

Immunisation and Child Health Issues for PNs

Drs Marguerite Dalton and Nikki Turner
June 2011



Outline

- New Schedule July 2011
- Private market vaccines
 - Pneumococcal high risk programme
- Well child checks/screening
 - Changes to the schedule
- Scenarios
 - Use of antipyretics
 - Dummies/SIDS
 - Weight
 - Language delay
- Extras (time permitting)
 - Recurrent illness
 - head shapes



2011 NZ Immunisation Schedule

	DTaP-IPV-HepB/Hib	PCV	Hib	MMR	DTaP-IPV	dTap	HPV	Td	Influenza
6 weeks	<i>Infanrix hexa[®]</i>	<i>Synflorix[®]</i>							
3 months	<i>Infanrix hexa[®]</i>	<i>Synflorix[®]</i>							
5 months	<i>Infanrix hexa[®]</i>	<i>Synflorix[®]</i>							
15 months		<i>Synflorix[®]</i>	<i>Act-HIB[™]</i>	<i>MMR II[®]</i>					
4 years				<i>MMR II[®]</i>	<i>Infanrix[®]-IPV</i>				
11 years						<i>Boostrix[®]</i>			
12 years							<i>3 doses Gardasil[®]</i>		
45 years								<i>ADT-Booster[™]</i>	
65 years								<i>ADT - Booster[®]</i>	<i>Fluvax[®] or Fluarix[®]</i>



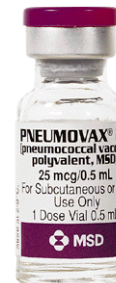
Schedule changes: summary

***Synflorix*[®] (PCV10) replaces *Prevenar*[®] (PCV7) at 6 weeks, 3, 5 & 15 months**



High risk children only:

***Prevenar 13*[®] (PCV13) followed
by *Pneumovax*[®] 23 (23PPV)**





Summary cntd.

- MeNZB vaccine is no longer available.
- Change in BCG brand and eligibility criteria
- Act-HIB™ replaces Hiberix™
- The date the new vaccines are available will be later than 1 July while existing vaccine stocks are used up
- The Immunisation Handbook 2011 will be available online during May and hardcopies will be sent to practices in June
- Rubella antibody levels to indicate protection are now recommended to be $\geq 15 \text{ IU/mL}$ (previously it was $\geq 10 \text{ IU/mL}$)



The Vaccines

PCV10: Synflorix[®]

- Routine childhood programme
 - Contains the 7 types and 3 extra
 - Conjugated to Protein D(non-typable H influenza)



PCV13: Prevenar 13[®]

- High risk children
 - Contains the 7 types and 6 extra
 - conjugated to CRM197 (non-toxin diphtheria)



23PPV: Pneumovax[®] 23

- High risk adults /children
 - A polysaccharide vaccine
 - Less immunogenic, shorter duration of immunity
 - Poorly immunogenic in children under 2 years





Packaging and storage of *Synflorix*®

- Packs of 10
- No needles
- Prefilled syringes
- Store at 2–8° C
- Do not freeze
- 3-year shelf-life
- Protect from light
- Shake well before use





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Children/Adults high risk: pre or post splenectomy

- The criteria remain unchanged
- No longer need the recommendation of a secondary care specialist to give in primary care
- Vaccines now being offered:
 - Prevenar 13[®] (children up to 16 years only)
 - Act-HIB[™]
 - Pneumovax[®] 23
 - Menomune ACYW135

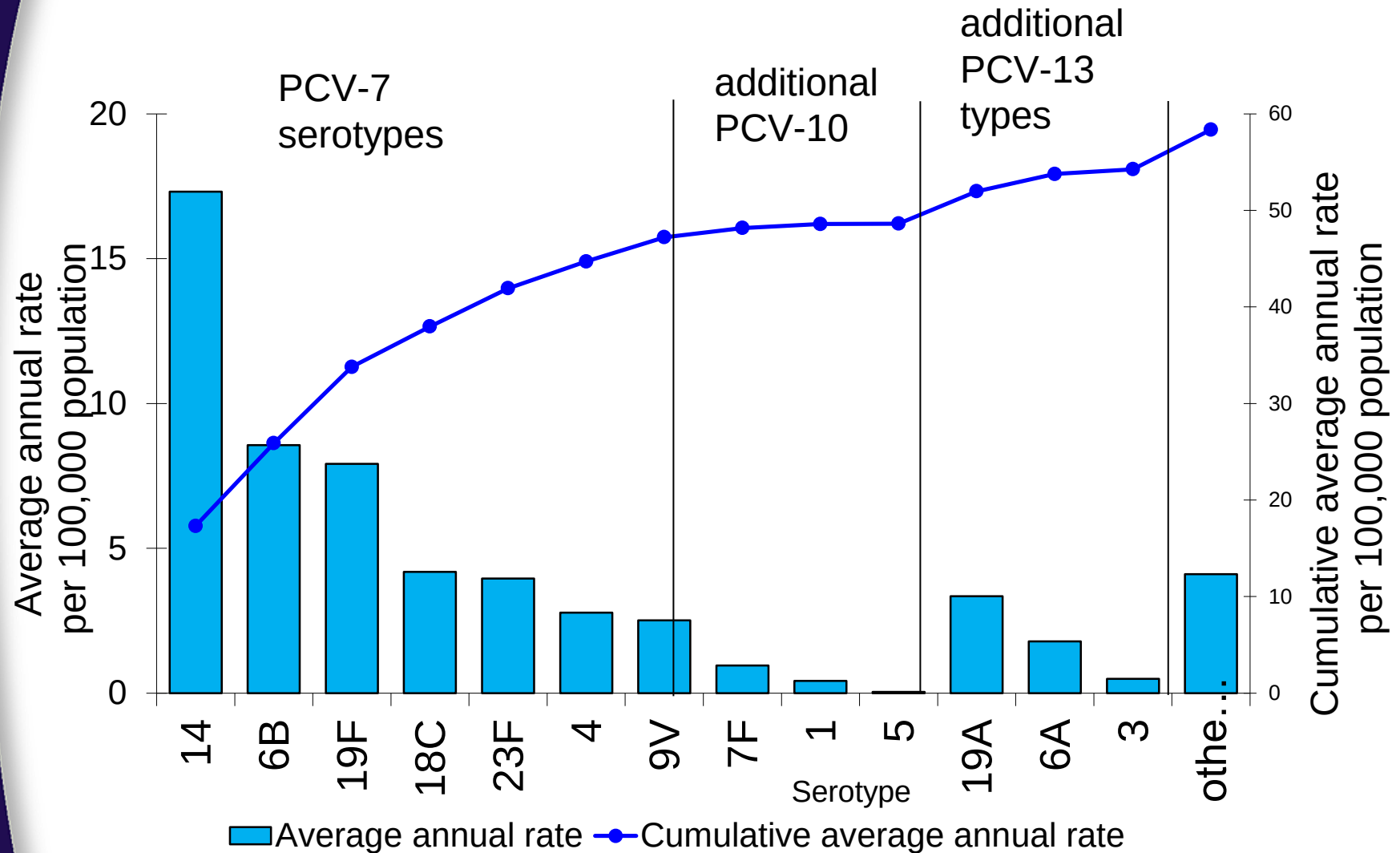
NB Prevenar 13[®] and Act-HIB[™] are only licensed to 5 years of age, giving to older children and adults is currently outside of licensure. While there are not expected to be any safety concerns, it is important to give full informed consent

