed.

Preschool and school consent forms for vision and hearing screening should be modified to state that this screening is part of a B4 School Check and that parents of four-year-olds will be invited to have the rest of a B4 School Check at a later date.

Setting for hearing screening

It is important that the Vision Hearing Technician obtains a suitable room for hearing screening. Inappropriate conditions may compromise the validity of test results.

The conditions discussed below apply to community settings as well as clinic settings.

Type of room

The room in which the hearing screening takes place must:

- be quiet
- be free of distractions
- have soft furnishings and floor coverings to absorb noise.

In a school or preschool, the most suitable room is usually the school library or an office.

Minimise ambient noise

The degree of ambient noise in the room in which the hearing screening will take place must be less than 40 dBA.

Check the ambient noise with a sound level meter (an SPL meter) at the beginning of term and at any other time you consider it necessary.

Use a standalone sound-absorbing screen in noisier environments.

Equipment needed for hearing screening

To screen a child's hearing you need:

- an audiometer, tympanometer and ancillary equipment
- an appropriate chair and a table or desk on which to set up the audiometer and paperwork
- a set of record sheets
- a sound level meter
- headphones
- pegs and a container
- a chair for the child being screened.

Test technique: Audiometry screening

Guidelines for audiometry screening

The procedure for audiometry screening is based on the American Speech-Language-Hearing Association screening guidelines (ASHA 1997).

Procedure for preparing the child for the screening test

Follow these steps to prepare the child for the screening test.

1. Place the headphones on the desk with the earphones facing towards the child.
2. Bring the child to within 30 cm of the headphones.
3. Explain to the child that you will be playing a simple game.
4. Tell the child that you will make the machine make a sound or beep.
5. Demonstrate the sound with a 1000 hertz (Hz) tone at 100 dB.
6. Explain to the child that to play the game, the child must drop a peg into the container each time they hear a beep.
7. Demonstrate the process by presenting a 1000 Hz tone at 100 dBa and dropping a peg into the container. Repeat this demonstration several times, waiting between each beep so the child understands that they must wait for the sound before dropping the peg in the container.
8. Get the child to demonstrate dropping the peg at the sound of the tone. Repeat until the child shows they thoroughly understand the task.
9. Follow the procedure for the audiometry screening test.

Procedure for audiometry screening test

Follow these steps to undertake the audiometry screening test.

1. Reduce the intensity level from 100 dB to 40 dB.
2. Ensure a noise-reducing screen is in place (if required).
3. Place the headphones on the child.
4. Present a 1000 Hz tone at 40 dB in the child's right ear.

   If the child responds, go to step 5.

   If the child does not respond, they have failed the audiometry screen for that ear. Test the other ear and then proceed to tympanometry (see Figure 1).
5. Reduce the amplitude of the tone to the 20 dB screening level.
6. Screen at 1000 Hz, 2000 Hz and 4000 Hz at 20 dB.

6a. Increase the amplitude of the tone to the 30dB screening level. Screen at 500Hz.

   If the child responds to each frequency in step 6 and 6a, go to step 7. If the child does not respond to any frequency in step 6 or 6a, they have failed the audiometry screen for that ear. Go to step 7.

7. Present a 1000 Hz tone at 40 dB in the child's left ear.

   If the child responds, go to step 9.

   If the child does not respond, they have failed the audiometry screen for that ear. Proceed to tympanometry (see Figure 1).
8. When child responds reduce the tone to the 20 dB screening level.
9. Screen at 1000 Hz, 2000 Hz and 4000 Hz at 20 dB.

10. Increase the amplitude of the tone to the 30dB screening level. Screen at 500Hz.

    If the child does not respond to any frequency in step 9 or 10, they have failed the audiometry screen for that ear. Proceed to tympanometry.

    If the child responds to each frequency in step 9 and 10, they have passed the sweep test.

Pass, refer and rescreen criteria for audiometry screening

See the clinical pathway and referral criteria in Figure 1.

Bilateral audiometry screening levels of 20dB at 1000, 2000 and 4000 Hz and 30dB at 500Hz.

If audiometry screening levels of 30 dB at 500 Hz and 20 dB at 1000, 2000 and 4000 Hz are obtained in both ears, record the child's hearing test as a pass. No further action is required.

Audiometry screening levels between 20 and 40dB

If the child is unable to hear the tone presented at 20 dB in either ear at 1000, 2000 or 4000 Hz, or 30 dB at 500 Hz record the result as either:

- **refer** if they pass tympanometry or if they fail tympanometry and there are concerns for speech/language, development or behaviour (see table 1), or
- **rescreen** if they fail tympanometry and there are no developmental concerns.

Audiometry screening levels at any test frequency above 40 dB

If the child is unable to hear the tone presented at 40 dB in either ear, record the result as a refer, and refer the child to a GP/ear nurse or audiologist for further assessment depending on the outcome of the tympanometry screen (see pages 15-16). Where a referral is made to a GP/ear nurse because of a conductive hearing loss, the child's hearing must be rescreened after treatment to rule out a concurrent sensorineural hearing loss.

If the child makes inconsistent responses, suggesting that the child cannot perform the conditioned response and the child has no risk factors for developmental and language delay (see table 1), ***rescreen*** *the child in three months time.*

Table 1: Risk factors for hearing related developmental/learning difficulties

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 Syndrome) or craniofacial disorders that include cognitive, speech and language delays.
Blindness or uncorrectable visual impairment.
Cleft palate with or without an associated syndrome.
Developmental delay.
Significant socioeconomic disadvantage.

Test technique: Tympanometry

Tympanometry not for children with grommets

Children with patent grommets may produce an abnormal tympanogram, so before the tympanometry test, ask a parent whether the child has grommets. If the child has grommets, no further action is required.

Settings for tympanometry

Type of room

Tympanometry testing will be carried out in the library, staffroom, office or similar quiet room as audiometry will be carried out at the same time. Clinic settings require these same conditions.

Equipment

A table is required to set up the equipment and paperwork, and appropriate lighting to read results on the screen. An appropriately sized chair is also essential for health and safety requirements.

Procedure for preparing the child for tympanometry

Tympanometry in pre-schools is best carried out in view of the other children who will be tested. This enables shy or uncooperative children to watch the procedure and become reassured.

Follow these steps to prepare the child for the tympanometry test.

1. Stand the child in front of you, and explain that you will be using your 'special camera' to take a measurement/picture of their ears.
2. Show the child the tympanometer screen to reassure them, liken it to a small TV.
3. Tell the child they will need to stand still for just a minute while you take the picture.
4. When you feel the child understands and is ready, begin the procedure.

Procedure for tympanometry

Follow these steps to undertake the tympanometry test.

1. Turn the child so that their right ear is facing you.
2. Place the tympanometer probe in the child's ear and run a test.

   If the test result is pass, record the result. Go to step 4.

   If the test is abnormal, go to step 3.
3. Repeat the test.

   If the result is a pass, record the result. Go to step 4.

   If the result is abnormal, record the result including the physical volume measure. Go to step 4.

4. Turn the child so their left ear is facing you.

5. Place the tympanometer probe in the child's ear and run a test.

   If the test result is a pass, record the result. End of procedure.

   If the test is abnormal, go to step 6.

6. Repeat the test.

If the result is pass, record the result. End of procedure.

If the result is abnormal, record the result including the physical volume measure. End of procedure.

Pass, refer and rescreen criteria for tympanometry screening

Children who are having tympanometry must have first had audiometry screening. Normal audiometry (ie, bilateral pass responses) means no further testing needs to be done. The procedures below all follow an abnormal sweep test.

Tympanogram is normal

If sweep test is abnormal and the tympanogram is normal, the child may have a sensorineural hearing loss. In this situation refer the child to audiology or ear, nose and throat services (depending on local pathways) for further assessment.

Tympanogram result cannot be obtained

If you are unable to gain a seal (ie, there is an air leak) when trying to run a tympanogram:

- record **unable** on the child's notes
- contact the child's parents to see whether the child has grommets
- if the child does not have grommets, refer the child to a GP or ear nurse for further assessment (note as a **refer**).

Tympanogram is abnormal

If the tympanogram is abnormal (ie, it does not show a peak, it is flat), **refer** the child to a GP or ear nurse for assessment.

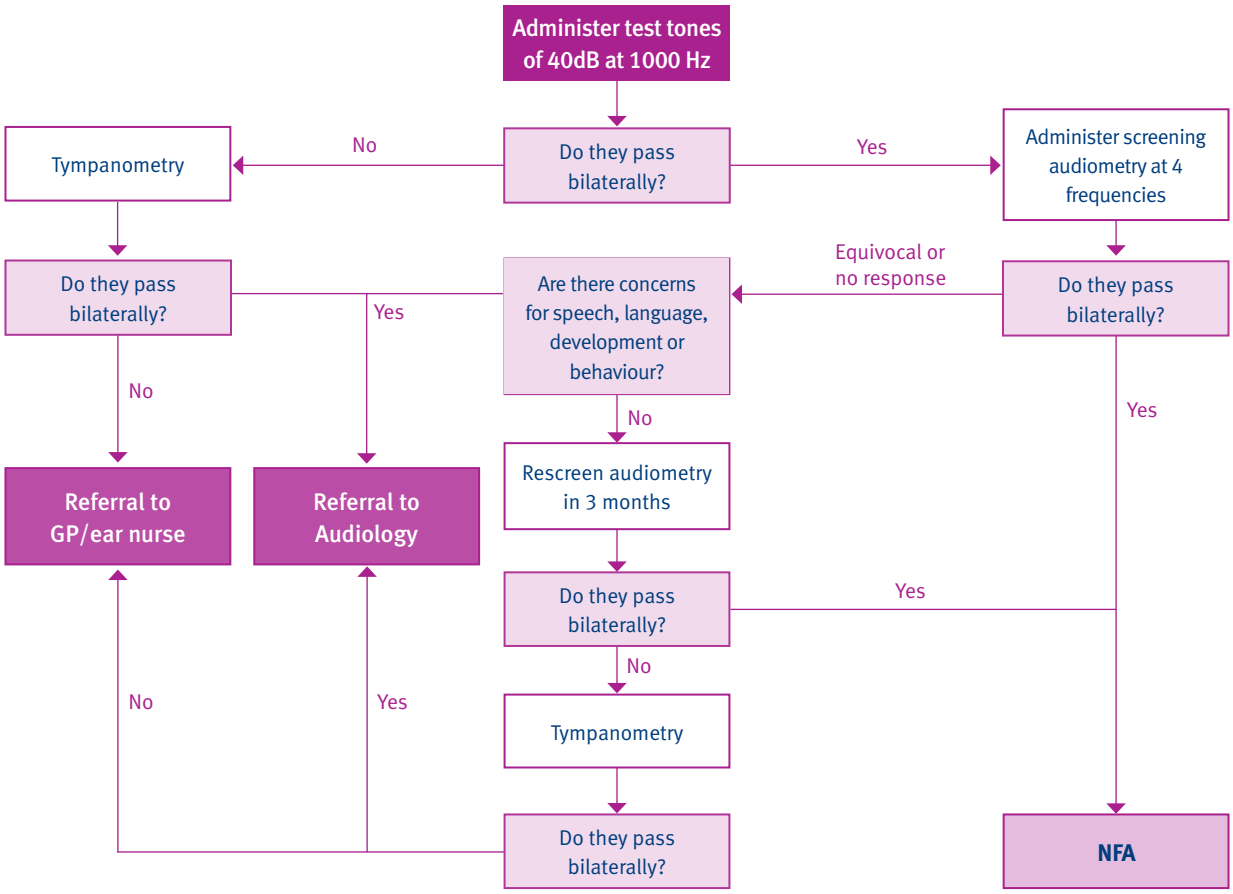
Children with the conditions listed in Table 1 are at high risk for developmental and learning difficulties, which otitis media with effusion is likely to exacerbate. If they fail their audiogram and have an abnormal tympanogram in either ear or both ears **refer** them straightaway.

If the tympanogram shows no peak and the physical volume measure is under 0.3 ml or over 1.5 ml, **refer** the child immediately to a GP/ear nurse.

If the tympanometry result shows no peak (ie, it is a flat graph), and the physical volume measure is 0.3–1.5 ml, **rescreen** the child in three months' time.

If a **rescreen** tympanometry result shows no peak, **refer** the child to a GP/ear nurse.

Figure 1: Sweep audiometry clinical pathway and referral criteria



* Where a referral is made to a GP/ear nurse because of a conductive hearing loss, the child's hearing must be rescreened after treatment to rule out a concurrent sensorineural hearing loss.

5 Vision Screening

National preschool vision screening protocols

Introduction

Prevalence of visual deficits in preschool population

The prevalence of visual deficits in the preschool population is estimated to be 10–15 percent (Feightner 1998). The main clinically significant visual deficits include amblyopia, strabismus and refractive error.

Estimates of the prevalence of amblyopia are 1.2–5.6 percent. Amblyopia is potentially reversible, but for treatment to be beneficial it needs to be instituted before the child is seven years old (Feightner 1998). New Zealand research suggests that treatment is most beneficial if started before the child is four years old (Hope, C personal communication).

Effects of preschool vision screening on prevalence of visual problems

A cohort study reported by a Canadian task force examined the effects of preschool vision screening on the prevalence of visual problems 6–12 months after screening. At follow-up, the screened group had 50 percent fewer visual problems and 75 percent fewer severe visual problems than the unscreened group had, indicating that screening is effective. The study did not measure the impact of the visual problems and screening on school performance (Feldman, in Feightner 1998).

One study demonstrated a negative predictive value of 98.7 percent for amblyopia, strabismus and high refractive errors, using visual inspection, assessment of visual acuity, and evaluation of stereoacuity (Hartmann et al 2000). That is, a normal screen was highly likely to mean normal vision. A similar study demonstrated a positive predictive value of 72 percent, that is about three-quarters of children with an abnormal screen would have abnormal vision.

In contrast, the results of the Vision in Preschoolers study show conclusively that use of visual acuity screening alone (single optotype crowded Lea symbols) at 5 feet has a sensitivity of 0.87 for amblyopia and 0.79 for strabismus, which was not significantly increased by the addition of a stereopsis screen (Stereo-smile 2) (Vision in Preschoolers Group 2005). The addition of the stereopsis screen increased test length and cost significantly. This group is due to report on the most appropriate screening modalities for preschool children.

Most commonly used acuity screen

The most commonly used acuity screen is one containing lines of letters (eg, the Snellen chart) or one in which single letters have neighbouring ‘confusion bars’. These two tests give comparative results. Where possible, one of these tests should be used when vision screening preschoolers.

The single-letter stimulus of the Parr Letter-Matching Test without confusion bars is an easier visual test and is appropriate for children who cannot perform the more complex tests.

When to initiate a full assessment

If you, a teacher or a parent or caregiver has concerns about a child's vision or eyes, initiate a full assessment with a vision professional.

Screening test may not be necessary

If the child is currently under the care of an ophthalmic practitioner, a screening test is unnecessary, whether the child wears glasses or not.

