

Evidence-based well-baby care

Part 1: Overview of the next generation of the Rourke Baby Record

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ABSTRACT

PROBLEM BEING ADDRESSED Well baby and child care in the primary care setting has not always been based on evidence that has been shown to be effective in preventing and detecting disease and injury.

OBJECTIVE OF THE PROGRAM To help physicians and nurses provide care that is more effective than a routine complete examination, the Rourke Baby Record has been revised to include evidence-based recommendations for preventive care for infants and young children. The revision incorporates the approach and recommendations of the Canadian Task Force on the Periodic Health Examination. The updated record is now called the Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance Guide (Rourke Baby Record: EB).

MAIN COMPONENTS OF PROGRAM Part 1 of this two-part article briefly describes the background for development and presents an overview of the revised record. Part 2 discusses in detail the evidence that exists for maneuvers included in the education and advice section of the revised record.

CONCLUSION Using the Rourke Baby Record: EB and incorporating it into their office record systems as a working guide will help increase the effectiveness of the primary preventive care physicians provide to infants and young children.

RÉSUMÉ

DÉFINITION DU PROBLÈME Les soins de première ligne dispensés aux nourrissons et aux jeunes enfants bien portants n'ont pas toujours été fondés sur des preuves démontrant leur efficacité à prévenir et à déceler les maladies et les blessures.

OBJECTIF DU PROGRAMME Pour aider les médecins et les infirmières à prodiguer des soins plus efficaces que le seul examen médical périodique, le Rourke Baby Record a fait l'objet d'une révision en vue d'y intégrer des recommandations fondées sur des données probantes concernant les soins préventifs des nourrissons et des jeunes enfants. La révision intègre la démarche et les recommandations du Groupe d'étude canadien sur l'examen médical périodique. La nouvelle version s'intitule désormais le Evidence-Based Infant/Child Health Maintenance Guide (Rourke Baby Record : EB).

PRINCIPAUX VOILETS DU PROGRAMME La première des deux parties de cet article décrit le contexte de l'élaboration du dossier et présente un aperçu de la nouvelle version. La deuxième détaille les preuves qui fondent les manœuvres figurant dans la section de la nouvelle version sur l'éducation et les conseils.

CONCLUSION En utilisant le Rourke Baby Record : EB et en l'intégrant à leurs systèmes de dossiers à titre de guide pratique, les médecins pourront prodiguer aux nourrissons et aux jeunes enfants des soins préventifs primaires plus efficaces.

This article has been peer reviewed.

Cet article a fait l'objet d'une évaluation externe.

Can Fam Physician 1998;44:558-567.

Prevention and treatment of childhood illness has been identified as a key task for family physicians in Canada.¹⁻⁴ Well-baby or well-child visits offer an opportunity for physicians and nurses not only to provide physical examinations and childhood immunizations but also to evaluate development, discuss parents' concerns, and provide education and advice about nutrition, behaviour, and parenting.

With the recent publication of *The Canadian Guide to Clinical Preventive Health Care*⁵ by the Canadian Task Force on the Periodic Health Examination (CTFPHE), it was timely to develop a guide that incorporated the evidence-based recommendations of the task force for this age group into the framework of the Rourke Baby Record.^{6,7} The revised record, *The Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance Guide* (Rourke Baby Record: EB), incorporates a key principle from the work of the CTFPHE. This principle is that a periodic health examination targeting specific conditions or risk factors is likely to be more effective than a routine "complete" examination (see sidebar).⁵

Some organizations have issued recommendations not reached by the same evidence-based approach as the CTFPHE. These expert-opinion recommendations have been used in revising the Rourke Baby Record only when we thought the issues and recommendations were of clinical importance and when there was no other evidence-based literature.

Several goals have steered development of the revised record: to promote screening and preventive health care supported by research evidence, to provide an easily accessible guide for identifying at-risk infants and children, and to enhance concise recording of important parameters of well-baby and well-child care.