Prevenar 13[®] and the Pneumococcal high risk programme



Incidence rates of invasive pneumococcal disease by serotype, in children aged less than five years, New Zealand, 1998 – 2007

(NB prior to introduction of PCV vaccine)





Pneumococcal high risk children: 0 -16 yrs

- Offer PCV13 followed by 23PPV
- Up to 5 years of age: (59 months)
 - On immunosuppressive therapy or radiation therapy
 - Primary immune deficiencies
 - HIV
 - Renal failure or nephrotic syndrome
 - Immune suppressed following organ transplantation
 - Cochlear implants, intracranial shunts
 - CSF leaks
 - On corticosteroids at least 2mg/kg/day prednisone (or 20mg a day) >2 weeks
 - Chronic pulmonary disease
 - IDDM
 - Down Syndrome
 - Pre or post-splenectomy or functional asplenia
 - Preterm infants born at under 28 weeks
- 6 – 16 years:
 - Pre or post-splenectomy or functional asplenia



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Private Market Vaccines



- Grace is a well 8 month old and Mum is about to go back to work and start Grace in a daycare centre. She is anxious to keep Grace as healthy as possible. She is worried that when her first child started daycare she was frequently ill, which was a considerable problem for her with taking time off work.



- Practical advice
 - number and age of kids, space, sleep environment, nutrition, handwashing
- ?Immunisations
 - Ask re the coverage rates on the immunisation register
 - Influenza
 - Varicella
 - Rotavirus – younger infants
 - Early MMR
 - Meningococcal – C



Remember....

- Rotavirus
- Varicella
- Meningococcal C Conjugate Meningitec[®]) (different from the polysaccharides: Menomune[®], Mencevax[®])
- HPV vaccine for men
- Adult pertussis protection: Boostrix
- Pneumococcal : PPV23 and PCV13



Private purchase of non-funded vaccines

Price excludes GST and delivery

Vaccine	Protects against	Manufacturer	Price per dose ¹	Number of doses required
Rotarix®	rotavirus	GSK	\$80.00	2 doses (before 24 weeks)
Varivax®	varicella (chickenpox)	MSD	\$50.00	1 dose 12 months-12 years or 2 doses if given from 13 years
Varilrix™	varicella (chickenpox)	GSK	\$50.00	1 dose 9 months-12 years or 2 doses if given from 13 years
Prevenar®	pneumococcal disease	Pfizer (Wyeth)	\$112.00	1 dose if given after 2 years NB funded for children born after 1.1.08
Meningitec®	meningococcal disease group C	Pfizer (Wyeth)	\$75.00	3 doses before 12 months or 1 dose if given after 12 months
Gardasil®	human papillomavirus 6,11,16 and 18	CSL	\$128.50	3 doses for females 9-45 yrs and males 12-15 yrs NB funded for girls born after 1.1.90
Boostrix™	pertussis, tetanus and diphtheria	GSK	\$25.00	1 dose as a booster ^{2,3} Can be offered to adults for pertussis protection
Adacel®	pertussis, tetanus and diphtheria	Sanofi-Pasteur	\$25.00	1 dose as a booster Can be offered to adults for pertussis protection
IPOL®	polio	Sanofi-Pasteur	\$35.32	1 dose as a booster
Adacel® Polio	pertussis, tetanus and diphtheria and polio	Sanofi-Pasteur	\$54.00	1 dose as a booster Can be offered to adults for pertussis protection with polio
Mencevax™ ACWY	meningococcal A, C, W ₁₃₅ and Y	GSK	\$30.00	1 dose. Do not use before 2 years
Menomune™ ACYW- 135	meningococcal A, C, W ₁₃₅ and Y	Sanofi-Pasteur	\$30.00	1 dose. Do not use before 2 years
Intanza®	Influenza	Sanofi-Pasteur	\$150/10	Intradermal vaccine
Pneumovax®23	pneumococcal disease	MSD	\$40.00	1 dose. Do not use before 2 years



Morgan has been brought in by his Mum for his 6 week check. Mum is in a rush and asks for “just the immunisations please” – does he need a 6 week check?