Preschool children (four-year-olds)

Preschool vision tests are carried out in primary health care or community-based settings or in kindergarten or preschool sessions where the largest groups of four-year-olds can be targeted.

It is best to undertake the vision and hearing assessments together, but take care to ensure that children are not tired, as their responses will be less reliable.

If the vision and hearing tests are not done with the rest of the B4 School Check, it is better to do them earlier, so that any abnormal screen results can be discussed with the parents at the subsequent visit.

The Parr Letter-Matching Test with confusion bars has been used in the New Zealand context for initial vision screening of five-year-olds for many years. The comparative effectiveness and ease of use of the Lea Symbols test suggests that this test may be a better screen, and it will be assessed once the B4 School Check programme is under way.

New entrants and year 1 children (five- and six-year-olds)

New entrant vision tests are carried out within the child's first year of school. This may be done as a catch-up screen of children who have not had their B4 School Check or as a follow-up for children with abnormal results in the B4 School Check.

Equipment needed for vision screening tests

For the vision screening tests, the tester needs:

- 4 m Parr charts with and without confusion bars with key card or equivalent Sheridan Gardner charts
- a 4 m Snellen chart
- occluding glasses or patch
- a retractable 5 m ruler
- masking tape
- a light meter
- a chair for the child.

Test technique: Parr Letter-Matching Test (with or without confusion bars) or equivalent Sheridan Gardner charts

Setting for Parr Letter-Matching Test/Sheridan Gardner Charts Test

The Parr Letter-Matching Test requires a room that is:

- free of distractions and more than 4 m long
- uniformly and brightly illuminated, that is, with a light level of:
  - at least 300 lux in the room
  - about 500 lux to illuminate the text chart.

If you are unsure whether the lighting is sufficient, carry out a formal light meter test.

The test is conducted exactly 4 m from the child and at the same level as the child's eyes. Measure 4 m from the child with the tape measure, and mark the floor with a piece of masking tape.

Ensure that the test chart (book) and the 'key' card match (ie, both have confusion bars) and have a matte finish to ensure the child cannot see reflections.

Procedure for preparing the child for Parr Letter-Matching Test/ Sheridan Gardner Charts Test

Follow these steps to prepare the child for the Parr Letter-Matching Test.

1. Seat the child so their eyes are level with the masking tape. Note: The front legs of the child's chair may be ahead of the tape.
2. Hold the key card close to and in front of the child. Explain to the child that you will be playing a simple game.
3. Show the child a letter shape from your book. Explain that they have to point to the shape that is the same on their card.
4. Flip the book to a large letter and gently lift the child's hand and place their finger on the matching letter.
5. Change the letter and again place the child's finger on the matching letter.
6. When you feel the child understands the task, show the child the eye patch and suggest they need to be a 'pirate' to play the game.
7. Follow the procedure for the Parr Letter-Matching Test.

Procedure for Parr Letter-Matching Test/Sheridan Gardner Charts Test

Follow these steps to undertake the Parr Letter-Matching Test.

1. Place the eye patch over the child's left eye.
2. Move to the 4 m point. Ensure no other children are sitting between you and the child being tested.
3. Beginning with the largest letter, show the child progressively smaller letters from each level. Encourage the child as much as possible. Continue until the child has difficulty identifying the letters.
4. Record the smallest letter size at which the child identified all letter shapes correctly. Use the conversion table on the back cover of the test book.
5. Place the eye patch over the child's right eye.
6. Move to the 4 m point.
7. Beginning with the largest letter, show the child progressively smaller letters from each level. Show the letters in a different order from that which you showed the child in step 3. Encourage the child as much as possible. Continue until the child has difficulty identifying the letters.
8. Record the smallest letter size at which the child identified all letter shapes correctly. Use the conversion table on the back cover of the test book.

NB: 6/6 6/6 is recorded when the child is shown all three 6/6 letters and can achieve 2. If the child is aged under four and cannot perform the test with confusion bars or makes inconsistent responses, repeat the test without confusion bars and record the result. Record the test situation without confusion bars in the result.

Test technique: Snellen Vision Test

Setting for Snellen Vision Test

The Snellen Vision Test requires a room that is:

- free of distractions and more than 4 m long
- uniformly and brightly illuminated, that is, with a light level of:
  - at least 300 lux in the room
  - about 500 lux to illuminate the test chart.

If you are unsure whether the lighting is sufficient, carry out a formal light meter test.

The test is conducted exactly 4 m from the child and at the same level as the child's eyes. Measure 4 m from the child with the tape measure, and mark the floor with a piece of masking tape.

Ensure that the test chart has a matte finish to ensure the child cannot see reflections.

Make sure the child is not facing a window or other bright light source that could make the chart difficult for them to see.

Procedure for preparing the child for Snellen Vision Test

Follow these steps to prepare the child for the Snellen Vision Test.

1. Stand the child behind the 4 m mark, with their toes on the masking-tape line.
2. Explain to the child that you will point to random letters on the chart and ask the child to identify each letter.
3. Ensure that the child knows the names of the letters.
4. Follow the procedure for the vision chart with the Snellen Vision Test.

Procedure for Snellen Vision Test

Follow these steps to undertake the Snellen Vision Test.

1. Place the occluder in position with the child's right eye visible. Explain that the child is to hold the occluder in place until you ask them to move it.
2. Turn the eye chart over. Beginning with the largest letter, point to progressively smaller letters (two or three letters from each level is sufficient). Select letters randomly. Encourage the child as much as possible. Continue until the child has difficulty identifying the letters.
3. Record the smallest letter size at which the child identified all letters (ie, the whole line) correctly.
4. Ask the child to turn the occluder over, so their left eye is visible.
5. Turn the eye chart over. Beginning with the largest letter, point to progressively smaller letters (two or three letters from each level is sufficient). Select letters randomly and in a different order from that in step 2. Encourage the child as much as possible. Continue until the child has difficulty identifying the letters.
6. Record the smallest letter size at which the child identified all letters (ie, the whole line) correctly.

Pass, rescreen and refer criteria for Parr Letter-Matching and Snellen Vision Tests

See the clinical pathway and referral criteria in Figure 2.

Screening or referral unnecessary if child under ophthalmic practitioner's care

If the child is under the ongoing care of an ophthalmic practitioner (an opthalmologist or optometrist) and has been prescribed glasses:

- the child should not usually be screened
- if the child is screened, a referral is unnecessary no matter what the vision results are, but contact the parent or caregiver to provide them with the results and to make sure the child has had a recent vision examination.

Offer referral if concerns about child's vision

If at any stage, a teacher, parent or caregiver thinks the child has any vision or development-related problems, it may be necessary to provide a vision screen, but there should also be an offer of a referral for the child's eyes to be examined, as the screen does not cover some aspects of vision.

Pass, refer and rescreen criteria for vision screening at four years

Vision is 6/9 or better in both eyes at the B4 School Check

If the child's vision is 6/9 or better in both eyes:

- the child's vision screening test is considered a **pass**
- note the measurements of vision on the child's records
- take no further action.

Vision is 6/9 in one eye and 6/6 in the other at the B4 School Check

If the child's vision is 6/9 in one eye and 6/6 in the other:

- note the measurements of vision on the child's record
- arrange a **rescreen** for three to six months' time.

Vision is 6/12 or worse in either or both eyes at the B4 School Check

If the child's vision is 6/12 or worse in either eye or both eyes, **refer** the child for an ophthalmic assessment according to local protocols.

On rescreen

If the child's vision is 6/6 or better in both eyes the rescreen is considered a **pass** and no further action is required.

If there is no change in the child's vision (i.e. they are 6/9 in one eye and 6/6 in the other) or their vision has become worse in either eye (i.e. they are 6/9 in both eyes, or 6/12 or worse in either eye) **refer** the child for an ophthalmic assessment according to local protocols.

Referral pathways

Follow local protocols

Referral pathways depend on the local availability of orthoptist, optometric or ophthalmologist services in the District Health Board (DHB).

A national protocol for vision screening referral is being developed with stakeholders. Until the national protocol is in place, local protocols must provide a rapid, clinically appropriate care pathway that ensures rapid referral and minimises the cost to the family/whānau. In general, if DHB orthoptists are available these should generally be the first contact in the referral pathway.

Some areas may have a waiting time for a specialist assessment in a hospital eye department. In this situation, refer the child for a GP assessment or inform the child's parent or caregiver about services available from local optometrists.

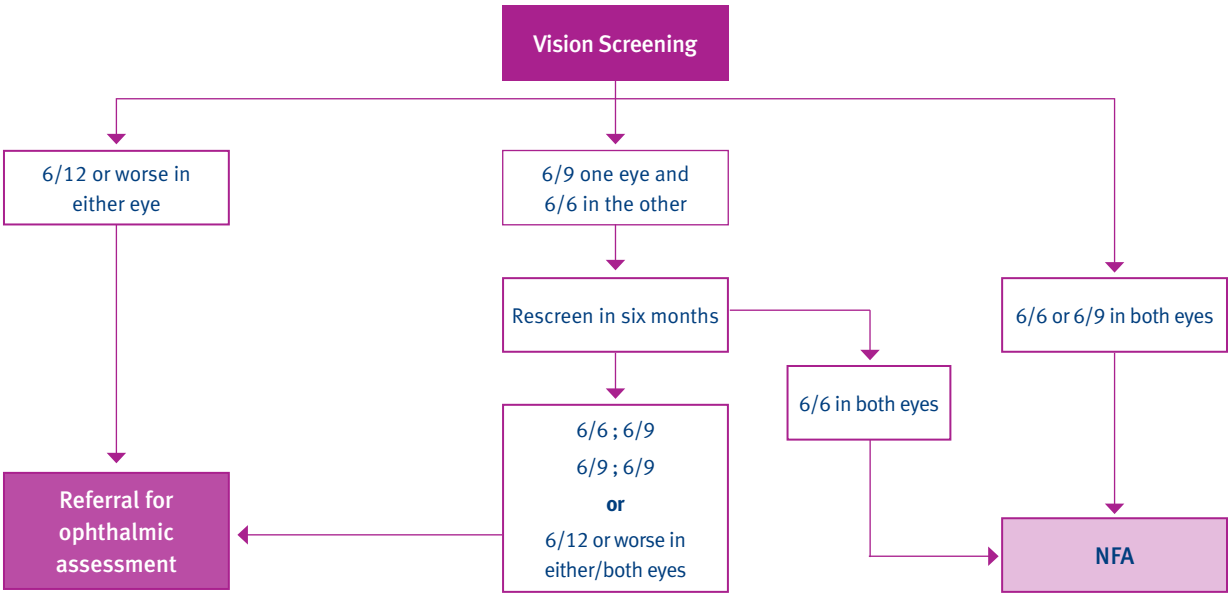
Subsidies for glasses/spectacles

Children with vision problems, aged 15 years and under, who are in low income families may be able to get funding assistance for examinations, frames, lenses, eye patches and repairs. The child will need to have an assessment by a vision assessor who is registered as an assessor for this subsidy. The accredited vision assessor will assess a child's vision needs and may recommend glasses or other vision equipment.

An accredited assessor is usually an optometrist, eye specialist or a service co-ordinator for the Royal New Zealand Foundation of the Blind. Not all optometrists and eye specialists are accredited vision assessors. You should have an up-to-date list of accredited assessors.

If the child requires a referral and their parent has a Community Services Card, advise the parent to contact Enable New Zealand to find a vision assessor in their area (phone 0800 17 1981).

Figure 2: Vision screening clinical pathway and referral criteria



The pass, refer and rescreen criteria for five year olds can be located on page 29 of the National Protocols available on the Ministry of Health website (www.moh.govt.nz/moh.nsf/indexmh/vision-and-hearing-screening-protocols-nov09).

6 Oral Health Screening and Promotion

Introduction

The B4 School Check includes promoting oral health to parents and doing the 'lift the lip' check of caries (cavities) in children. It is also an opportunity to check that children are enrolled in their local dental service.

Government's oral health vision

Promoting oral health is one of the seven action areas identified in *Good Oral Health for All, for Life* that are considered key to achieving the Government's oral health vision (Ministry of Health 2006).

Improving and maintaining oral health through prevention and promotion is regarded as one of the most effective ways to achieve oral health over the long term. Promoting oral health, particularly in childhood, is likely to have benefits throughout the child's life as healthy environments and behaviours early in life have been shown to decrease the risk of oral disease in later years (Ministry of Health 2008b).

Prevalence of caries and oral disease

In 2005, just over half of all five-year-olds (52 percent) were caries free. The proportion of children caries-free at five years of age ranged from 31.4–65.9 percent across DHBs. This means an average of just over 48 percent of five-year-olds had experienced dental caries by the end of their preschool years.

While many children experience relatively few dental caries in their primary teeth, a small group experiences significant disease. International research into the patterns of dental caries indicates that the highest levels of dental caries in any area will be concentrated in about 10–20 percent of children (Ministry of Health 2008a).

Inequalities in oral health, particularly inequalities between young Māori and non-Māori children, have widened, and there are significant differences in the severity of oral disease between these groups (Ministry of Health 2008a).

Resources

New resource: *Healthy Smile, Healthy Child*

The New Zealand Dental Association, in conjunction with the Ministry of Health, has developed a resource called *Healthy Smile, Healthy Child: Oral health guide for Well Child Providers.* This resource covers child oral health promotion and early detection from birth to five years, including the 'lift the lip' oral health check for children, and includes a training DVD.

The resource was finalised in May 2008 and has been used as a training resource for the B4 School Check. It is a useful reference for nurses doing the B4 School Check.

Healthy Smile, Healthy Child is available from the New Zealand Dental Association:

- phone: (09) 579 8001
- website: http://www.nzda.org.nz/pub.

Resource package: Keep me Smiling

The Ministry of Health recommends *Keep me Smiling: Lift the lip* for use in the B4 School Check programme. *Keep me Smiling* is a package of resources that includes:

- a guide for health professionals doing child oral health promotion and 'lift the lip' checks, including reference photos
- oral health promotion pamphlets for parents in English, Māori, Samoan, Cook Islands Maori, Tongan and Niuean.

Keep me Smiling will be included in the toolkit for B4 School Check practitioners, and you will be able to order copies at no cost through your regional public health office.

Other useful resources

To assist with the planning and delivery of the B4 School Check, use:

- *Early Childhood Oral Health: A toolkit for District Health Boards, primary health care and public health providers and for oral health services relating to infant and preschool oral health* (Ministry of Health 2008a)
- *Promoting Oral Health: A toolkit to assist the development, planning, implementation and evaluation of oral health promotion in New Zealand* (Ministry of Health 2008b).

These resources are available online on the Ministry of Health website http://www.moh.govt.nz

7 Identifying Developmental and Behavioural Problems

Introduction

Children often reach primary school with undetected or untreated developmental or behaviour problems. Surveillance before school is often incomplete and the highest-need families may make the least use of health care services (Hall and Elliman 2003). Children with mild to moderate developmental difficulties or behavioural or mental health problems may not be identified even if they are receiving regular health care. There is evidence that early identification and intervention improves developmental and social outcomes for the child and family/whānau and the earlier the intervention the better (Centre for Community Child Health 2002).