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Part 1 of this two-part series presents an overview of the most recent version of the Rourke Baby Record. Part 2 elaborates on the education and advice section.

Format

In the Rourke Baby Record: EB (pages 561 to 564), we suggest maneuvers according to the level of research evidence (as reviewed and published by the CTFPHE) for their effectiveness (Table 1). Maneuvers with good evidence for inclusion (grade A) are printed in bold type; maneuvers with fair evidence for inclusion (grade B) are printed in italics. When evidence was inconclusive, (frequently because of a lack of adequate research), but we judged the maneuver important to include, plain type was used.

Evidence for the precise frequency and timing of well-baby and well-child visits remains inconclusive.⁵ Thus, we have spaced visits according to the *Canadian Immunization Guide*.⁸ We have added a visit between 1 and 2 weeks of age and another between 2 and 3 years and optional visits between 3 and 4 weeks and again at 9 months. The first visit is particularly important, given the pattern of early discharge of mothers and newborns from hospital, often before breastfeeding is established. Many practitioners advocate that this visit occur in the first 2 to 3 days after discharge (ie, within the first week of life). This is when signs of dehydration and jaundice might appear and when serious breastfeeding problems can begin.

The reverse side of the first page of the Rourke Baby Record: EB provides standard growth charts for boys and girls. The reverse side of the second page of the Rourke Baby Record: EB provides practitioners with more information on maneuvers, with specifics of the education and advice recommended, and with information on high-risk children. Maneuvers for which there is more information on the reverse side are marked with an asterisk (*).

Categories and maneuvers

Anticipatory guidance on certain issues can be helpful and important at several visits. We have tried to avoid duplication on the record, to keep it user-friendly, and to allow space for comments. For example, in the "Family coping" part of the education and advice section, although parenting/bonding/fatigue and siblings are only listed once (at the 1- to 2-week visit), it might be appropriate to inquire about these issues at most visits.

Canadian Task Force on the Periodic Health Examination

The Canadian Task Force on the Periodic Health Examination (CTFPHE) was established in 1976 with a mandate to determine how periodic health examinations might enhance or protect the health of Canadians and to recommend a plan for a lifetime program of periodic health assessments for all people living in Canada.⁵ For two decades, the CTFPHE has been reviewing information in the medical literature and from experts in the field to make recommendations for periodic health examinations for all age groups. Most of their recommendations have been published in the *Canadian Medical Association Journal*. In 1994, the updated recommendations were compiled and published as *The Canadian Guide to Clinical Preventive Health Care/Guide canadien de médecine clinique préventive*.⁵

The methodology used by the CTFPHE differs from traditional approaches to prevention issues in that actual evidence takes precedence over consensus. The CTFPHE recommends including or excluding a preventive maneuver when there is good or fair evidence for so doing. Grade A and B recommendations support inclusion, while grade D and E recommendations support exclusion. Grade C recommendations are given when evidence regarding the maneuver is limited or contradictory and decision making must be guided by factors other than scientific evidence.⁵ **Table 1** shows specifics of the CTFPHE's classification of recommendations and quality of evidence.

Table 1. Canadian Task Force on the Periodic Health Examination classifications

QUALITY OF EVIDENCE

Category 1: Evidence obtained from at least one properly randomized controlled trial.

Category 2-1: Evidence obtained from well-designed controlled trials without randomization.

Category 2-2: Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one centre or research group.

Category 2-3: Evidence obtained from comparisons between times or places with and without the intervention. Dramatic results in uncontrolled experiments (eg, results of treatment with penicillin in the 1940s) could be included in this category.

Category 3: Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees.

CLASSIFICATION OF RECOMMENDATIONS

Grade A: Good evidence supports the recommendation that the condition be considered specifically in a periodic health examination.

Grade B: Fair evidence supports the recommendation that the condition be considered specifically in a periodic health examination.