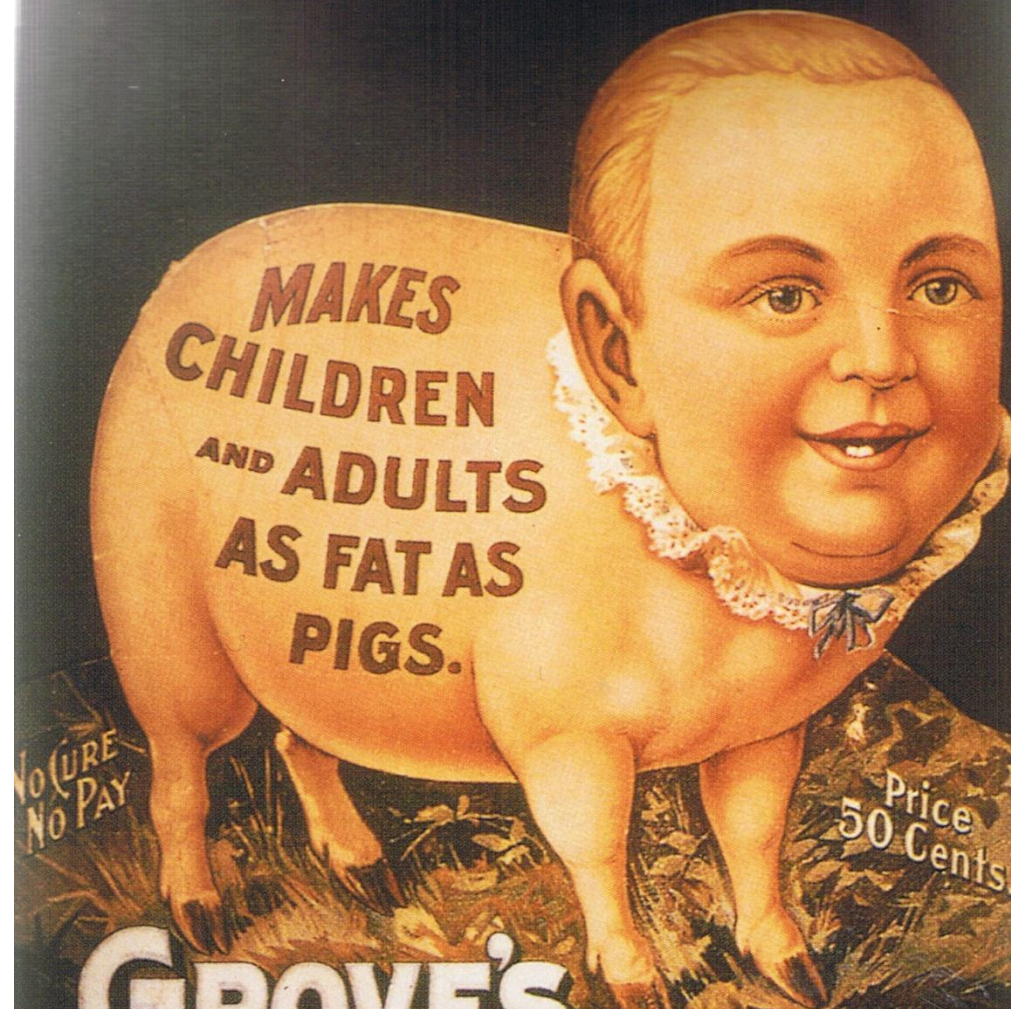
Let's not miss the moment.....





Evidence-base?

- ✓ Depression screening
- ✓ Social support
- ✓ Smoking cessation
- ✓ Sleeping position
- ✓ Injury reduction
 - ✓ Car seats
- ✓ Examination
 - ✓ Hips
 - ✓ Cardiac screening, congenital anomalies missed at birth
- ✓ Immunisation



NO CURE
NO PAY

Price
50 Cents

GROVE'S TASTELESS CHILL TONIC

ON THE MARKET OVER 20 YEARS
1½ MILLION BOTTLES SOLD LAST YEAR



Changes to Well Child schedule 2010 - 12

- Eight core universal free contacts, but with greater flexibility in the timing of the contacts based on individual family need as much as possible, particularly for more vulnerable families and first time parents.
- Tympanometry check for glue ear at three years of age will be phased out of the Well Child Schedule (with at-risk children continuing to be checked) and replaced with screening audiometry as part of the B4SC.
- Routine preschool vision and hearing screening will be provided at age four as a component of the B4SC, replacing the current school entry screening programme.
- The Parental Evaluation of Developmental Status (PEDS) questionnaire, for identifying child developmental issues will be introduced at all checks from 3 months of age
- An oral health screen, risk assessment and completion of an enrolment for dental services at the 9-12 month check, and a greater focus on oral health at the other core contacts will be introduced.
- WHO Growth Charts will be introduced and used from birth to five years.



Maternal Depression screening

During the past month have you often been bothered by feeling down, depressed or hopeless?

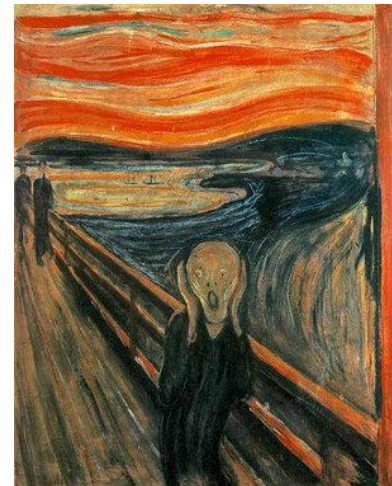
During the past month have you often been bothered by little interest or pleasure in doing things?