Individuals observing the child in different settings using validated tools allows more typical behaviour to be recorded.

Tools to identify child development/behaviour should be simple to administer and score (Tsiantis et al 2000). They should have sensitivity and specificity above 70 percent.

Most tools are in the form of questionnaires.

Behavioural screening

Effectiveness of management decreases as child ages

It becomes more difficult to influence the development of a child's behaviour problems as a child gets older. Management of behavioural problems may be effective in 75–80 percent of preschool children with antisocial behaviour. Once the child is aged five to seven, management is effective in 65–70 percent, but once the child is aged 8–12 years this decreases to 45–50 percent. It is very difficult to change antisocial behaviour in adolescents (Church 2003).

Parents make the best identifiers for socio-emotional and mental health problems

Evidence shows that parents can accurately identify children with socio-emotional and mental health problems. Asking parents about their child's behaviour has two advantages: it involves family/whānau members in the identification and management processes and is cheaper than involving health professionals (Tsiantis et al 2000).

Teachers can also check children, and some tools have versions for both a parent and a teacher, including the Strengths and Difficulties Questionnaire (SDQ), which is the behavioural questionnaire for the B4 School Check.

Interventions

Functional assessment

Functional assessment is the preferred method for identifying the factors that need to be changed during any intervention in a child's life (Church 2003). Functional assessment attempts to identify environmental conditions (including other people's behaviour) that influence a child's antisocial behaviour.

Any intervention in a child's life should aim to change the circular processes of behaviour problems – the child affects the adult who affects the child who affects the adult – by altering communication, roles, perceptions and beliefs (Tsiantis et al 2000).

Contingency management

The most effective intervention for managing a child's social behaviour is 'contingency management', which involves setting specific behavioural change goals, teaching the child the skills necessary to achieve these goals, offering the child rewards for good behaviour and penalties (such as time out but not physical punishment) for antisocial behaviour, and monitoring the intervention and its effects (Church 2003).

Contingency management (which uses rewards and penalties) is more effective than an intervention that uses only rewards and is more likely to succeed if instituted in the classroom and at home, rather than in just one environment.

Parenting programmes

Successful programmes

Parenting programmes are important interventions. Several programmes' effectiveness in assisting parents to manage their child's behaviour is well documented; for example, the Australian Triple P programme and the Incredible Years parenting programme, which are commonly used in New Zealand. These programmes have the best effect on the parents of children aged under eight (Church 2003).

The SKIP programme, funded by the Ministry of Social Development, is also well accepted and provides a range of evidence-based parenting resources for parents and community groups.

Strengths and Difficulties Questionnaire

Introduction

The evaluation of children's emotional and behavioural development is a central component of a child health assessment. Children's emotional and behavioural problems are not always evident in all situations. When they are evident, the problem is usually more severe.

Who the questionnaire is for

The SDQ is designed to assess 3 to 16-year-olds. It has different versions, depending on the age of the children being assessed and whether a parent or teacher is to complete the questionnaire. Older children can complete a self-assessment questionnaire.

What the questionnaire assesses

The SDQ asks about the child's psychosocial attributes (positive and negative behaviours): emotional attributes, conduct, hyperactivity, peer relations and prosocial behaviour. It also asks about how the child's behavioural difficulties affect the child's life (Youth in Mind 2001).

Why the questionnaire was selected

The SDQ was selected over other tools for identifying child behavioural issues because it is:

- widely used and accepted by people working in child health, development and education
- quick to use and easy to score
- valid, sensitive and specific
- free to download from the Youth in Mind website http://www.sdqinfo.com.

The version of the SDQ for three- and four-year-olds was selected for the B4 School Check as its language is more appropriate to describe preschool children's behaviour than is the language of the version for four- to ten-year-olds (the SDQ is reproduced in Appendix 4).

Robustness of the questionnaire score

The SDQ score is significantly more sensitive (ie, it will be better at identifying strengths and difficulties) if both a parent and a teacher complete the questionnaire (versions SDQ-P and SDQ-T respectively) (Goodman et al 2000). Therefore, if the child is involved in early childhood education, his/her teacher should be encouraged to complete the teacher version of the questionnaire and be prepared to discuss their findings with the child's parents (SDQ-T3/4 see Appendix 5).

The SDQ is based on the Child Behaviour Checklist and Rutter questionnaires, which have long been used in clinical and educational practice, but it puts more emphasis on the child's strengths rather than just their difficulties (Goodman 1997).

The SDQ's focus is whether a child has difficulty with emotions, concentration, behaviour or getting along with others. It is still being evaluated for predictive validity, reliability, sensitivity and specificity. However, it is viewed highly, used by several countries and is available in several languages.

The SDQ, while behavioural in focus, contains good principles for considering a child's strengths as well as many areas of difficulty. The SDQ reflects current academic thought about risk and resilience and the impact this has on a child's development and learning (Allen and Clarke 2005).

Content of the questionnaire

The SDQ comprises five scales of five items each that refer to different emotions or behaviours. The parent and/or teacher complete their respective questionnaire by marking each item as 'not true', 'somewhat true' or 'certainly true'.

The scales are scored to produce an overall score that indicates whether the child is likely to have a significant problem.

Selected items can also be used to form subscales for prosocial behaviour, hyperactivity, emotional symptoms, conduct and peer problems (Goodman 1997). It is usually easiest to score all five scales first before working out the total difficulties score. The answers are given on the basis of the child behaviour over the last six months.

On the back of each questionnaire are questions that aim to assess the severity of the child's problems by scoring the duration of the difficulties and their impact on the child or others.

Evaluation of the questionnaire

The evaluation found that nurses should offer to read and complete the questionnaire with the parent to mitigate any literacy or language barriers the parent might have and to answer parents' questions (CBG Health Research Ltd 2007).

Guidance for administering the questionnaire

Further guidance for scoring and administering the SDQ is available in the toolkit provided as part of the B4 School Check train-the-trainer programme. However, note the following points.

Time required to complete the questionnaire

The questionnaire takes 5-10 minutes to complete.

Do not reword questionnaire and answers

Do not change the wording of the questions or answers, because this will change the validity of the tool.

Working with parents and teachers

Teachers play an important role in identifying children with behavioural difficulties. If a child undergoing a B4 School Check attends an early childhood centre, the teacher who knows them best must be asked to fill out an SDQ-T.

Explain to the respondent – whether a parent or teacher – where and how the questionnaire fits into the overall B4 School Check assessment. Part of the B4 School Check involves parents and teachers completing the SDQ to help us understand a child's behaviour and emotional development.

Emphasise to parents and teachers that the SDQ's purpose in relation to the B4 School Check is not to judge or label children, but to make sure the child has no problems that might hinder the child from learning and to get appropriate support and help for the child and their family/whānau if any problems are identified.

Parents may be intimidated by the SDQ or it may raise anxieties about their child. Introduce and discuss the SDQ in a way that minimises parental anxiety and reassures parents about the purpose of the questionnaire.

Avoid saying things like, 'I need your permission to administer the SDQ' or 'Sorry for having to put you through this' or 'You don't have to do this if you don't want to'. These statements may engender a negative or fearful reaction in parents.

Completing the questionnaire

Offer the parent help and support with filling out the SDQ. If they appear uncomfortable working with you, they may prefer help from someone else (perhaps a member of their own community). Support that wish and do not make assumptions about their literacy or ability to complete the form on their own.

Discussing and communicating results

Try to keep any discussion to after the parent or teacher has finished the questionnaire, although sometimes you will need to acknowledge what the parent or teacher is saying immediately.

When communicating the results of the questionnaire to the parent or teacher, avoid using terms such as 'borderline' and 'abnormal' in relation to the child. These terms are unhelpful outside a clinical context, and are likely to make a parent anxious or react negatively. It is better to use the term 'concerning' if the child has a high score which will require referral.

A full discussion with the parents of the results of the questionnaire is vital for three reasons.

- It is important to establish the level and nature of any difficulties clearly. (Information from other sources is also relevant for this purpose.)
- The child's overall score may be below the cut-off point indicative of significant difficulties, but some issues may still be important to the respondent.
- It is crucial you understand how the child, parent and other family/whānau members are responding to how the child is and what the child is doing and saying.

More information

More information about issues and questions that may arise during the administration of the SDQ is in the toolkit provided for B4 School Check practitioners.

Procedure for administering the questionnaire

Follow this procedure to administer the SDQ.

Have the correct form ready, for example, the:

- SDQ-P3/4 for a parent (or other caregiver)
- SDQ-T3/4 for a teacher.

1. Briefly explain the SDQ to the parent and answer their questions.

   Remember that the SDQ-P3/4 asks about behaviour in the **past six months.**

2. Ask the parent whether they would like you to go through the SDQ with them or whether they would prefer to fill it in on their own.

   If the parent wants to fill out the SDQ on their own, provide clear instruction about the process for completing the questionnaire (as above). Provide them with a stamped addressed envelope to help ensure return. If the parent wants you to go through the SDQ with them, work through the 25 questions on page 1 plus the impact questions on page 2. However, if the parent answers 'no' to the first 'overall' impact question, do not continue with the rest of the impact questions.

   Remember to ask, 'Do you have any other comments or concerns?', which is at the bottom of page 1.

3. Fill in the parent's answers by ticking the relevant 'Not true', 'Somewhat true' or 'Certainly true' box.

4. Score the questionnaire (see below).

5. Discuss the results with the parents.

Guidance for scoring and interpreting the questionnaire

Further guidance for scoring and administering the SDQ is available in the toolkit provided as part of the B4 School Check train-the-trainer programme. However, note the following points.

Guidance for scoring the questionnaire

Scoring is explained on the scoring sheet that accompanies the SDQ (see Appendix 6).

Each item is scored 0, 1 or 2. 'Somewhat true' always scores 1. 'Not true' and 'Certainly true' are scored 0 or 2, depending on whether the item is framed as a strength or difficulty. The 20 difficulty items are scored to make up a 'total difficulties score'.

The impact questions are also scored. This score can be used to help interpret the 'total difficulties score' because it indicates how much impact the difficulties are having on the child's life at home or at school.

The scoring sheet explains which item contributes to which subscale.

The prosocial scale is scored so that an absence of prosocial behaviour scores low. A child may still have difficulties, but if they have a high prosocial score, the outlook for intervention is better than if they have a low score.

The scoring sheet has a chart that indicates which total scores are low, average or high in the general population. High scores overall or for any subscale point to the likelihood of a significant disorder and/or a disorder of a particular type. The instrument has been proven useful for screening, but high scores do not guarantee that a disorder will be found after a more thorough assessment and low scores do not guarantee the absence of problems.

Procedure for scoring (for parent or teacher version)

Follow this procedure to score the SDQ-P or SDQ-T.

Have ready:

- the completed SDQ
- five scoring transparencies (which can be downloaded for free from the Youth in Mind website, http://www.sdqinfo.com/ScoreSheets/e3.pdf, and copied onto transparencies)
- the SDQ record sheet

You can score using:

- the scoring transparencies: go to step 1
- by hand (although this method is not recommended as it is more time-consuming than using the scoring transparencies): go to step 4.
- on the B4 School Check information system (see section below)

1. Place one scoring transparency over the completed questionnaire.
2. Count only the numbers that show at the 0, 1 or 2 areas if any ticks are present.
3. Repeat steps 1 and 2 for each of the remaining four transparencies, then go to step 4.

4. Use the sheet headed Scoring the Informant-Rated Strengths and Difficulties Questionnaire (Appendix 6). Find each question then score the result.

   Note: This scoring sheet is based on the SDQ for older children, and the wording differs in three questions.

5. On the SDQ record sheet, fill in the number counted for the child for each of the five attributes: emotional, conduct, hyperactivity, peer problems and prosocial behaviour.

   Make sure that you record the score on the correct informant line (ie, parent or teacher).

6. Add the score for the first four attributes (emotional, conduct, hyperactivity, peer problems). Scores will show as 'normal', 'borderline' or 'abnormal' for each attribute and for the 'total difficulties' score.

   Important: Do not use the words 'borderline' or 'abnormal' when communicating the results back to the parent. Use the terms 'concerning' to acknowledge parents' concern.

7. Score the impact questions, if the parent or teacher answered 'yes' to the first 'overall' impact question and answered the subsequent impact questions.

8. For the questions on distress to the child and impact on the child's life (home life, friendships, learning and leisure activities), the following scores apply.

   - 'Not at all' and 'Only a little' are scored 0.
   - 'Quite a lot' is scored 1.
   - 'A great deal' is scored 2.

   The responses to questions on chronicity ('How long these difficulties have been present?') and burden ('Do the difficulties put a burden on you or the family?') are *not* included in the impact score. However, these can be taken into account when considering referral for children who have a high 'total difficulties score'.

   A total impact score of:

   - 2 or more is considered 'concerning'
   - 1 is 'some concern'
   - 0 is 'no concern'.

9. Record the impact score on the SDQ record sheet, making sure that you score on the correct informant line (ie, parent or teacher).

Guidance for interpreting scores

If the child's total difficulties score is between 17–40 for a parent-completed SDQ or 16–40 for a teacher-completed SDQ), **refer** the child for further assessment. See the 'Secondary assessments and referrals' section below.

Use the impact score to inform decisions about referrals, as it indicates the distress caused to the child by the problem and the degree of impact of the problem on various areas of the child's life.

If child's total difficulties score indicates 'some concern' (ie, 14–16 for a parent-completed SDQ or 12–15 for a teacher-completed SDQ), consider non-referral interventions. See the 'Secondary assessments and referrals' section below.

If the child's total difficulties score is 'no concern' (ie, 0–13 for a parent-completed SDQ or 0–11 for a teacher-completed SDQ), no further action is required.

Discuss the results of the questionnaire with the parent and any concerns that they raise.

Secondary assessment and referrals

The SDQ is a screening tool; it is not diagnostic. Therefore, it is only an initial indication of whether a child and their family/whānau may need support and/or intervention.

Total difficulties score between 17 and 40

A 'concerning' (prev. abnormal) total difficulties score on either of the SDQ-P or SDQ-T identifies possible mental health disorders, socio-emotional issues or other developmental disorders affecting the child and their family/whānau. The SDQ is significantly more sensitive when both the SDQ-P and SDQ-T have been completed than when only one has been completed.

Refer a child with 'concerning' scores to a paediatrician, a child mental health specialist or the Child and Adolescent Mental Health Services, or Group Special Education, depending on the type of further evaluation and management the child needs. A multidisciplinary team is the ideal referral pathway. The subscores may assist in defining the best referral pathway. This is best defined locally based on the experience and availability of expertise.

Review of 'concerning' total difficulties score

The cut-off for referral will be reviewed once the B4 School Check is rolled out across the country and more information about referrals becomes available. New Zealand norms will be developed once the B4 School Check programme has been established and there is sufficient data for a robust study.