Grade C: Poor evidence supports including or excluding the condition in a periodic health examination, but recommendations could be made on other grounds.

Grade D: Fair evidence supports excluding the condition from consideration in a periodic health examination.

Grade E: Good evidence supports excluding the condition from consideration in a periodic health examination.

Growth. Growth is measured at each well-baby visit. Research evidence is fair for including serial measurements of height, weight, and head circumference in order to identify infants and children with physical growth disorders.⁵

Parental concerns. Perceptions and observations of parents are one of the best ways to screen for development problems. Parents should be encouraged to share their concerns, worries, and questions about their infants and children. Space for recording these concerns is provided.

Nutrition. The CTFPHE has promoted breastfeeding as the preferred method of infant feeding, giving it a grade A recommendation.⁵ It found fair evidence that breastfeeding reduces gastrointestinal and respiratory infections and that it might reduce atopic illness in children with a family history of atopy, and limited evidence that it will prevent iron deficiency anemia. The CTFPHE also found good evidence that postnatal counseling and banning distribution of free formula samples from hospitals and offices prolongs the duration of breastfeeding. We have included an inquiry about urine output and stool patterns

Continued on page 565


Rourke Baby Record: EVIDENCE BASED INFANT / CHILD HEALTH MAINTENANCE GUIDE I

Birth remarks:

NAME _____ Birth Date (d/m/yr) _____ M[] F[]
Length: _____ cm. Head Circ: _____ cm. Birth Wt. _____ gms. Discharge Wt. _____ gms