Is this something with which you would like help?

- Yes/No/Yes but not today

Ref: Arroll B et al

- Edinburgh Postnatal Depression Scale (EPDS)





Lift the Lip and Look

- Are there white lines or patches on the front teeth
- Encourage parents to Lift the Lip, monthly
- Encourage brushing
- Sugar drinks
- Bottles in bed
- Brown marks
 - front teeth
 - back teeth



Fig 2: Healthy teeth and gums. No signs of decay and only a little plaque.



Fig 3: Chalky patches (arrows) and also an enamel breakdown on the side of one of the front teeth.



Fig 4: Clearly visible decayed front teeth, both in-between upper front teeth, and along the gumline.



Fig 5: Well-advanced decay. The crowns of the top teeth are breaking down and decay is starting between the bottom teeth.



Fig 6: Only the roots of the top teeth are left.

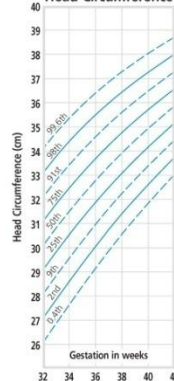


Fig 7: Deep decay in the lower back teeth (molars).



Preterm

Birth Head Circumference

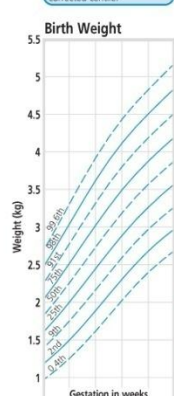


Plotting preterm infants
Use the **low birthweight chart** for infants less than 32 weeks gestation and any other infants requiring detailed assessment.
Use **this section** for infants of less than 37 weeks gestation. As with term infants there may be some weight loss in the early days. From 42 weeks, plot on the **0-1 year chart** with gestational correction.

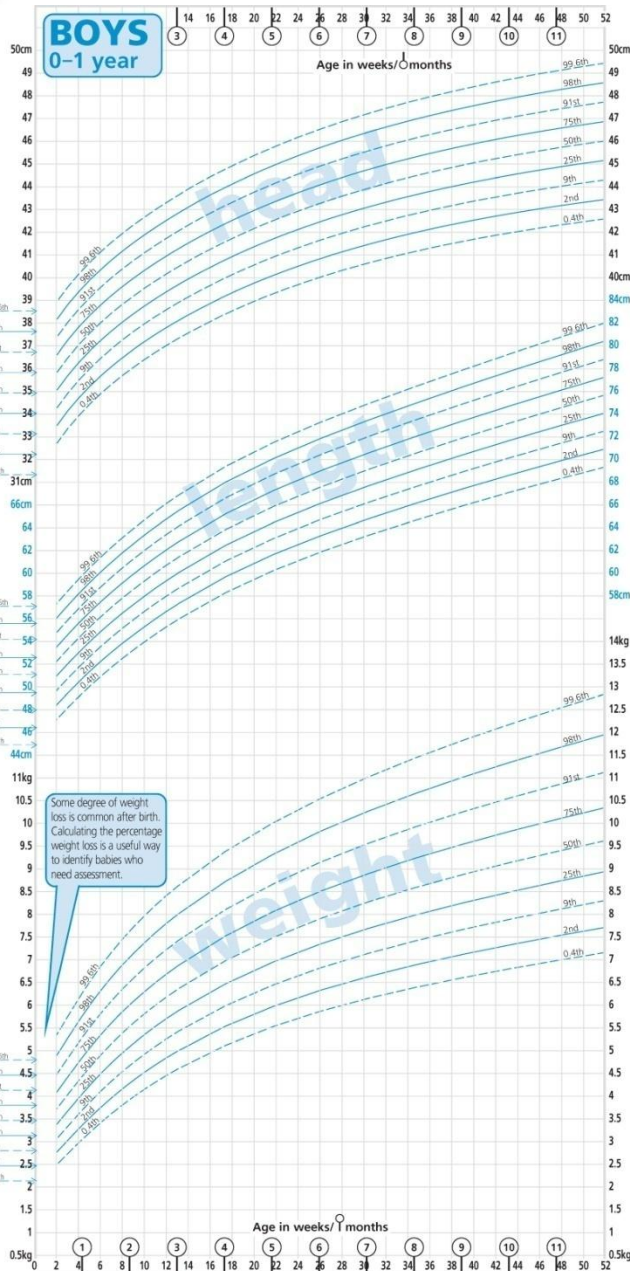
Gestational age
(7 weeks preterm) →
Actual age →

Gestational correction
Plot actual age then draw a line back the number of weeks the infant was preterm and mark the spot with an arrow; this is the gestationally corrected centile.