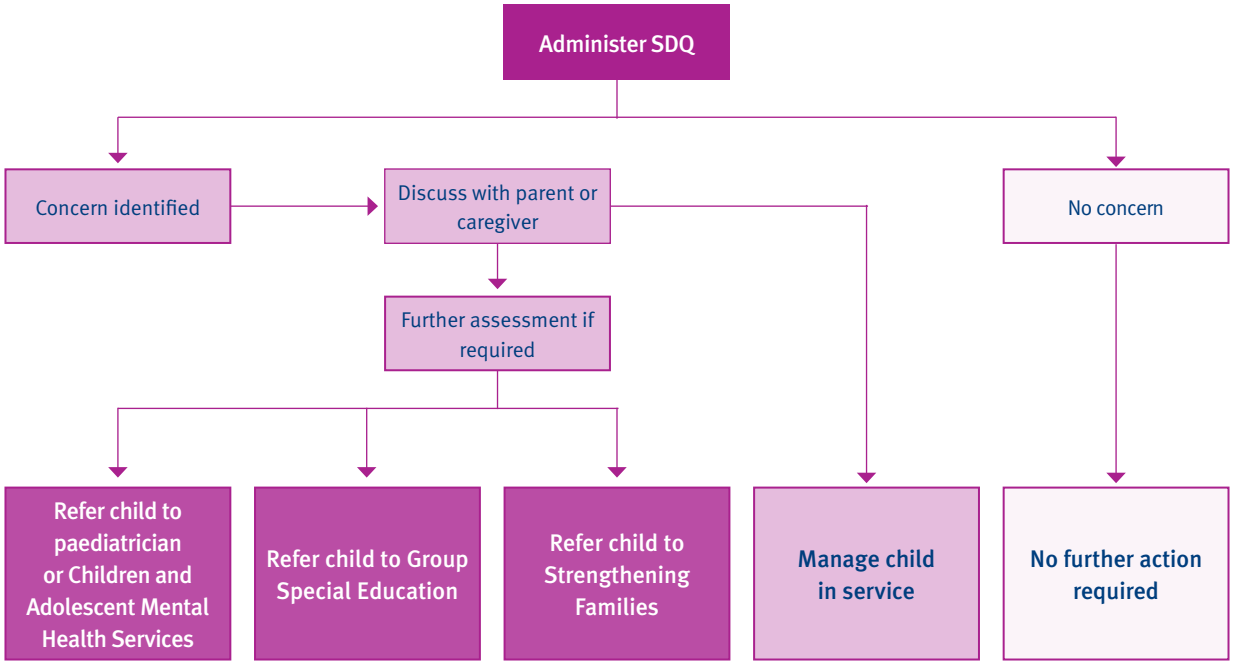
If problems are identified, refer children for diagnostic evaluation to determine their eligibility for services. Diagnostic evaluation involves an in-depth assessment with help from the family/whānau and has three outcomes. The diagnosis may be:

- of a mental health disorder, so formal intervention is needed
- behavioural issues that suggest some form of informal intervention may be helpful such as reading material or a play group
- normal behaviour (Tsiantis et al 2000).

‘Some concern’ (borderline) total difficulties score

If a child has a ‘some concern’ total difficulties score, discuss the child’s strengths and difficulties with their parent and teacher, and consider recommending targeted parenting programmes to support the child and their family/whānau.

Figure 3: Strengths and Difficulties Questionnaire (SDQ) clinical referral pathway



Developmental screening and surveillance

Introduction

Definition of ‘developmental delay’

The term ‘developmental delay’ is frequently used to describe children who experience delays in meeting developmental milestones in one or more streams of development. 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).

Risk factors for development delay

In addition to known risk factors for developmental dysfunction such as premature birth and low birth weight, exposure to an impoverished environment is 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 a child’s cognitive and behavioural development and is a modifiable risk factor for lack of readiness for school (Hertzman 2001, cited in Anderson et al 2002).

Link between 'developmental delay' and learning difficulties

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 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 parental stress are associated with a greater risk of language delay. Despite this, few studies have adequately documented the incidence of language delays in the presence of such factors (King et al 2005).

Developmental screening

Although routine developmental screening may detect extreme variations from 'normal' development, most disabilities and disorders are found by other means. They are often identified in a health professional's examination of the child in the period immediately after their birth. They are also often detected by a child's parents or family/whānau or professionals who are in regular contact with the child, closely observing the child, and/or following up children at risk, or noted opportunistically when a child is presented to health services for other reasons.

Children's development occurs along a continuum, so it can be difficult to separate 'normal' from 'abnormal' presentation at any precise age (Allen and Clarke 2006).

Developmental surveillance

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

Early intervention programmes 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 is undertaken more than once. This is effectively a surveillance approach.

Developmental delays may occur and be identifiable from birth or they may develop or be identifiable as a child ages. Changes to a child's environment, and potentially the environmental risk factors to which they are exposed, may also require screening to be repeated (Allen and Clarke 2005).

Parental Evaluation of Developmental Status

Introduction

The Parental Evaluation of Developmental Status (PEDS) is a questionnaire for parents to detect developmental and behavioural problems in children from birth to eight years.

The PEDS has 10 general questions about behaviour, development, speech and language, fine and gross motor skills (eg, 'Do you have any concerns about how the child talks and makes speech sounds?').

Parents fill in the questionnaire, and scoring is relatively easy with guidelines included with the questionnaire.

The PEDS and the scoring form are reproduced in Appendices 7 and 8.

Advantages of the questionnaire over other screening tools

The advantages of the PEDS over other screening tools are that it:

- is much shorter and simpler although no less sensitive and specific than other tests
- involves parents in the process
- covers an age span of birth to eight years
- is relatively low cost
- is generally well accepted and used by Australian and New Zealand health professionals.

Quality of the questionnaire

Although the questionnaire is short, it is highly sensitive and specific (Carter 2005). 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 74–79 percent and specificity of 70–80 percent (Glascoe and Shapiro 2004).

The PEDS has recently been adopted with small adaptations in Australia, which accepts the PEDS as a reliable way to elicit information from parents and undertake developmental surveillance. In Melbourne, early childhood educators have been trained in and have been trialling the PEDS since 2003. Initial feedback indicates that educators are finding the tool useful in their interactions with parents as it allows the discussion of concerns in a focused way (Australian Institute of Family Studies 2003).

The PEDS has also been used in the Fit 4 School programme in the Waikato district and in the B4 School Check pilots in Counties-Manukau and Whanganui districts.

Context of the questionnaire in the Well Child/Tamariki Ora Framework

In the context of the Well Child/Tamariki Ora Framework, the PEDS is being used as a surveillance tool rather than a screening tool. It is planned, as a result of the 2007/08 review of the framework, that the PEDS will be used for child developmental surveillance at five Well Child core contacts from age three or four months to two or three years. This recommendation will be progressed in 2008/09.

Evaluation

Evaluation of the B4 School Check pilot sites suggested that the behavioural and developmental questionnaires should be completed in a face-to-face interview with the nurse doing the check to mitigate any literacy or language barriers and to answer parents' questions.

Guidance for administering the questionnaire

For comprehensive guidance on administering the PEDS, see the PEDS booklet and training materials provided as part of the B4 School Check train-the-trainer programme. However, note the following points.

Time required to complete the questionnaire

The PEDS takes only a few minutes to administer.

Do not reword questionnaire and answers

Do not change the wording of the questions or answers, because this will change the validity of the tool.

Dealing with parents

Explain to the parent where and how the PEDS fits into the overall B4 School Check assessment.

Parents may be intimidated by the PEDS or it may raise anxieties about their child. Introduce and communicate the PEDS in a way that minimises parental anxiety and reassures parents about the purpose of the questionnaire.

Emphasise to parents that the purpose of the PEDS in relation to the B4 School Check is not to judge or label children, but to make sure the child has no problems that might hinder the child from learning and to get appropriate support and help for the child and family/whānau if any problems are identified.

Completing the questionnaire

The PEDS should be filled in as part of a face-to-face interview.

Ask the parent whether they would like you to go through the questionnaire with them or whether they would prefer to fill it in on their own. If the parents wants to complete the questionnaire on their own, do not assume that the parent is literate or illiterate.

Discussing and communicating results

Try to keep any discussion to after the parent or teacher has finished the questionnaire, although sometimes you will need to acknowledge what the parent or teacher is saying immediately.

A full discussion with the parents of the results of the questionnaire is vital for three reasons.

- It is important to establish the level and nature of any difficulties clearly. (Information from other sources is also relevant for this purpose.)
- The child's overall score may be below the cut-off point indicative of a problem, but some issues may still be important to the respondent. The parent's response to a single item might provide the cue.
- It is crucial you understand how the child, parent and other family/whānau members are responding to how the child is and what the child is doing and saying.

More information

More information about issues and questions that may arise during the administration of the PEDS is available in the toolkit provided for B4 School Check practitioners.

Procedure for administering the questionnaire

Follow this procedure to administer the PEDS.

Have ready the:

- PEDS questionnaire (reproduced in Appendix 7)
- score form (reproduced in Appendix 8)
- interpretation form (reproduced in Appendix 9).

1. Briefly explain the PEDS to the parent (or other caregiver) and answer their questions.
2. Ask the parent whether they would like you to go through the PEDS with them or whether they would prefer to fill it in on their own.
3. If the parent wants you to go through the PEDS with them:
    - read the 10 questions and record the parent's answers by circling 'No', 'Yes' or 'A little'
    - note any comments from the parent in response to the questions.
4. Score and interpret the parent's responses.

Guidance for scoring and interpreting the questionnaire

For comprehensive guidance on scoring and interpreting the PEDS, see the PEDS booklet and training materials provided as part of the B4 School Check train-the-trainer programme. However, note the following points.

Procedure for scoring the parent questionnaire

Follow this procedure to score the PEDS.

Have ready the:

- completed PEDS questionnaire
- score form
- interpretation form.

1. Fill out the child's name and date of birth and the date of scoring.
2. Locate the correct age column on the score sheet (ie, four years equals 48 months).
3. Categorise parents' concerns into the most appropriate domain (ie, match their comments with the appropriate category, such as 'global/cognitive', 'expressive language and articulation', 'fine motor').

    Use your skills and knowledge to make a judgment about the domain in which the concern fits. See the PEDS training booklet for more guidance.
4. Transfer the parent responses to the score form.
5. For every concern that is 'Yes' or 'A little', tick the appropriate domain box.

6. Summarise concerns on the score form: significant (shaded boxes) and non-significant (non-shaded boxes).

7. Interpret the score (see the procedure below or the PEDS training booklet for more guidance).

Procedure for interpreting the score

Follow this procedure to interpret the PEDS score.

Have ready the:

- completed score form
- interpretation form.

1. Determine the appropriate clinical referral path from the interpretation form. (See also Figure 4.)
    - Two or more significant concerns – decide whether audiology and speech or cognitive or both: follow Pathway A.
    - One significant concern – a secondary screen is needed (refer to your DHB's referral pathway for PEDS): follow Pathway B.
    - Non-significant concern – counsel the parent in the area of difficulty and arrange follow up if necessary: follow Pathway C.
    - Parental communication difficulty – you may need an interpreter or to consider a different screen (refer to your DHB's protocol): follow Pathway D.
    - No concerns – no further action required: follow Pathway E.

2. Discuss the results of the PEDS with the parent, and offer advice or referral if necessary, as determined by the referral pathways.

Secondary assessment and referrals

No recommendations about type of secondary assessment

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

No recommendation is made about the type of secondary level assessment that should be performed or by whom it should be undertaken. However, several services are using the Ages and Stages Questionnaire (ASQ).

Ages and Stages Questionnaire (ASQ)

The ASQ is a parent-completed questionnaire designed for children aged from four months to five years. It asks questions about communication, gross motor, fine motor, and problem-solving skills, and personal and social development (Carter 2005).

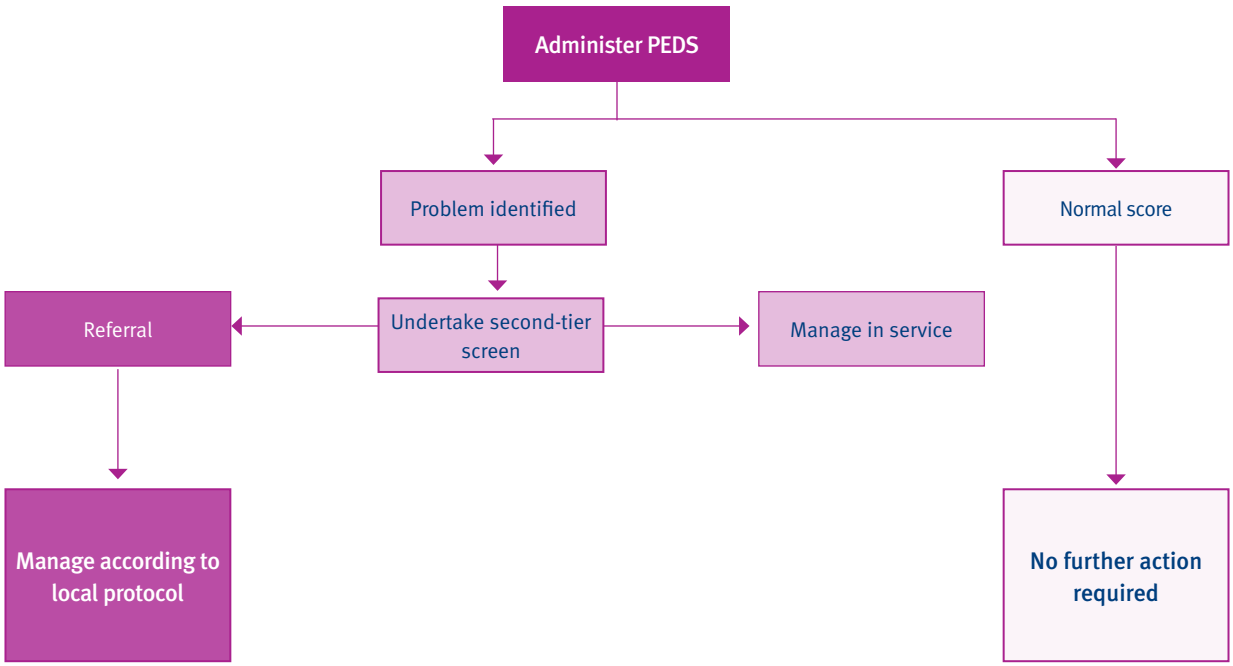
The ASQ also has a social/emotional (ASQ-SE) component, which is also is a parent-completed questionnaire. The questionnaire covers self-regulation (ie, the ability to calm down when upset), compliance, communication, adaptive functioning (ie, sleeping and eating), autonomy, affect and interaction with people. It asks about both positive and negative characteristics, and is highly sensitive and specific.