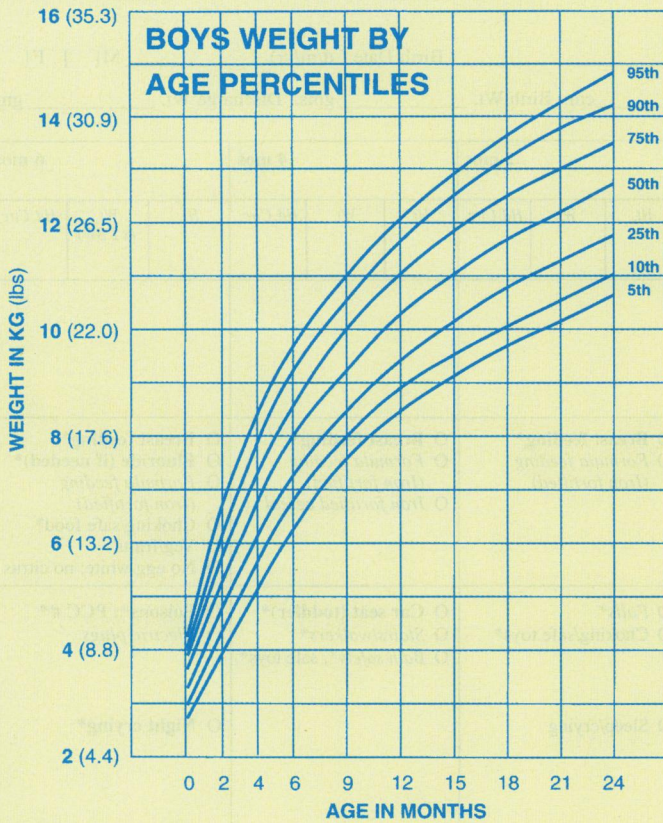
DATE / AGE	within 1-2 wks			3-4 wks			2 mos			4 mos			6 mos			
GROWTH	Ht.	Wt.	Hd. Circ av. 35 cm.	Ht.	Wt.	Hd. Circ.	Ht.	Wt.	Hd. Circ.	Ht.	Wt.	Hd. Circ.	Ht.	Wt. (x 2 BW)	Hd. Circ.	
PARENTAL CONCERNS																
NUTRITION	<input type="checkbox"/> Breast feeding* <input type="checkbox"/> <i>Formula feeding (Iron fortified)</i> [150 ml = 5 oz/Kg/day] <input type="checkbox"/> Stool pattern & urine output			<input type="checkbox"/> Breast feeding* <input type="checkbox"/> <i>Formula feeding (Iron fortified)</i>			<input type="checkbox"/> Breast feeding* <input type="checkbox"/> <i>Formula feeding (Iron fortified)</i>			<input type="checkbox"/> Breast feeding* <input type="checkbox"/> <i>Formula feeding (Iron fortified)</i> <input type="checkbox"/> <i>Iron fortified cereal</i>			<input type="checkbox"/> Breast feeding* <input type="checkbox"/> Fluoride (if needed)* <input type="checkbox"/> <i>Formula feeding (Iron fortified)</i> <input type="checkbox"/> <i>Choking/safe food*</i> <input type="checkbox"/> <i>Veg/fruits</i> <input type="checkbox"/> <i>No egg white; no citrus</i>			
E D U C A T I O N & A D V I C E	Safety	<input type="checkbox"/> Car seat (infant)* <input type="checkbox"/> Crib safety			<input type="checkbox"/> <i>Smoke detectors*</i> <input type="checkbox"/> <i>Non-inflam. sleepwear*</i> <input type="checkbox"/> <i>Hot water < 54° C*</i> <input type="checkbox"/> <i>Choking/safe toys*</i>			<input type="checkbox"/> <i>Falls*</i> <input type="checkbox"/> <i>Choking/safe toys*</i>			<input type="checkbox"/> Car seat (toddler)* <input type="checkbox"/> <i>Stairs/walkers*</i> <input type="checkbox"/> <i>Bath safety*</i> ; safe toys*			<input type="checkbox"/> Poisons*; PCC #* <input type="checkbox"/> <i>Electric plugs</i>		
	Behaviour	<input type="checkbox"/> Sleep/crying			<input type="checkbox"/> Sleep/crying			<input type="checkbox"/> Sleep/crying						<input type="checkbox"/> Night crying*		
	Family coping	<input type="checkbox"/> Parenting/bonding/fatigue <input type="checkbox"/> Siblings														
	High risk	<input type="checkbox"/> Assess home visit need*												<input type="checkbox"/> Assess day care need*		
Other	<input type="checkbox"/> Sleep position* <input type="checkbox"/> <i>Temperature control & overdressing*</i> <input type="checkbox"/> Second hand smoke*			<input type="checkbox"/> Sleep position* <input type="checkbox"/> <i>Temperature control & overdressing*</i> <input type="checkbox"/> Second hand smoke*			<input type="checkbox"/> Fever control			<input type="checkbox"/> Teething*						