Birth Weight

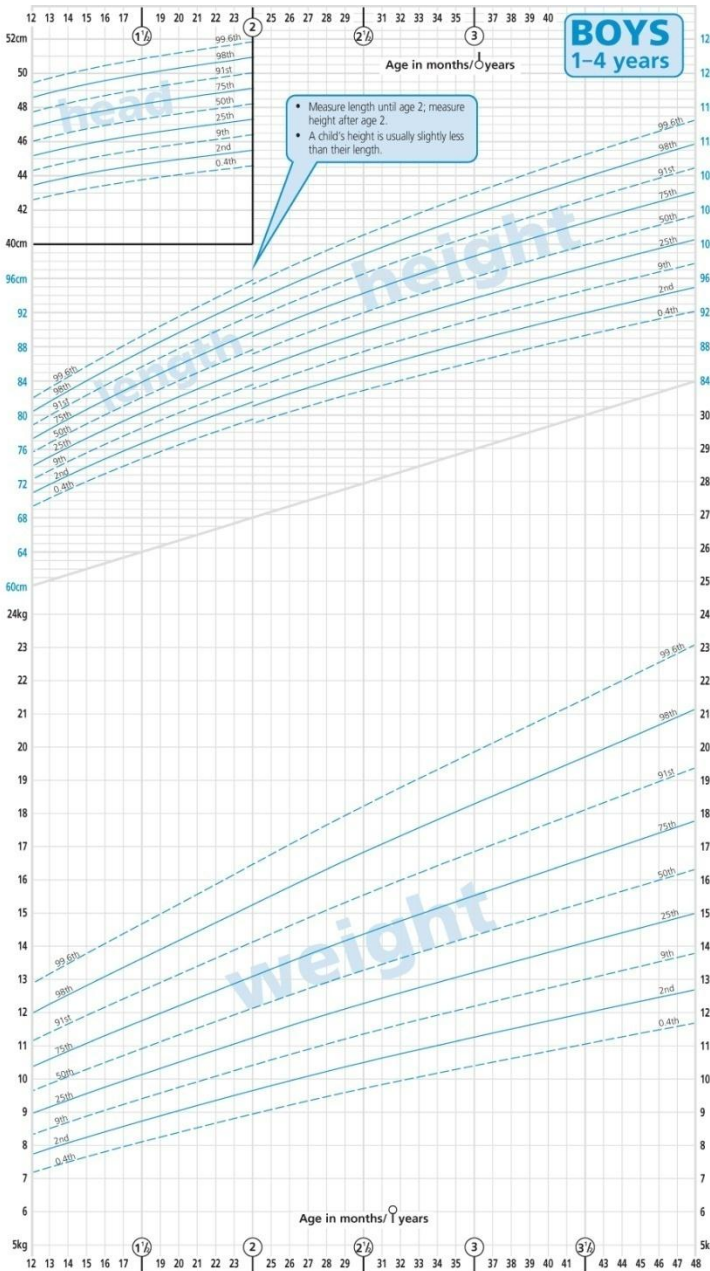


BOYS 0-1 year



Some degree of weight loss is common after birth. Calculating the percentage weight loss is a useful way to identify babies who need assessment.

BOYS 1-4 years



• Measure length until age 2; measure height after age 2.
• A child's height is usually slightly less than their length.

Plot child's height centile on the blue lines above; the black numbers show average male adult height for this centile; 80% of children will be within ±5 cm of this value.

Data Recording

Birth Measurement
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 2
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 3
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 4
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 5
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 6
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 7
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 8
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 9
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name
Measurement 10
Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name



When do we use antipyretics to
reduce a fever



1. Paracetamol and asthma

Association between use of paracetamol and dose-dependant risk of developing allergies in general, asthma in particular and ?worsening of other respiratory diseases and lung function

Ref: Allmers H et al Acetaminophen use: a risk for asthma? [review] Current Allergy and Asthma Reports 9(2): 164-7, 2009 Mar

2. Antipyretics blunt immunogenicity response in infant vaccines

Ref: Prymula R et al Effect of prophylactic paracetamol administration at time of vaccination on febrile reactions and antibody responses in children: two open-label, randomised controlled trials. Lancet. 2009 Oct 17;374(9698):1339-50.



**Should I use a dummy with my newborn baby
to reduce the risk of Cot Death**



American Academy of Pediatric Task Force 2005

recommends using a pacifier [dummy] to reduce SUDI/SIDS risk throughout the first year of life as follows:

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

Ref: American Academy of Pediatrics Policy Statement. 2005. The changing concept of Sudden Infant Death Syndrome: Diagnostic Coding Shifts, Controversies Regarding the Sleeping Environment, and New Variables to Consider in Reducing Risk. Pediatrics. Nov 116(5):1245–1255



Jenny is 4 years old and her
grandmother is worried she is
getting too fat



NZ Guidelines for Weight Management in Children and Young People (Summary version) 2009

Recommendation

Use the US-CDC BMI-for-age and –sex percentile charts to assess for overweight and obesity. Children and young people with a BMI-for-age and –sex $\geq$ 85th percentile are overweight and with a BMI-for-age and –sex $\geq$ 95th percentile are obese.

Citation: Ministry of Health, Clinical Trials Research Unit. 2009 New Zealand Guidelines for Weight Management in Children and Young People.



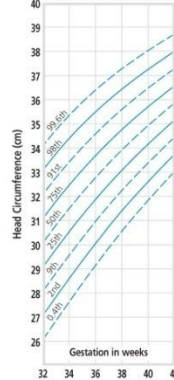
New height/ weight charts in new Well Child Books from mid 2010...

- Based on UK/WHO charts



Preterm

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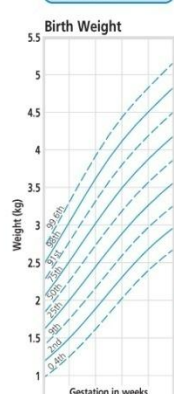