Scoring of the ASQ-SE is simple after some training. It complements the Ages and Stages Questionnaire which assesses development (see *http://www.brookespublishing.com/store/books/squires-asqse/ASQ-SE_Overview.pdf*)

More information

For more information, see the further reading list in Appendix 11.

Figure 4: Parental Evaluation of Developmental Status (PEDS) clinical referral pathway



8 Growth Measurement and Monitoring

Introduction

Appropriate nutrition during childhood is essential for the maintenance of growth and good health. Achieving a healthy body weight and composition is of importance in preventing disease and promoting wellbeing. Health risks are associated with being both over and underweight. Efforts to achieve a healthy body weight should begin in childhood.

The prevalence of obesity is increasing in New Zealand as it is worldwide. Over half the adult population in New Zealand is overweight or obese. Action is needed to halt and then reverse the increase in overweight and obesity and this includes strategies for both preventing and managing obesity.

Weight monitoring

As part of a comprehensive strategy to prevent and manage obesity and its associated chronic diseases, population monitoring is required. Of the candidate indicators of obesity, the body mass index (BMI) seems to be the best available. Although not a perfect measure, the BMI is a reasonable indicator of body adiposity or body fatness.

A core part of the Ministry of Health's B4 School Check is for all children to have their height and weight measurements taken and recorded. A BMI will be calculated and will be used to monitor the population's progress. The B4 School Check practitioner will not discuss this with the parents, because it is only being collected as a population level indicator. Except where children measure extremely overweight on the height/weight chart, a BMI measurement will be used to determine referrals.

Purpose of height and weight monitoring

The height and weight measurements collected from children will be used to:

- identify children with unrecognised growth problems and provide an opportunity for referral for advice and treatment if necessary
- monitor changes in the height, weight and BMI of New Zealand children as a group
- inform public health policy and planning.

Referrals and interventions

For each individual child's B4 School Check:

- plot their height and weight on growth charts
- provide their parents with information about healthy eating and healthy activity. The Eating Healthy for 2-12 year olds pamphlet is available from HealthEd resources, and pamphlets on physical activity can be found on SPARC's website www.sparc.govt.nz

Children in less than the third percentile for height and weight

Refer to general practice a child who is in less than the third percentile for height and weight using the World Health Organization (WHO) growth standards (see Appendix 10).

Children whose BMI is 21 or over

Refer only children who are extremely overweight, that is, have a BMI of 21 or over. In such cases, refer the child to general practice for ongoing weight monitoring and management of the complications of obesity.

Children whose BMI is less than 21

Do not refer overweight children whose BMI is less than 21, but give their parents information on healthy eating and healthy activity. Referral is not recommended because there is limited evidence of the effectiveness of interventions for this level of childhood obesity (Whitlock et al 2005).

Measurement protocols[1]

Beginning the measurements

Before undertaking the measurements, it is essential to have all the correct equipment in place and a working space that ensures the child's privacy.

Explain the procedures to the parent (if present) and the child. Obtain consent from the child's parent (or guardian) and the child.

Setting

To measure a child's weight and height you need:

- a Leicester Height Measure portable stadiometer (or a SECA 214 portable stadiometer)
- a Seca 862 electronic floor scale or Tanita WB 100 S MA floor scale (or Seca 770 or Tanita HD-351 weighing scale)
- a piece of wood 18 mm x 50 cm x 50 cm
- recording sheets or a laptop computer.

Measurements must be taken with the equipment standing on a hard surface, so make sure the room has a hard floor or place the piece of wood under the stadiomenter and scales.

Measure the child's weight to the nearest 100 gm (0.1 kg) on a set of commercial portable scales, which are calibrated regularly (at least every six months).

Send enquiries about equipment that falls outside the recommended models to the Child, Youth and Maternity Team at the Ministry of Health (email well_child@moh.govt.nz).

1 Amended from the Public Health Intelligence's New Zealand Health Monitor Survey Programme Anthropomorphy Protocols (written with assistance from Professor Mike Marfell-Jones, UCOL, and Professor Barry Taylor, University of Otago).

Averaging measurements

Take two readings of each measurement: height and weight then height and weight again. If the two readings do not vary by more than 0.5 kg for weight or 0.5 cm for height, the child's final height and weight readings are the average of the two readings. Record the final reading to the nearest 0.1 cm or 0.1 kg.

If the two readings vary by more than 0.5 kg for weight or 0.5 cm for height, take a third reading. If three readings are taken, the final reading is the average of the two closest measurements.

Measurements will often vary, so do not be concerned when they do. It would be more strange if the readings were always the same.

Procedure for preparing the child for measuring

Follow these steps to prepare the child for measuring.

Communicate with the child at each step of the process, using language appropriate for a four year old.

1. Explain to the child what you are going to do. For example, say:

   'I'm going to measure how tall you are, and then how much you weigh.'

   'Then I'm going to take those measurements again, and, if any of the second measures are not close enough to the first ones, I'll measure you a third time.'

2. Ask the child to take off their shoes, any heavy outer clothing, any headwear, and any hair ornaments that could affect the accuracy of the height measurement. For example, say:

   'Please take off your shoes and your [hat, coat, jacket, jumper].'

3. Measure children in light day clothing (eg, shorts or a light skirt and a t-shirt or singlet).

   Note: Inform parents about the required clothing when the B4 School Check is being booked.

Height

Equipment for measuring a child's height

To measure a child's height you need:

- a Leicester Height Measure portable stadiometer (or a SECA 214 portable stadiometer)
- a piece of wood 18 mm x 50 cm x 50 cm
- recording sheets or a laptop computer.

Send enquiries about equipment that falls outside the recommended models to the Child, Youth and Maternity Team at the Ministry of Health (email well_child@moh.govt.nz).

Setting for measuring a child's height

Measurements must be taken with the equipment standing on a hard surface, so make sure the room has a hard floor or place the piece of wood under the stadiometer.

Assembling the stadiometer

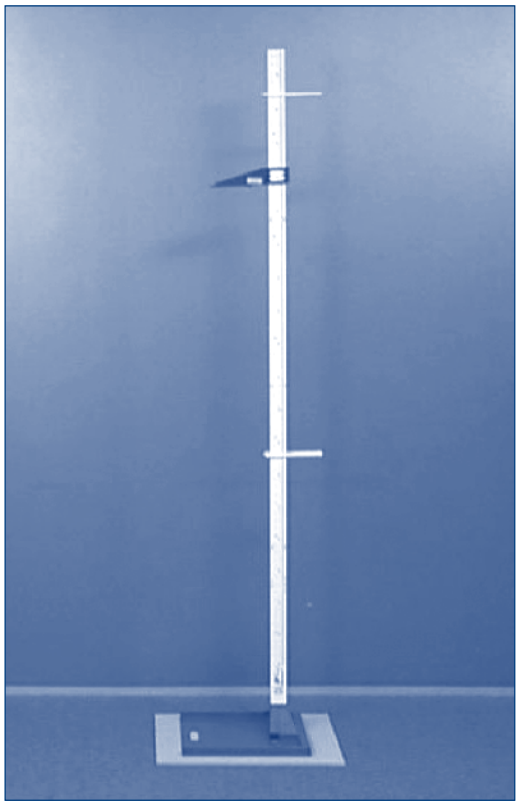
Follow this procedure to assemble the eight-piece stadiometer.

The stadiometer comes in eight pieces:

- a blue base
- four measurement rods
- two white stabilisers
- a blue headboard.

1. Place the blue base of the stadiometer on the floor, close to a wall.
2. Slot the measurement rods into the base of the stadiometer in the correct order. Start with the rod that has a large arrow facing down. Make sure it is inserted fully.
3. Add one of the white stabilisers with the long arm pointing backwards toward the wall, followed by the blue headboard facing forward, and then the second stabiliser facing backward.
4. Connect the next three measurement rods in order, making sure that the symbols match (stars, then circles, then squares).
5. Move the top stabiliser and the headboard above the 2 m mark and leave the other stabiliser down low.
6. Push the completed stadiometer closer to the wall, so that both stabilisers are touching the wall. (See the assembled stadiometer in Figure 5.)

Figure 5: Assembled stadiometer



Procedure for measuring a child's height

Follow these steps to measure the child's height.

1. Ask the child to stand on the centre of the stadiometer's base with their back to the stadiometer. For example, say:

   'Please stand on the centre of the base with your back to the measuring machine.'

2. Ask them to stand with their feet 2–3 cm apart and move back until their heels touch the bottom of the stadiometer upright. Their buttocks and upper part of their back should also be touching the stadiometer upright. Their head does not have to touch the stadiometer. For example, say:

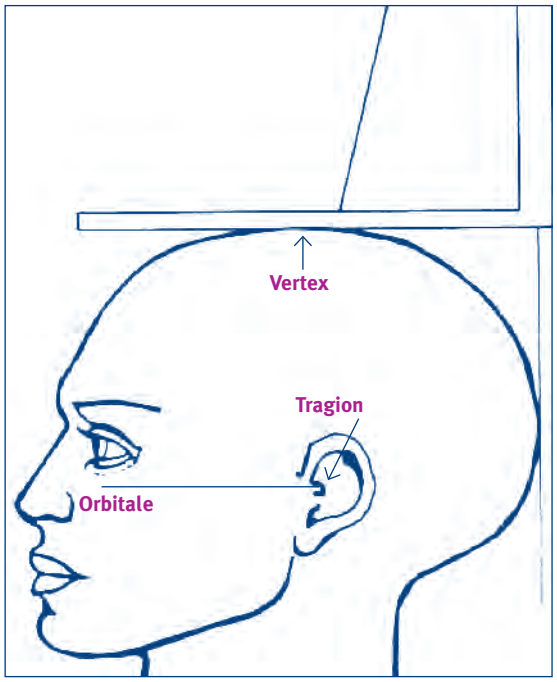
   'Put your feet together and move them back until your heels touch the back of the measuring machine. Stand up straight and look straight ahead.'

The child's head should be in the Frankfort Plane. This is achieved when the lower edge of the child's eye socket (the orbit) is horizontally aligned with the middle of the child's ear canal (the tragus) (See Figure 6). The vertex is the highest point on the child's head.

If the child's head is not aligned properly (and it probably will not be), ask the child to look up or down a little until it is in the Frankfort Plane. For example, say:

'Please look up [or look down] a little bit.'

Figure 6: Height measurement: Frankfort Plane



Source: Adapted from the ISAK Manual (2006).

3. When you are happy the child is in the correct position, ask them to take a deep breath and hold it. For example, say:

   'Take a deep breath and hold it.'

4. Lower the blue headboard until it is in contact with the child's head. Compress the child's hair if needed. Do not bend the headboard from the horizontal or move the child's head.

5. Hold the headboard firmly at its final position. Your head should be at eye-level with the child to avoid inaccurate readings. Take the reading to the nearest 0.1 cm (See Figure 7).

6. When you have completed the reading, ask the child to step away from the stadiometer. For example, say:

   'That's good, thank you. You can breathe normally now and step away from the measuring machine.'

7. Record your reading straight away.

See the section 'Averaging measurements' to get the child's final height.

Figure 7: Taking a reading from a stadiometer

Weight

Equipment for weighing a child

To measure a child's weight you need:

- a Seca 862 electronic floor scale or Tanita WB 100 S MA floor scale (or Seca 770 or Tanita HD-351 weighing scale), which is calibrated regularly (at least every six months)
- a piece of wood 18 mm x 50 cm x 50 cm
- recording sheets or a laptop computer.

Send enquiries about equipment that falls outside the recommended models to the Child, Youth and Maternity Team at the Ministry of Health (email well_child@moh.govt.nz).

Setting for weighing the child

Measurements must be taken with the equipment standing on a hard surface, so make sure the room has a hard floor. If carpet is the only floor covering in the measurement location, put the piece of wood on the carpet and place the scales on the board.

Procedure for weighing the child

Follow this procedure to weigh the child.

1. Press firmly on the centre of the scales to turn them on. Say, for example:

   'Wait until the scales say zero.'

2. Once the zeros appear, ask the child to stand on the scales. For example, say:

   'Please step onto the centre of the scale with your weight on both feet.'

3. Ask the child to stand on the centre of the scales without support, with their arms loosely by their sides, head facing forward and with their weight distributed evenly on both feet. Tell the child to relax.

4. A reading will appear in a few seconds. The numbers will change, and then stop.

   Once the numbers have stopped, **take the reading to the nearest 100 gm (0.1 kg)**.

5. Ask the child to step off the scale. For example, say:

   'Thank you. You can step off the scales now.'

6. Record the reading straight away.

See the section 'Averaging measurements' to get the child's final weight.

Repeating the measurements

Once you have measured height and weight once each, repeat the measurements, in order, using the same techniques as previously.

Comment or instructions to children

'I'm now going to repeat all the measures, starting with height again.'

Third measurements

If you need to take a third reading on any of the measures, do so in the same manner as for the previous measurements.

Comment or instructions to children

'I'm now going to take a third measure of your _____.'

Plotting and interpreting height and weight measurements

Procedure for plotting the height and weight measurements

Follow this procedure for plotting the measurements.

1. Download the WHO growth charts for four-years-olds from http://www.who.int/childgrowth/standards/en (see Appendix 10).

   If the B4 School Check is being provided when the child is aged five (ie, after the child has started school), use the updated WHO growth reference charts for 5–19-year-old boys and girls (5–10 years for the weight-for-age chart) (see WHO 2008b).

2. Determine the child's age in years and months. On the height-for-age chart, find the child's age on the horizontal axis. Use a straight edge or right-angle ruler to draw a vertical line up to that point.

3. Find the child's height measurement on the vertical axis. Use a straight edge or right-angle ruler to draw a horizontal line across from that point until it intersects the vertical line.

4. Make a small dot where the two lines intersect.

5. On the height-for-age chart, find the child's age on the horizontal axis. Use a straight edge or right-angle ruler to draw a vertical line up to that point.

6. Find the weight measurement on the vertical axis. Use a straight edge or right-angle ruler to draw a horizontal line across from that point until it intersects the vertical line.

7. Make a small dot where the two lines intersect.

Interpreting the measurements

The curved lines on the growth charts show selected percentiles that rank the child's measurement. For example, when the dot is plotted on the 97th percentile line for weight-for-height it means that only 3 out of 100 children (3 percent) of the same age and gender in the reference population have a higher weight-for-age measurement.

On the BMI chart, plot the child's height on the horizontal axis, and the weight on the vertical axis. Mark the point on the chart.

See the section 'Referral criteria' below.

Referral criteria

See Figures 8 and 9.

Height

Child's height is in less than the third percentile

If the child's height is in less than the third percentile on the height-for-age chart:

- refer the child to primary health care
- give the child's parent or caregiver information about healthy eating and healthy activity.

Child is taller than average

If the child is taller than average, no referral is needed.

Weight

Child's weight in less than the third percentile

If the child's weight is less than the third percentile on the weight-for-age chart and/or their growth crosses two percentiles downwards:

- refer the child to primary health care
- give the child's parent or caregiver information about healthy eating and healthy activity.