DEVELOPMENT Inquiry & observation of milestones:	<input type="checkbox"/> ? Neonatal problems			<input type="checkbox"/> <i>Focuses gaze</i> <input type="checkbox"/> <i>Responds to noise</i>			<input type="checkbox"/> <i>Smiles</i> <input type="checkbox"/> <i>Raises head 45° (lying on stomach)</i>			<input type="checkbox"/> <i>Laughs/squeals</i> <input type="checkbox"/> <i>Startles @ loud noises</i> <input type="checkbox"/> <i>Head steady</i> <input type="checkbox"/> <i>Grasps/reaches</i>			<input type="checkbox"/> <i>Babbles</i> <input type="checkbox"/> <i>Stops when called</i> <input type="checkbox"/> <i>Almost sits alone</i> <input type="checkbox"/> <i>Supports self on hands</i>			
PHYSICAL Further examination at examiner's discretion especially with symptoms or concerns.	<input type="checkbox"/> <i>Skin (jaundice, dry)</i> <input type="checkbox"/> Fontanelles <input type="checkbox"/> <i>Eyes (red reflex)</i> <input type="checkbox"/> <i>Ears (drums)</i> <input type="checkbox"/> Heart <input type="checkbox"/> Umbilicus <input type="checkbox"/> Femoral pulses <input type="checkbox"/> Hips <input type="checkbox"/> Testicles <input type="checkbox"/> Male urinary stream			<input type="checkbox"/> Cover/uncover test & inquiry* <input type="checkbox"/> Clap test & inquiry <input type="checkbox"/> Hips			<input type="checkbox"/> Fontanelles <input type="checkbox"/> Cover/uncover test & inquiry* <input type="checkbox"/> Clap test & inquiry <input type="checkbox"/> Heart <input type="checkbox"/> Hips			<input type="checkbox"/> Cover/uncover test & inquiry* <input type="checkbox"/> Clap test & inquiry <input type="checkbox"/> Babbling <input type="checkbox"/> Hips			<input type="checkbox"/> Fontanelles <input type="checkbox"/> Cover/uncover test & inquiry* <input type="checkbox"/> Clap test & inquiry <input type="checkbox"/> Hips			
PROBLEMS & PLANS	Within 7 days of life: <input type="checkbox"/> PKU, Thyroid <input type="checkbox"/> Blood gp. antibodies <input type="checkbox"/> Hgb-opathy Screen (if at risk)*												<input type="checkbox"/> Inquire about possible TB exposure*			
IMMUNIZATION Guidelines may vary by province.	If HBsAG-pos mother: <input type="checkbox"/> Hep B Vaccine* <input type="checkbox"/> Hep B Ig* (? given in hospital)			Give information: <input type="checkbox"/> Immunization <input type="checkbox"/> Acetaminophen If HBsAG-pos mother: <input type="checkbox"/> Hep. B vaccine*			<input type="checkbox"/> Act HIB <input type="checkbox"/> cPDTpolio			<input type="checkbox"/> Act HIB <input type="checkbox"/> cPDTpolio			<input type="checkbox"/> Act HIB <input type="checkbox"/> cPDTpolio If HBsAG-pos mother: <input type="checkbox"/> Hep. B vaccine*			
Signature																