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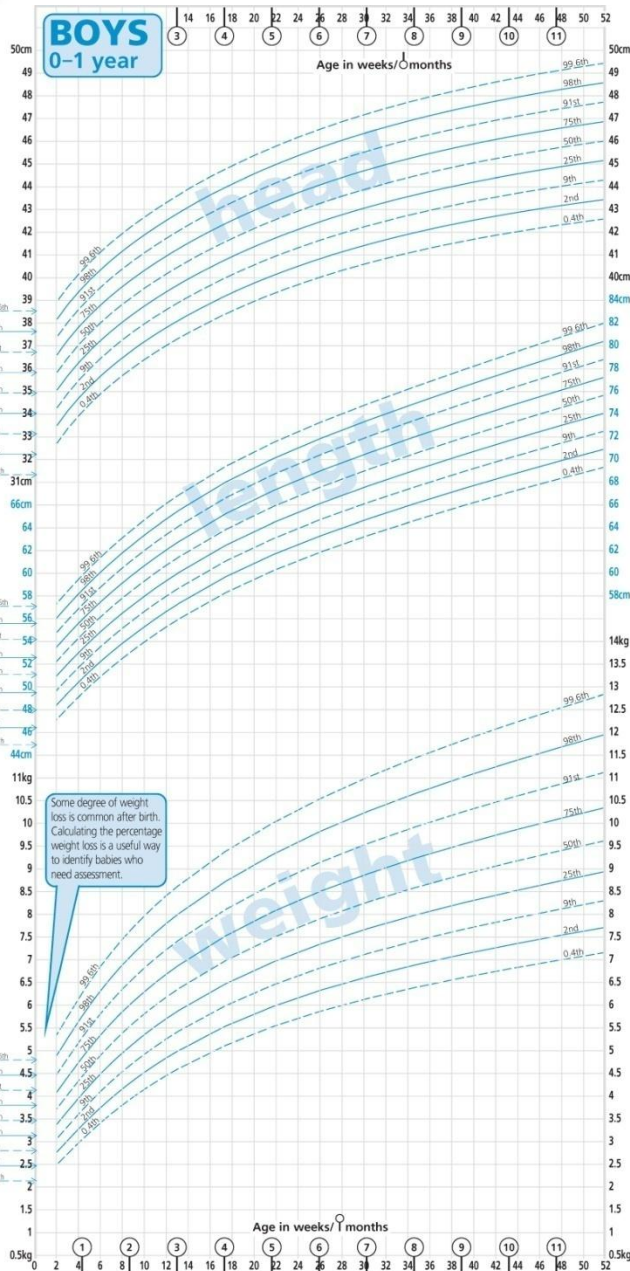
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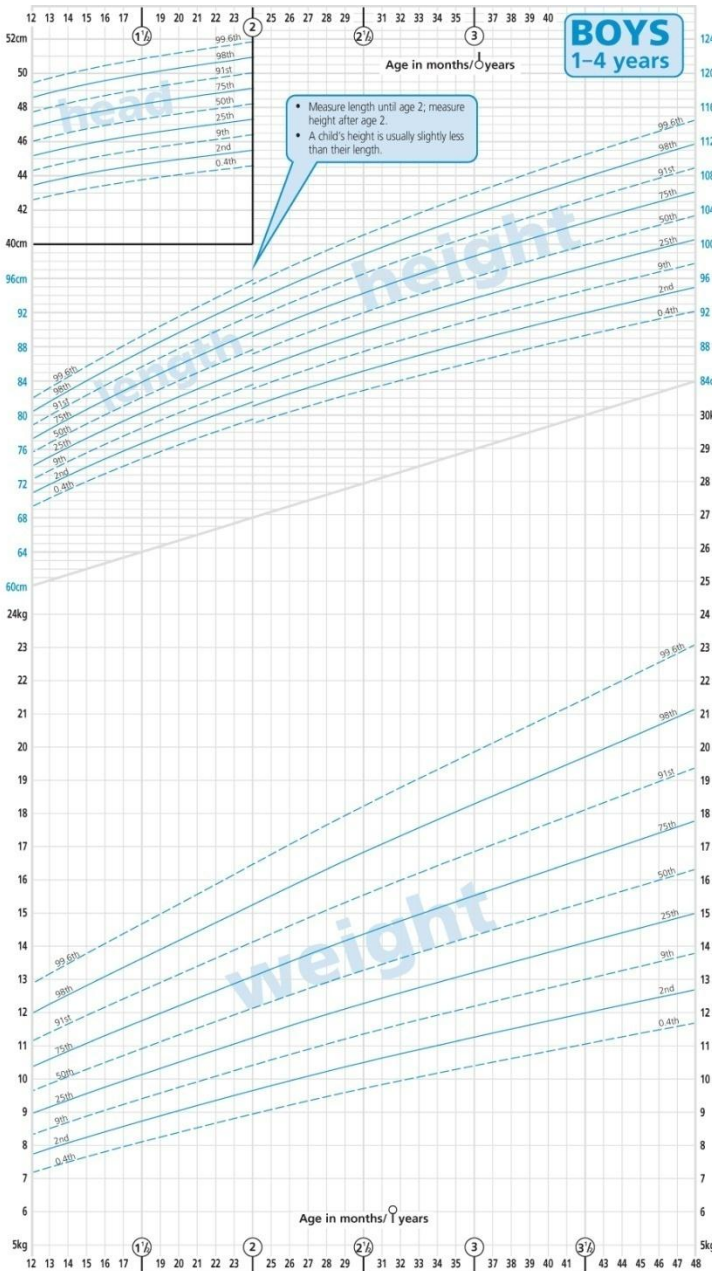


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Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 3

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 4

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 5

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 6

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 7

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 8

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 9

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name

Measurement 10

Recording Date
Weight
Head Circumference
Length/Height
Location
Health worker name



“The adjusted cut-off points for overweight and obesity ranged from an average of 3.3 and 3.8 kg.m⁻² (respectively) lower than the IOTF standards in South Asian girls to 1.5 and 1.9 kg.m⁻² higher in Pacific Island girls.”

Duncan J et al *Ethnic-specific body mass index cut-off points for overweight and obesity in girls* NZMJ 19 March 2010 Vol 123 No 1311



Joshua is 3

The Plunket nurse has visited the new baby in the house and is concerned because Joshua isn't talking much.

He has about 10 single words but Mum says he understands everything she tells him.



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.