Child weight is greater than the 97th percentile and body mass index is 21 or over

If the child's weight is greater than the 97th percentile on the weight-for-age chart, plot the child's height and weight on the body mass index chart. If that point is on or above the line (which represents a body mass index of 21) (see Figure 9):

- refer the child to primary health care for ongoing weight monitoring and the management of the complications of obesity
- give the child's parent or caregiver information about healthy eating and healthy activity.

Child weight is greater than the 97th percentile and body mass index is under 21

If the child's weight is greater than the 97th percentile on the weight-for-age chart, plot the child's height and weight on the body mass index chart. If that point is below the line (which represents a body mass index of 21) (see Figure 9):

- no referral is necessary
- give the child's parent or caregiver information about healthy eating and healthy activity.

More information

For more information, see the further reading list in Appendix 11.

Figure 8: Weight and height referral pathways

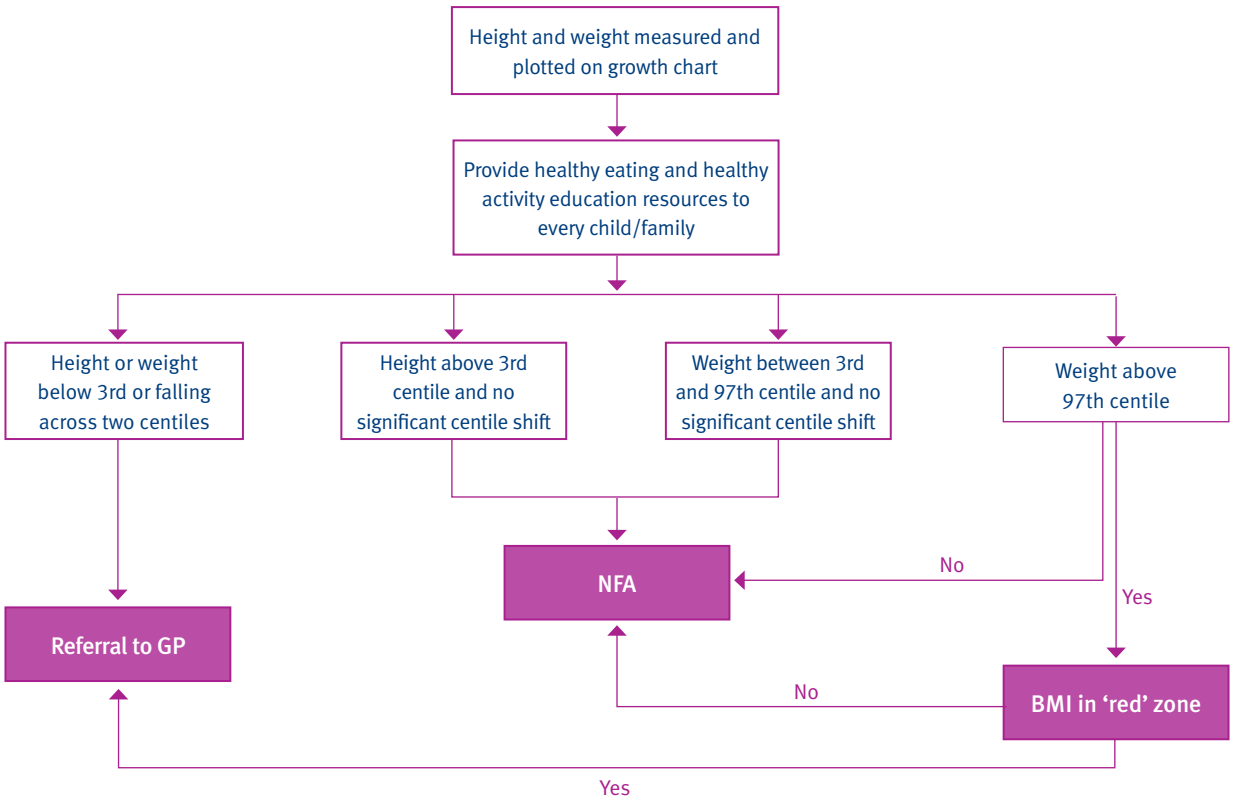
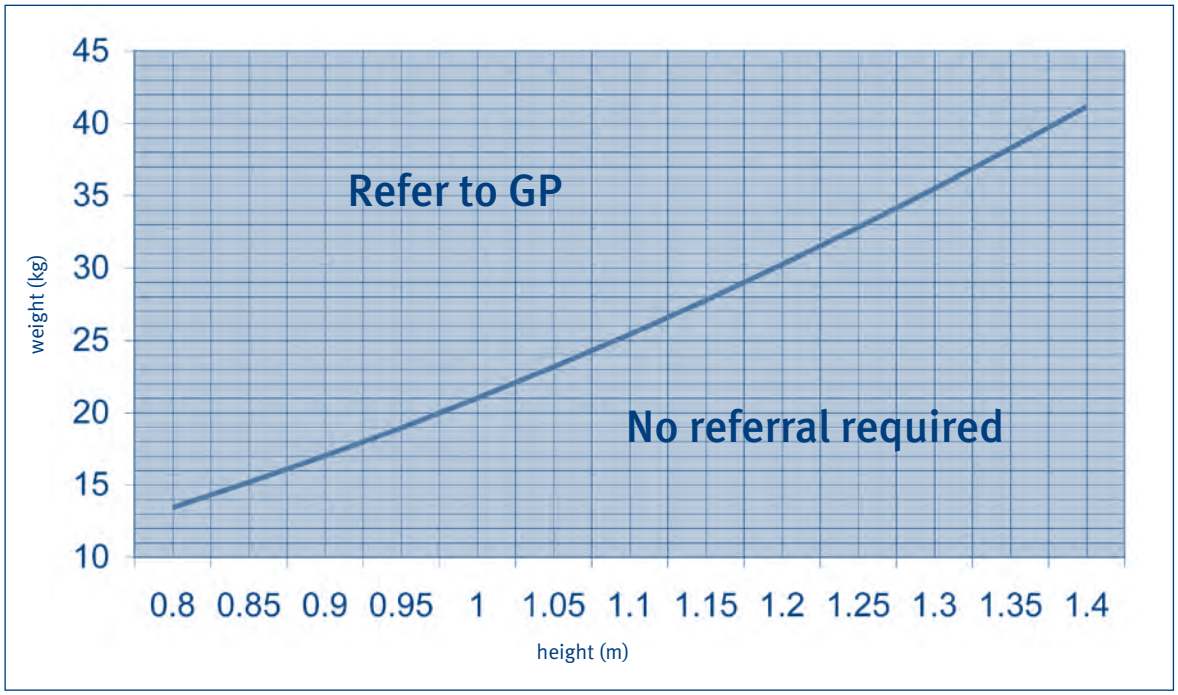


Figure 9: Weight referral chart



Appendix 1: B4 School Check Information for Parents and Guardians pamphlet and consent form

The B4 School Check Information for Parents and Guardians pamphlet and consent form (HP 4632) can be downloaded from the Ministry of Health's website (http://www.moh.govt.nz/moh.nsf/pagesmh/7743/$File/b4schoolcheck-pamphlet.pdf). The text is reproduced below for your information.

What is the B4 School Check?

The B4 School Check is a free check for four year olds. The Check helps to make sure your child is healthy and can learn well at school. It is a chance to discuss your child's health and development with a nurse.

The B4 School Check is the final Well Child check. It is not designed to pick up every health problem your child might have, so if you have any concerns about your child at any time, talk to your family doctor.

We want you to be involved. We need your help to fill out two questionnaires about your child's development and behaviour. An early childhood educator or teacher who knows your child well will also be asked to fill out the behavioural questionnaire. Your child will also have their vision and hearing tested.

How does my child get a B4 School Check?

Your local B4 School Check provider will invite you and your child to attend and will ask for your consent.

How does the B4 School Check happen?

The B4 School Check usually takes about 45–60 minutes. Most of it will be done by a nurse with you there because you know your child best. Your child's eyesight and hearing will usually be tested by vision and hearing technicians, and this test may happen separately.

If you or the nurse think your child has a possible problem or difficulty, the nurse will discuss this with you and offer to refer you to other services that may help. The nurse can also help if your child has missed out on any immunisations.

What happens after the B4 School Check?

After your child has had their B4 School Check the nurse will discuss the Check with you and you can get a copy of the results. If your child has a Well Child Tamariki Ora Health Book, bring it along to the B4 School Check and the nurse will fill out the details.

If your child needs anything more, the nurse will offer to refer them to another service. This could be to another nurse, a doctor, a specialist such as a paediatrician or speech–language therapist, the dental service, or someone who can help with behavioural problems. If a referral is needed you will be asked for your permission to pass on your child's information.

What happens to information collected as part of the B4 School Check?

At the B4 School Check the nurse will explain what happens to the information collected, who will have access to it, and what will be shared with your family doctor, early childhood centre or kōhanga reo, and the school your child is going to attend or attends.

For more information about the B4 School Check:

- talk to your family doctor or nurse, Well Child Tamariki Ora provider or public health nurse
- visit the Ministry of Health's website (www.moh.govt.nz/b4schoolcheck).
- call the free 24-hour health advice service Healthline (0800 611 116), which includes a Well Child line that provides parenting advice and health education information.

B4 School Check Consent Form

Please discuss the information about consent with the person delivering the B4 School Check. If you do not consent we will keep only your contact details and a record of your non-consent so we do not contact you again. If you do not consent but still have concerns about your child, please see your GP.

Child's Details

Name of child ..... Date of birth .....

Name on birth certificate (if different from above) .....

Usual home address of child .....

Usual home phone number .....

Has your child had a B4 School Check? Yes ☐ No ☐
If yes, do not fill out the rest of the form.

When your child has a B4 School Check:

- You will be involved by helping us complete the child health check and filling out two questionnaires about your child's development and behaviour. An early childhood educator or teacher who knows your child well will also be asked to fill out the behavioural questionnaire. Your child will also have their vision and hearing tested.
- The results of your child's B4 School Check will be given to your family doctor. Only the vision and hearing test results will be given to his/her early childhood education centre, kōhanga reo, and/or school. The sharing of further information will need your permission.
- Your child's name, date of birth, ethnicity and National Health Index (NHI) number will be recorded by your B4 School Check provider and stored in the national information system along with the results of the Check.
- Any information stored can only be accessed by properly authorised people who are working with your child; and are co-ordinating the B4 School Check, or who are managing the information system.

I _____

Print full name of parent or legal guardian

understand what the B4 School Check involves and

I give my consent to the B4 School Check ☐

I do not give my consent to the B4 School Check ☐

Signature of parent or legal guardian: _____

Date: _____ Checked by: _____
(for office use only)

Appendix 2: B4 School Check Informed Consent Standard

Standard

1. The child's parent(s)/legal guardian(s) is/are provided with full and accurate information in order for the parent/legal guardian to give their informed consent to the B4 School Check, which may include referrals to other services[2].

Quality Indicator

2. Each child's parent/legal guardian is sufficiently informed about the B4 School Check, how it operates, what it involves and its limitations (i.e it is a screening exercise rather than a diagnostic assessment, which may also be required) and given timely, accurate, sufficient and relevant information. The information must be communicated clearly, enabling an informed choice about participation of their child in the B4 School Check by the child's parent/legal guardian.

Criteria

3. B4 School Check providers must ensure that:

   - the requirements of the Health and Disability Code of Consumer Rights 5, 6 and 7 are fully met[3];
   - the service clearly identifies and documents how and when consent for the B4 School Check is obtained and where this is to be recorded[4];
   - the parent/legal guardian consents to the child's identified results, or a subset of the results, of the B4 School Check being sent to other parties. Those other parties may include, and limited to, the child's doctor and/or the Well Child/Tamariki Ora Nurse, Early Childhood Education Centre/Kohanga Reo and/or school (if relevant), the Ministry of Health, and Ministry of Education.

4. B4 School Check providers must provide the child's parent/legal guardian with:

   - sufficient and relevant information in an appropriate manner that s/he understands, and that enables her/him to give informed consent in relation to the criteria set out in paragraph 5 below;
   - information that is appropriately conveyed in language, culture and manner;
   - access to an appropriately qualified and/or authorised person to answer his/her questions about the Check;
   - advice that she/he can decline the B4 School Check and/or referral services at any time and the consequences of that decision.

2 Standard complies with the requirements of the Code of Health and Disability Service Consumer Rights

3 Code of Rights 5, 6 and 7 include the right to effective communication, the right to be fully informed, the right to make an informed choice, and the right to give informed consent.

4 Consent may be obtained over the telephone if necessary provided the person is identifiable as the parent/legal guardian and the full explanation is given.

5. To ensure sufficient information has been provided, providers must discuss all of the following:

   - the purpose of the B4 School Check;
   - the difference between the checks conducted as part of the B4 School Check and referral to diagnostic services (for hearing, vision, general health (including oral health), behavioural or developmental concerns), including an explanation that the various screens conducted are screens only and as such the inherent limitations in conducting such screens;
   - the screens, procedures, equipment and health issues involved, in addition to other details that may be required by the parent/legal guardian;
   - how and when the B4 School Checks will be provided;
   - the objectives, benefits and limitations of participating in the B4 School Check; and
   - that the parent/legal guardian may decline the B4 School Check, if she/he wishes to do so
   - the parent/legal guardian is informed that information obtained during the B4 School Check will be stored on the national B4 School Check information system
   - that the parent/legal guardian may withdraw consent for their child's
   - information to be stored on the B4 School Check information system at any point.

6. DHBs must provide written pamphlets to a child's parent/legal guardian, which detail the information discussed above.

7. B4 School Check providers should ensure that those parents/legal guardians who decline to consent to a B4 School Check are:

   - provided with information as to how they can monitor and promote their child's health (e.g. hearing and vision) and development and who can assist them
   - advised that if they have concerns about their child's health or development at any time the child's parent/legal guardian should talk to the child's doctor or Well Child provider
   - asked to consent to the name, National Health Index number (NHI), date of birth and ethnicity being kept to monitor coverage and quality of the B4 School Check.