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
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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: _____

Specific Decisions

PEDS INTERPRETATION FORM

0-3 mos. _____

4-5 mos. _____

6-11 mos. _____

12-14 mos. _____

15-17 mos. _____

18-23 mos. _____

24-35 mos. _____

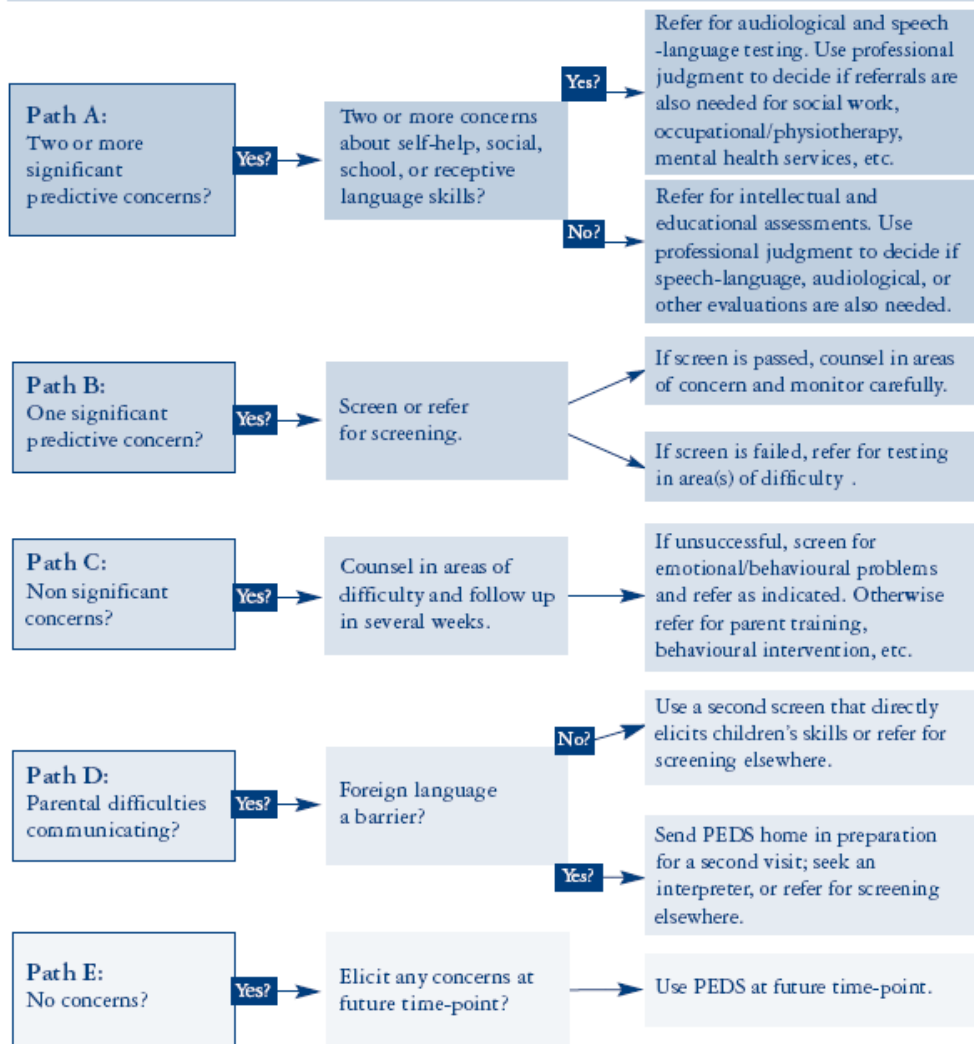
36-47 mos. _____

48-53 mos. _____

54-71 mos. _____

72-83 mos. _____

84-96 mos. _____





Behaviour in context

- Developmental
- Environmental (different settings)
- Expectations
- Genetic/Familial
- Medical issues (diet / allergy/ medication etc.)



Strengths and Difficulties Questionnaire

P or T 4-10

For each item, please mark the box for Not True, Somewhat True or Certainly True. It would help us if you answered all items as best you can even if you are not absolutely certain. Please give your answers on the basis of the child's behaviour 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 lies or cheats	☐	☐	☐
Picked on or bullied by other children	☐	☐	☐
Often volunteers to help others (parents, teachers, other children)	☐	☐	☐
Thinks things out before acting	☐	☐	☐
Steals from home, school or elsewhere	☐	☐	☐
Gets along better with adults than with other children	☐	☐	☐
Many fears, easily scared	☐	☐	☐
Good attention span, sees work through to the end	☐	☐	☐

Signature

Date

Parent / Teacher / Other (Please specify):

Thank you very much for your help



Strengths and Difficulties Questionnaires

<http://www.sdqinfo.org/>



**Immunisation
Advisory
Centre**

ĀRAINGA MATE

UNIVERSITY OF AUCKLAND

Extras



The Plunket Nurse has referred 13 month old Sina to you. She has recently been in hospital with pneumonia and seems to get a lot of colds and recurrent infections.





Why does she get sick?

- Spread of the Bug
 - Overcrowded
 - Surrounded by other sick people
 - Hygiene – coughing, handwashing
- Weaker immune response
 - Stressed
 - Not fully immunised
 - **Poor nutrition**
- Reduced access to health care services
 - Mother/family knowledge level
 - Late presentation
 - Cost/access



Iron deficiency

- Neurophysiological abnormalities
 - Less interactive, less able to learn
 - Breath holding more prevalent
 - Poorer scores on cognitive function tests, school performance
- 14% Ak children under 2 years of age

Ref: Grant CC et al 'Policy statement on iron deficiency in pre-school aged children' J Paediatrics and Child Health 43(2007) 513-521



Risk factors

- More common in Maori, Pasifica and non-European groups
- Full term infants sufficient stores first 6 months of life
 - risk of deficiency: increases with $BW < 3000g$
- Dietary risks: introducing cows milk in 1st yr life
- Exclusive breast feeding beyond 6 months
- Vegetarian infants



Rx

- Diet
- Iron supplementation
 - Single or bd dose
 - 3-6mg/kg/day ferrous sulphate for 3/12 minimum
 - Combined with fruit, fruit juice (vit C)
 - After 6 weeks twice weekly



Vit D deficiency

- Skeletal bone mineralization and immune modulator effects
 - rickets
 - Increased risk of type 1 diabetes
 - Increase risk of pneumonia, wheezy illnesses
 - ?role in excessive LRTI in NZ
- Periodontal disease



Vitamin D deficiency

- Auckland infants 6 – 23 months

- Deficiency in 10% overall
- 5 fold variability with season

More likely

- Pacific (RR 7.6)
- Not receiving infant or follow on formula (RR 5.7)
- Not receiving vitamin supplementation (RR 5.32)
- Living in more crowded houses (RR 2.36)

No link: prolonged breast feeding, dietary restrictions

Ref Grant CC et al Public Health Nutrition 2009, 12(10),1893-1901



MOH:

High risk infants, children:

- are born to vitamin D deficient mothers
- are not regularly exposed to sunlight before 11am or after 4pm
- have darker pigmented skin (skin types 5 and 6)
- have their skin covered by clothing (for example, veiling)
- have a low dietary intake of vitamin D
- have prolonged breastfeeding (for example recent migrants with refugee status from Africa and the Middle East)

*Food and Nutrition Guidelines for Healthy
Infants and Toddlers (0-2): A background paper
(MOH 2008)*



Recs

- Children hands, face, arms or legs exposed to sun 2 – 3 times weekly for 5- 10 minutes (non-pigmented skin), 10-15 Minutes (pigmented skin), not between 11.00 and 16.00 hours in summer months NZ Cancer Society



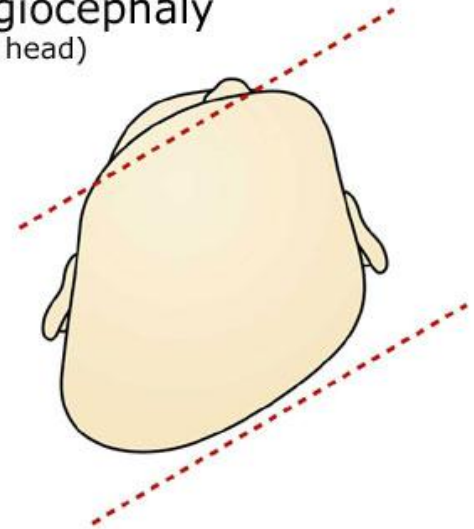
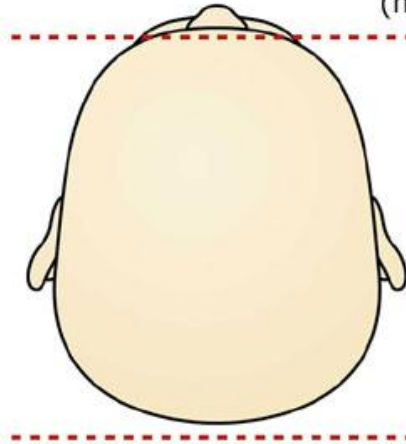
I am worried that there is something wrong with my baby's head shape



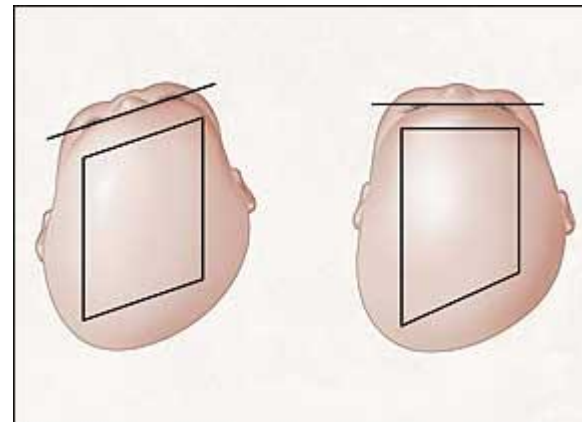


Head shapes

Sample of Plagiocephaly
(misshapen head)



© Royal Children's Hospital, Melbourne, Australia
Kids Health Info www.rch.org.au/kidsinfo



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Questions

- When did you notice shape; was it present at birth
- Birth process?
- Is baby's head always held to one side
- How much time spent in car seat/buggy
- Sleep position?
- Is the arm movement/position the same on both sides (?Erbs Palsy)



Positional Plagiocephaly

- At birth
 - in utero eg. multiple births
 - birth trauma eg. forceps
- After birth
 - prematurity
 - torticollis/neck muscle imbalance
 - delayed motor development
 - one sided handling
 - sleep position
 - Supine



Risk Factors

Pediatrics 2007, 119(2):e408 –e418

- At Birth
 - being male
 - first born
 - brachycephaly (short head)
- 7 weeks
 - being male
 - first born
 - positional preference when sleeping
 - only bottle feeding
 - positioning to same side when feeding
 - head to same side as bedroom furniture
 - tummy time less than 3 times a day
 - slow achievement of physical milestones

***No link with back sleeping or with the birth itself
(natural/forcens) or length of labour***



Rx?

- Positional and handling advice
- Helmets etc.....no strong evidence to date



Plagiocephaly and Development

- Increased risk of developmental problems



Outcomes

Hutchinson B L et al Arch Dis Child 2011;96:85-90 (NZ study)

At 3- 4 years:

- About 2/3 revert to normal
- 4% severe at follow up
- % children with developmental delay decreased from 41% initially to 11%