Legislation

Code of Health and Disability Consumer Rights 1996
Privacy Act and Health Information Privacy Code 1994
New Zealand Bill of Rights Act 1990
Care of Children Act 2004
Public Records Act 2005

Reference

Ministry of Health, 1998, Consent in Child and Youth Health: Information for Practitioners

Appendix 3: Child Health Questionnaire for the B4 School Check

MINISTRY OF HEALTH
MANATŪ HAUORA

B4 SCHOOL CHECK CHILD HEALTH QUESTIONNAIRE

To be filled out by parent/caregiver/guardian

Child's details

Family name: _____

First name/s: _____

Also known as: _____

Date of birth: ___/___/___ Boy ☐ Girl ☐ NHI number if known: _____

Home address: _____

_____

Ethnicity: *Tick all the boxes that apply.*

☐ New Zealand European	☐ Cook Island Māori	☐ Chinese
☐ Māori	☐ Tongan	☐ Indian
☐ Samoan	☐ Niuean	☐ Other _____

Language/s spoken at home: _____

Details of one or more parents/caregivers/guardians

Name/s: _____ Relationship to child: _____

Address: _____

_____

Phone: Home _____ Work _____ Mobile _____

Name/s: _____ Relationship to child: _____

Address: _____

_____

Phone: Home _____ Work _____ Mobile _____

1/3

Do you have any other children in your care? Yes ☐ No ☐

Name	Age	M/F	Name	Age	M/F

Who is your family doctor? _____

Medical centre: _____

Who is your Well Child provider? _____

Who is your iwi provider (if any)? _____

Which preschool, if any, does your child attend? _____

Location of preschool: _____

Which school will your child attend when they start school? _____

Immunisation: Tick the box or boxes to show at which age or ages your child was immunised, and whether they have had any or all of the three Meningococcal B vaccinations:

☐ 6 weeks ☐ 5 months ☐ 4 year

☐ 3 months ☐ 15 months Meningococcal B: ☐ 1 ☐ 2 ☐ 3

Has your child spent time in hospital? Yes ☐ No ☐

If yes, details: _____

_____

_____

_____

_____

_____

_____

_____

Does your child have any of the following?

Condition	Yes	No	Regular medication	Action plan
Asthma				
Food intolerance				
Eczema or other skin condition				
Heart condition				
Epilepsy or fits				
Chronic chesty cough				
Allergies				
• What is your child allergic to?				
• What was the child's allergic reaction?				

Medication

Is your child on any medication? Yes ☐ No ☐

Please list: _____

_____

Dental health

Do you have any concerns about your child's teeth? Yes ☐ No ☐

Has your child been to a dental therapist in the past 1–2 years? Yes ☐ No ☐

Eye health

Does your child wear glasses? Yes ☐ No ☐

Ear health

Has your child had (or is planned to have) grommets or tubes inserted? Yes ☐ No ☐

Does your child have any other conditions or disabilities? Yes ☐ No ☐

If yes, please comment: _____

_____

Services

Are you or your family getting help or support from any services? Yes ☐ No ☐

If yes, which services? _____

_____

Do you have any concerns about your child's health that you would like to talk about with the registered nurse or B4 School Check team?

_____

_____

3/3

Appendix 4: Strengths and Difficulties Questionnaire for Parent of Three- or Four-Year-Old

Strengths and Difficulties Questionnaire

P 3/4

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	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children, for example toys, treats, pencils	☐	☐	☐
Often loses temper	☐	☐	☐
Rather solitary, prefers to play alone	☐	☐	☐
Generally well behaved, usually does what adults request	☐	☐	☐
Many worries or often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, depressed or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often argumentative with adults	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often offers to help others (parents, teachers, other children)	☐	☐	☐
Can stop and think things out before acting	☐	☐	☐
Can be spiteful to others	☐	☐	☐
Gets along better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Good attention span, sees work through to the end	☐	☐	☐

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 one or more of the following areas: emotions, concentration, behavior or being able to get on with other people?

No	Yes-minor difficulties	Yes-definite difficulties	Yes-severe difficulties
☐	☐	☐	☐

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
☐	☐	☐	☐

- Do the difficulties upset or distress your child?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

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

	Not at all	Only a little	Quite a lot	A great deal
HOME LIFE	☐	☐	☐	☐
FRIENDSHIPS	☐	☐	☐	☐
LEARNING	☐	☐	☐	☐
LEISURE ACTIVITIES	☐	☐	☐	☐

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

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Signature ..... Date .....

Mother/Father/Other (please specify:)

Thank you very much for your help

Appendix 5: Strengths and Difficulties Questionnaire for Teacher of Three- or Four-Year-Old

Strengths and Difficulties Questionnaire

T 3/4

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	☐	☐	☐
Restless, overactive, cannot stay still for long	☐	☐	☐
Often complains of headaches, stomach-aches or sickness	☐	☐	☐
Shares readily with other children, for example toys, treats, pencils	☐	☐	☐
Often loses temper	☐	☐	☐
Rather solitary, prefers to play alone	☐	☐	☐
Generally well behaved, usually does what adults request	☐	☐	☐
Many worries or often seems worried	☐	☐	☐
Helpful if someone is hurt, upset or feeling ill	☐	☐	☐
Constantly fidgeting or squirming	☐	☐	☐
Has at least one good friend	☐	☐	☐
Often fights with other children or bullies them	☐	☐	☐
Often unhappy, depressed or tearful	☐	☐	☐
Generally liked by other children	☐	☐	☐
Easily distracted, concentration wanders	☐	☐	☐
Nervous or clingy in new situations, easily loses confidence	☐	☐	☐
Kind to younger children	☐	☐	☐
Often argumentative with adults	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often offers to help others (parents, teachers, other children)	☐	☐	☐
Can stop and think things out before acting	☐	☐	☐
Can be spiteful to others	☐	☐	☐
Gets along better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Good attention span, sees work through to the end	☐	☐	☐

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 on with other people?

No	Yes- minor difficulties	Yes- definite difficulties	Yes- severe difficulties
☐	☐	☐	☐

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
☐	☐	☐	☐

- Do the difficulties upset or distress the child?

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

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

	Not at all	Only a little	Quite a lot	A great deal
PEER RELATIONSHIPS	☐	☐	☐	☐
LEARNING	☐	☐	☐	☐

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

Not at all	Only a little	Quite a lot	A great deal
☐	☐	☐	☐

Signature ..... Date .....

Thank you very much for your help

Appendix 6: Scoring the Informant-Rated Strengths and Difficulties Questionnaire

Scoring the Informant-Rated Strengths and Difficulties Questionnaire for 3-4 year olds

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.

Emotional Symptoms Scale	Not True	Somewhat True	Certainly True
Often complains of headaches, stomach-aches or sickness	0	1	2
Many worries or often seems worried	0	1	2
Often unhappy, depressed or tearful	0	1	2
Nervous or clingy in new situations, easily loses confidence	0	1	2
Many fears, easily scared	0	1	2

Conduct Problems Scale	Not True	Somewhat True	Certainly True
Often loses temper	0	1	2
Generally well behaved, usually does what adults request	2	1	0
Often fights with other children or bullies them	0	1	2
Often argumentative with adults	0	1	2
Can be spiteful to others	0	1	2

Hyperactivity Scale	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
Can stop and think things out before acting	2	1	0
Good attention span, can see work through to the end	2	1	0

Peer Problems Scale	Not True	Somewhat True	Certainly True
Rather solitary, prefers 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 along better with adults than with other children	0	1	2

Prosocial Scale	Not True	Somewhat True	Certainly True
Considerate of other people's feelings	0	1	2
Shares readily with other children, for example, toys, treats, pencils	0	1	2
Helpful if someone is hurt, upset or feeling ill	0	1	2
Kind to younger children	0	1	2
Often offers to help others (parents, teachers, other children)	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 from 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.

Parent Completed	**Normal**	**Border line**	**Abnormal**
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.

Parent report	Not at all	Only a little	Quite a lot	A great deal
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.

Appendix 7: Parental Evaluation of Developmental Status: Parent Response Form

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.

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	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Expressive Language and Articulation	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Receptive Language	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fine Motor	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Gross Motor	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Behaviour	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Social-emotional	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Self-help	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
School	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Other	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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.

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

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**.

Child's Name: _____ Date of Birth: _____

PEDS Interpretation Form

Path A: Two or more significant predictive concerns? — Yes? → Two or more concerns about self-help, social, school, or receptive language skills?

- Yes? → Refer for audiological and speech -language testing. Use professional judgment to decide if referrals are also needed for social work, occupational/physiotherapy, mental health services, etc.
- No? → Refer for intellectual and educational assessments. Use professional judgment to decide if speech-language, audiological, or other evaluations are also needed.

Path B: One significant predictive concern? — Yes? → Screen or refer for screening.

- If screen is passed, counsel in areas of concern and monitor carefully.
- If screen is failed, refer for testing in area(s) of difficulty .

Path C: Non significant concerns? — Yes? → Counsel in areas of difficulty and follow up in several weeks. → If unsuccessful, screen for emotional/behavioural problems and refer as indicated. Otherwise refer for parent training, behavioural intervention, etc.

Path D: Parental difficulties communicating? — Yes? → Foreign language a barrier?

- No? → Use a second screen that directly elicits children's skills or refer for screening elsewhere.
- Yes? → Send PEDS home in preparation for a second visit; seek an interpreter, or refer for screening elsewhere.

Path E: No concerns? — Yes? → Elicit any concerns at future time-point? → Use PEDS at future time-point.

Specific Decisions

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. _____

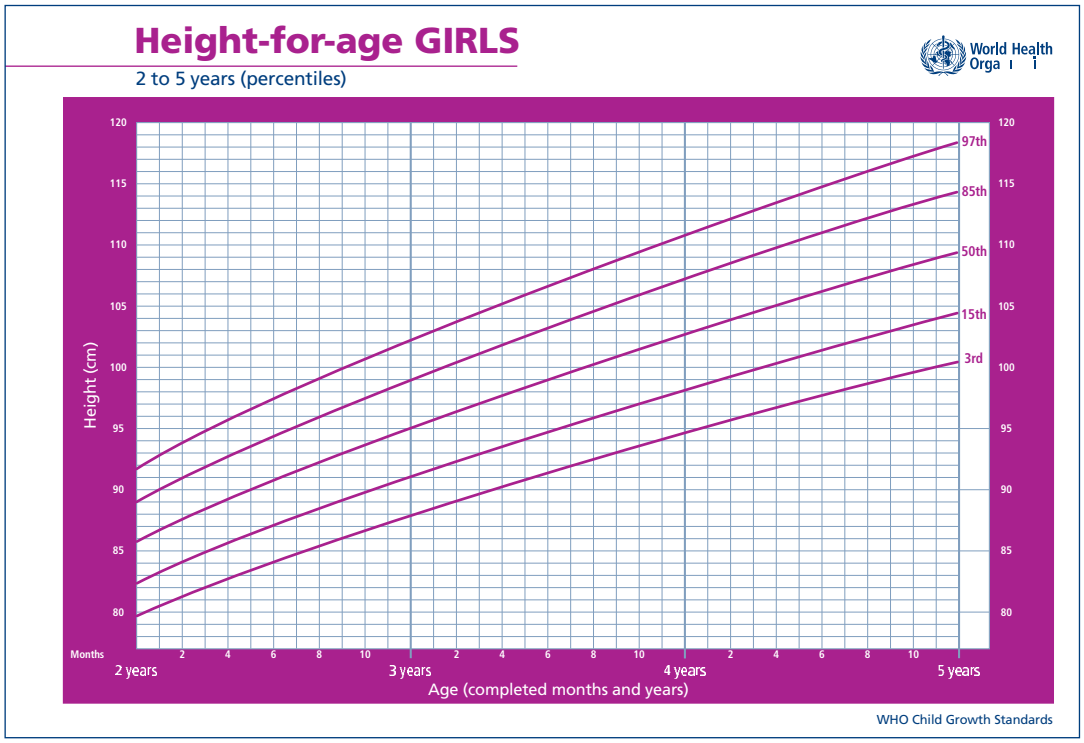
54–71 mos. _____

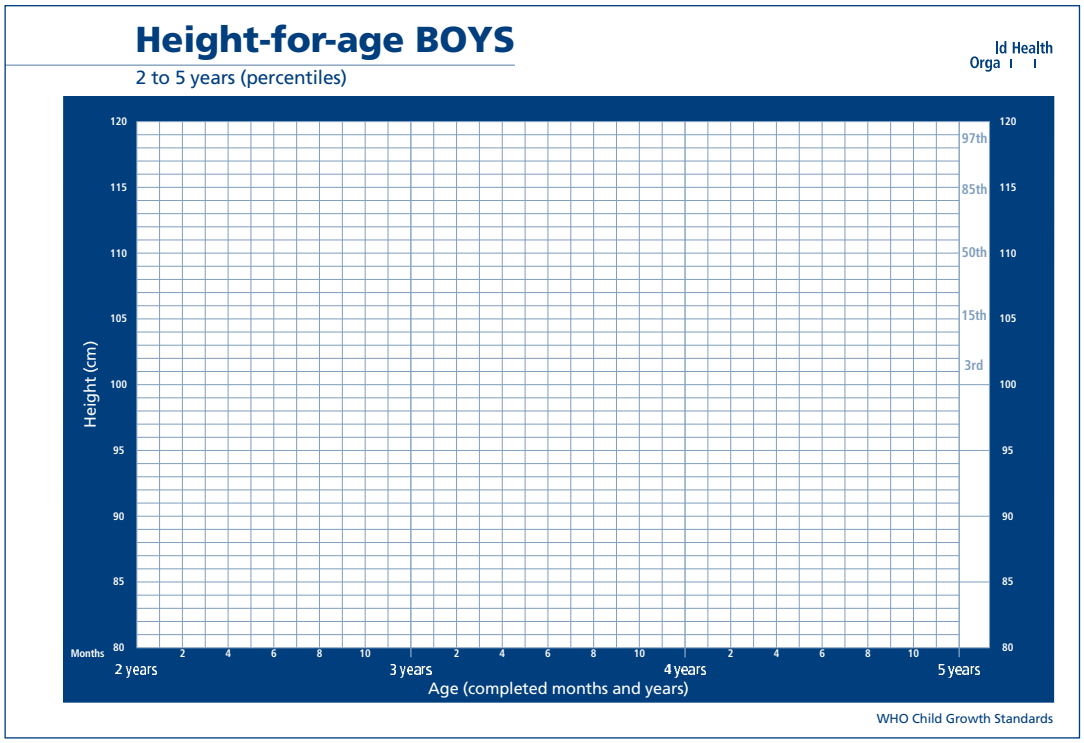
72–83 mos. _____

84–96 mos. _____

Appendix 10: World Health Organization Growth Charts

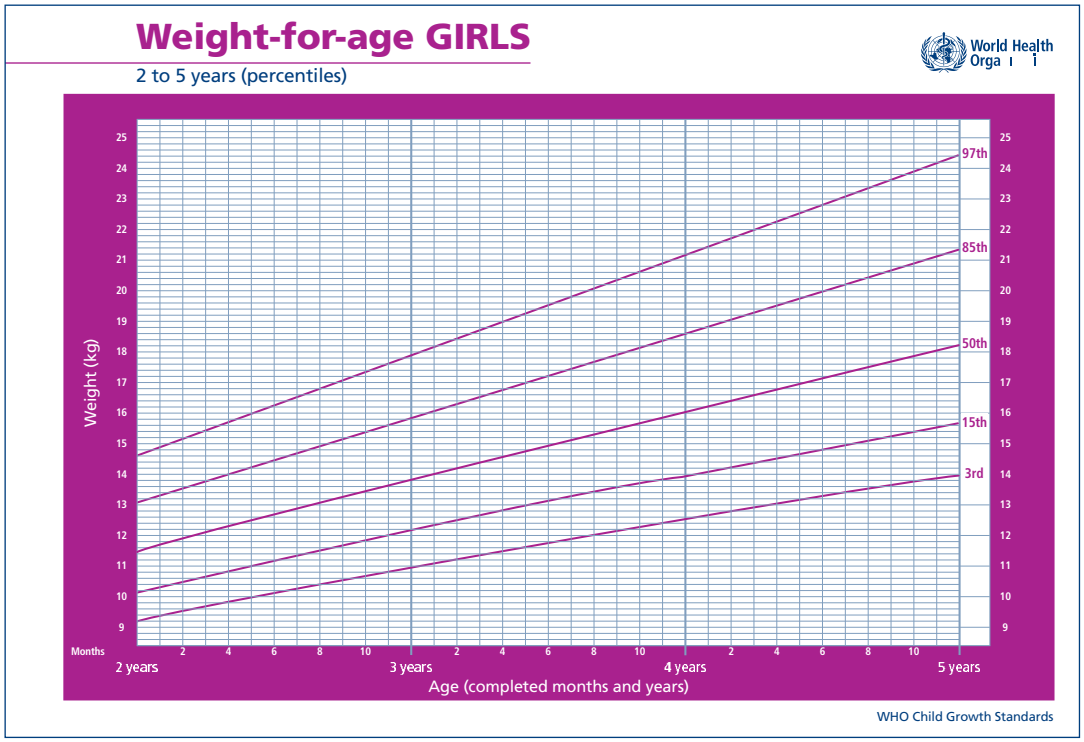
Figure 10: Height-for-age percentiles for girls and boys aged two to five years

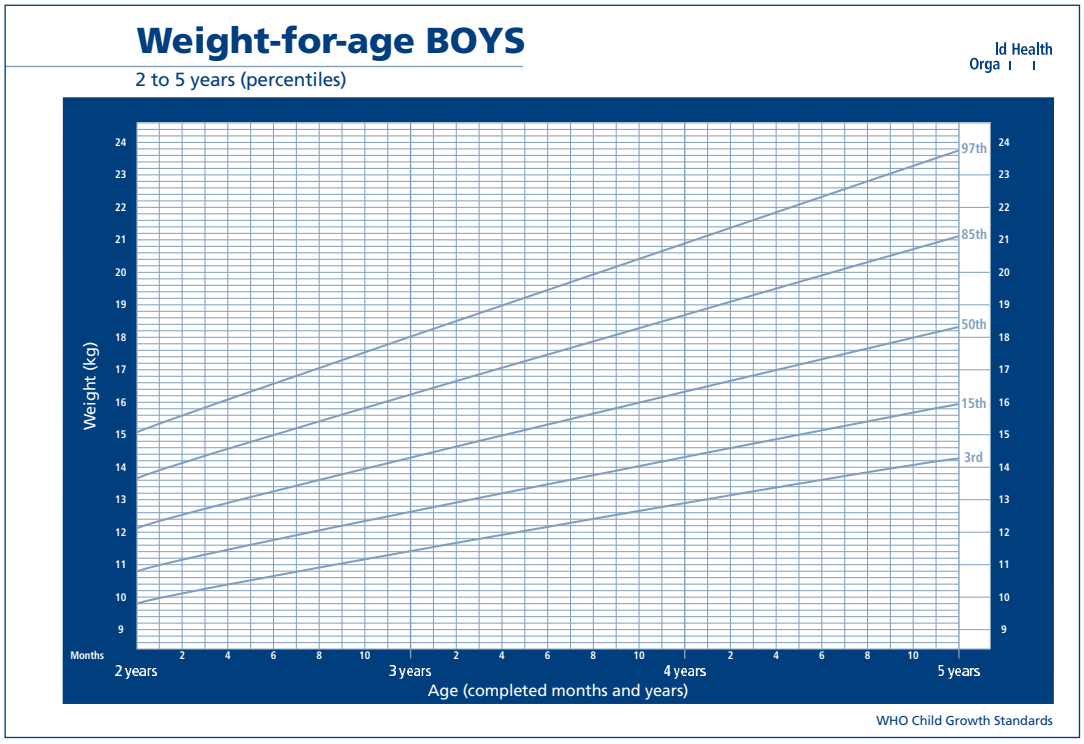




Source: WHO (2008a).

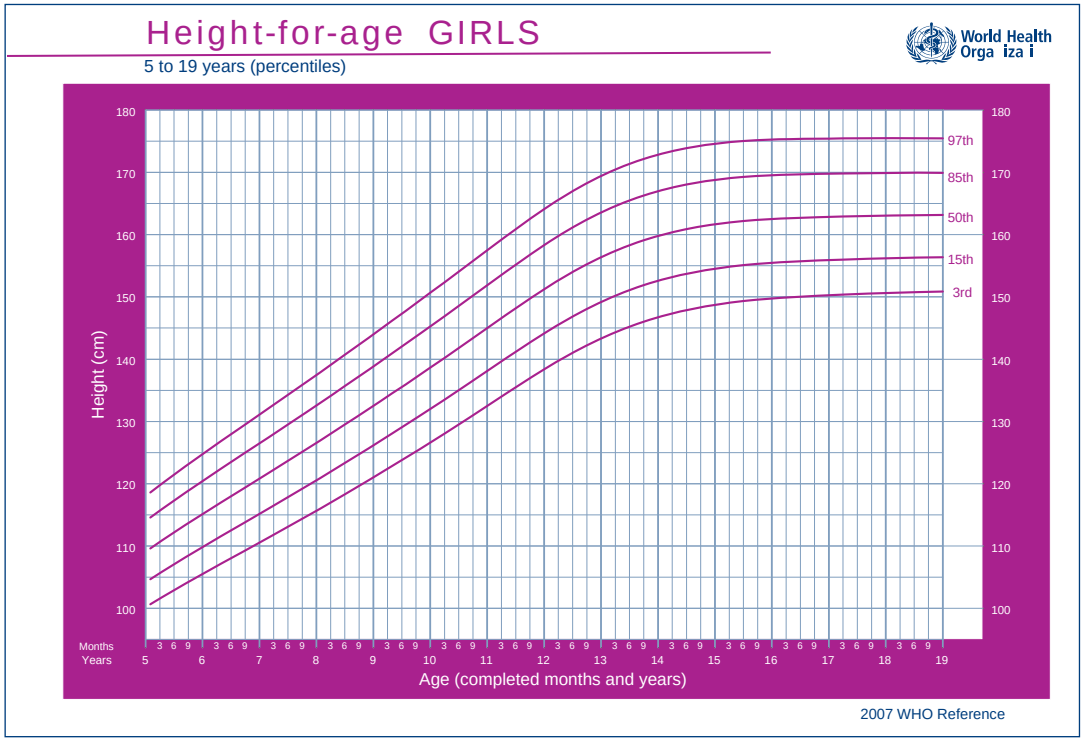
Figure 11: Weight-for-age percentiles for girls and boys aged two to five years

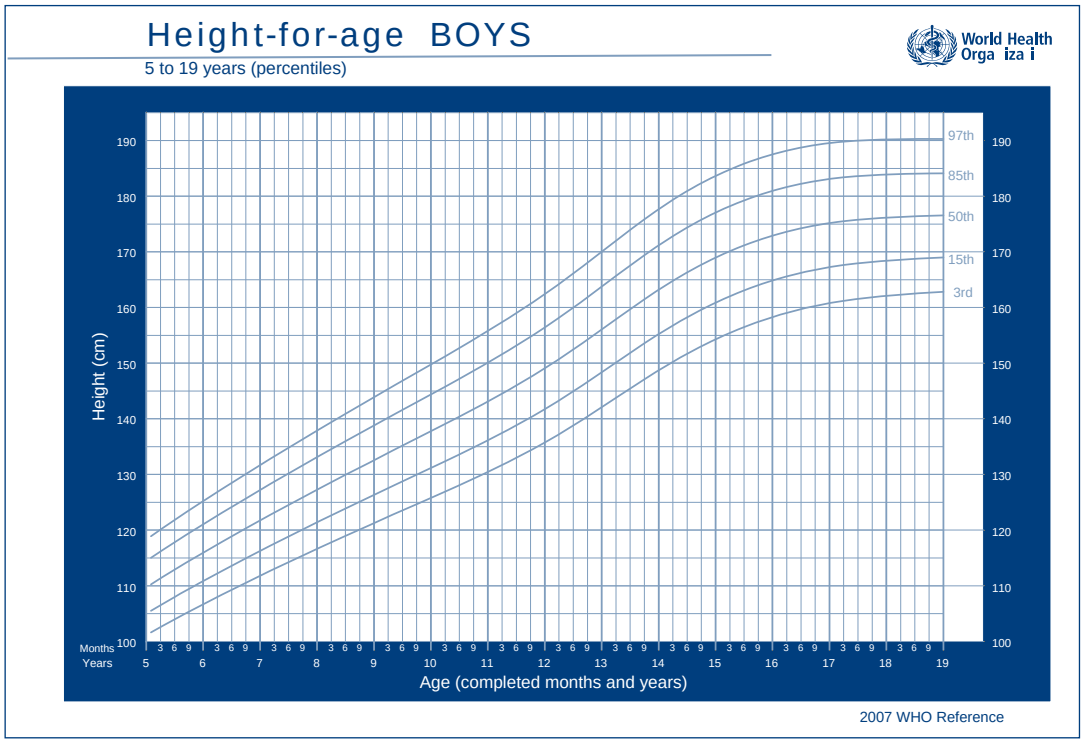




Source: WHO (2008a).

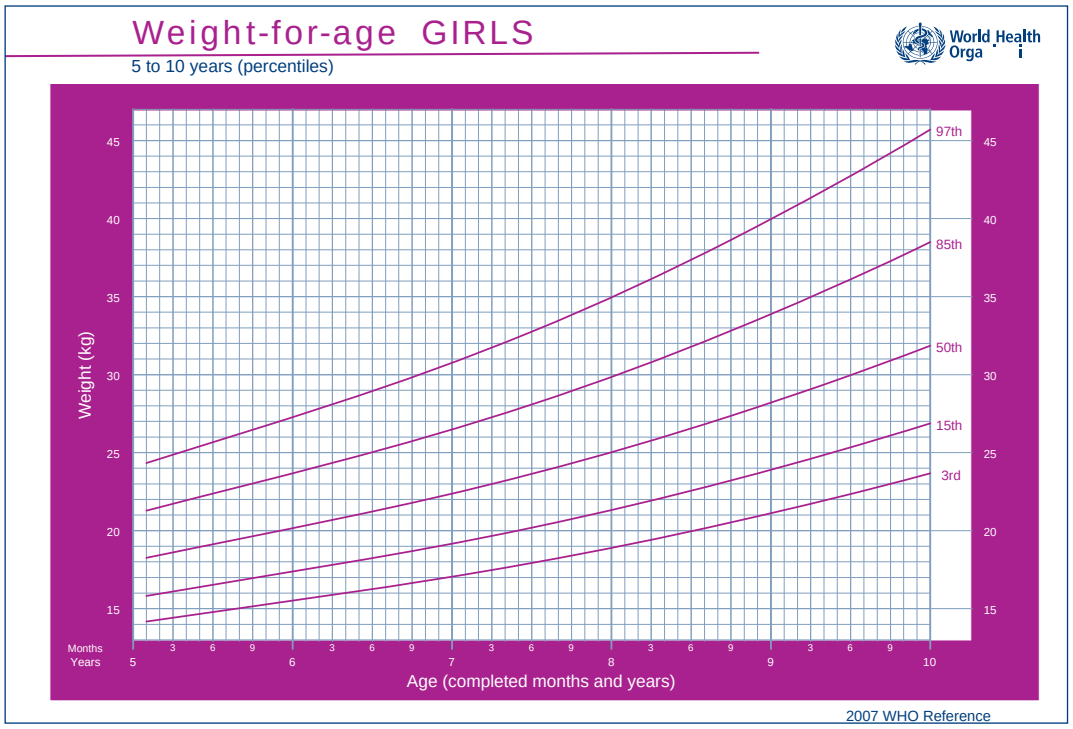
Figure 12: Height-for-age percentiles for girls and boys aged 5 to 19 years

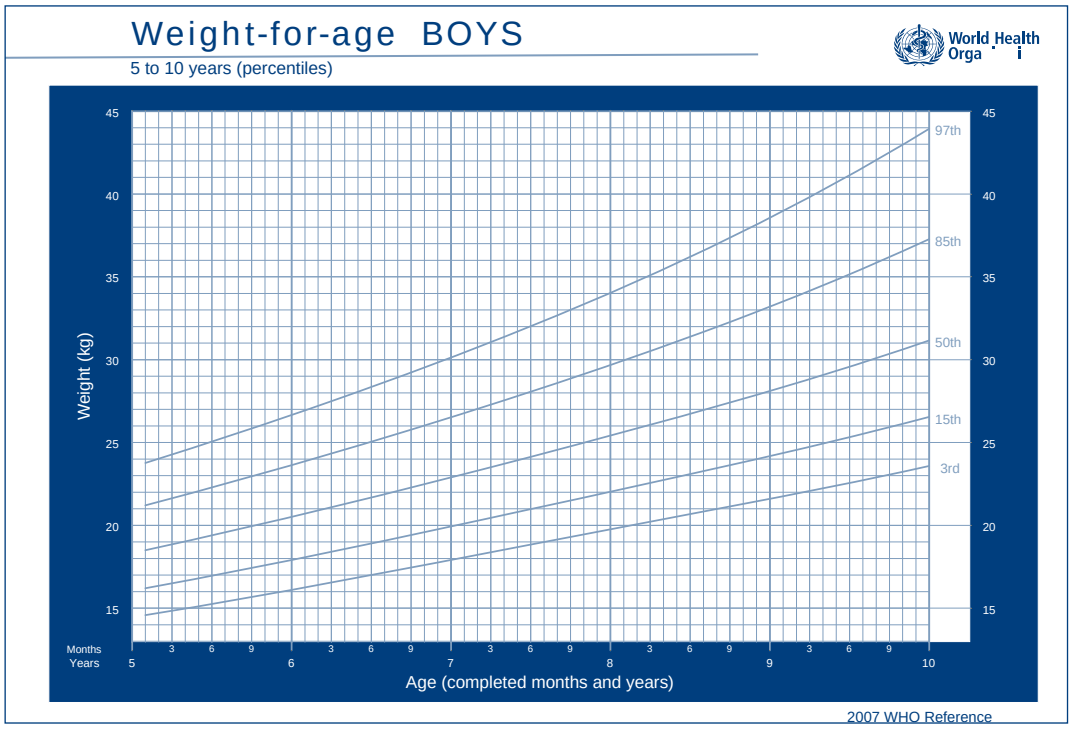




Source: WHO (2008a).

Figure 13: Weight-for-age percentiles for girls and boys aged 5 to 10 years





Source: WHO (2008a).

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