Grade of evidence: (A) **Bold type – Good evidence:** (B) *Italic – Fair evidence* (C) Plain – Optional
(*) see *Infant Health Maintenance: Selected Guidelines.*

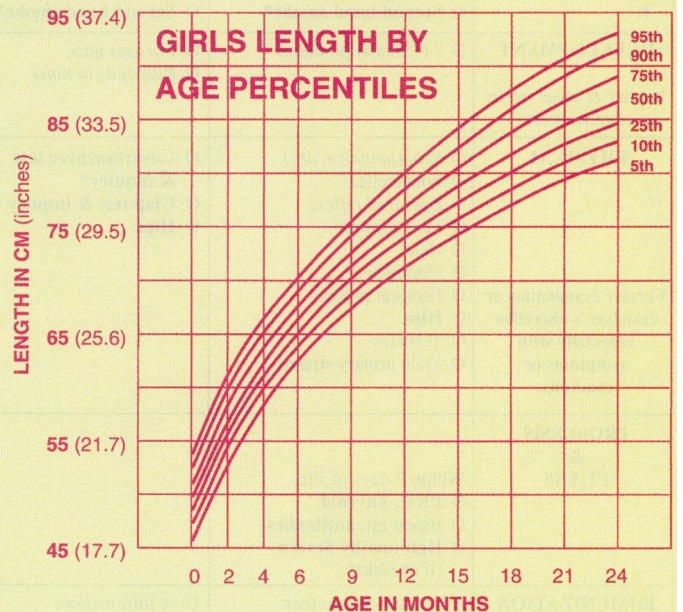
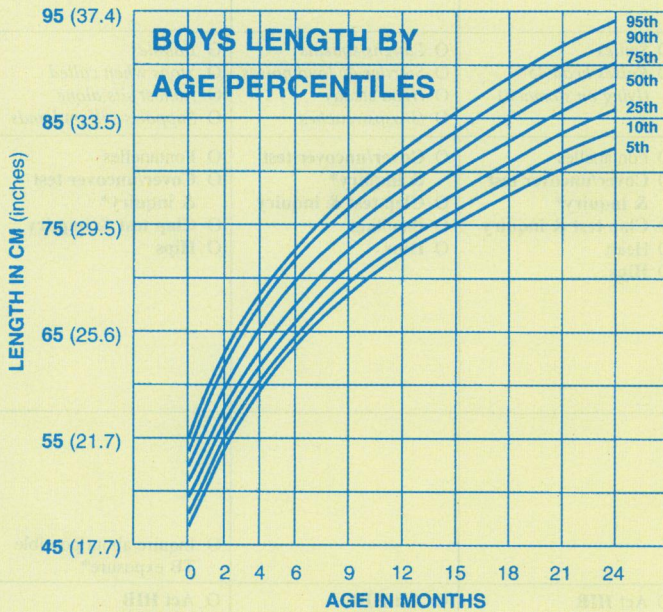
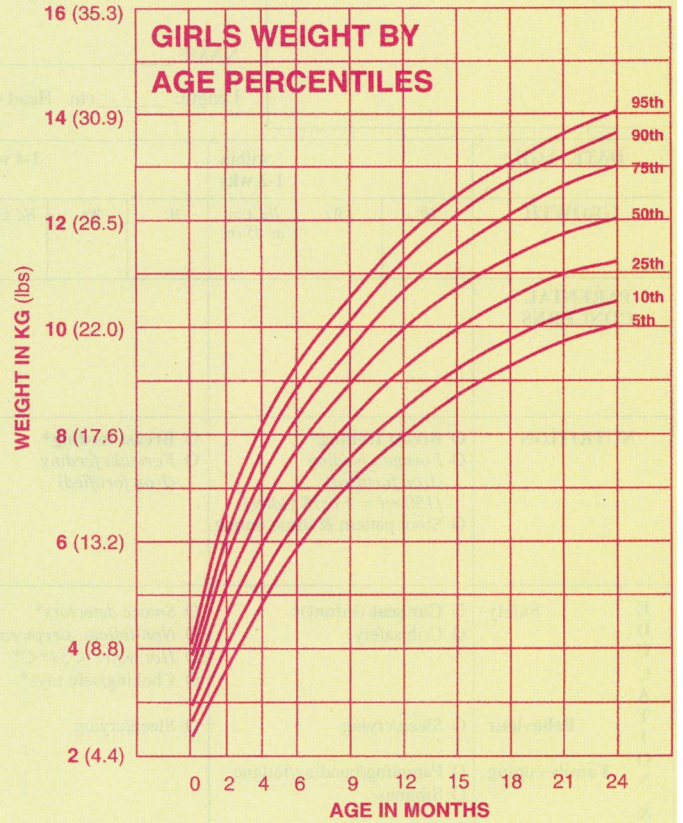
contains 10% post-consumer fibre 

ROURKE BABY RECORD – GROWTH MONITORING CHARTS

BOYS: 0 - 24 MONTHS



GIRLS: 0 - 24 MONTHS



Data from the National Centre For Health Statistics, Health Resources Administration, DHEW; as referenced in Behrman, R.E. and Vaughan, V.C., *Nelson Textbook Of Pediatrics*, W.B. Saunders Company, Toronto, 1996, edition 15

Rourke Baby Record: EVIDENCE BASED INFANT / CHILD HEALTH MAINTENANCE GUIDE II

NAME _____

DATE /AGE	9 mos			12 - 13 mos			18 mos		2 - 3 yrs		4 - 5 yrs	
GROWTH	Ht.	Wt.	Hd. Circ.	Ht.	Wt. (x 3 BW)	Hd. Circ. (av. 47 cm)	Ht.	Wt.	Ht.	Wt. (x 4 BW)	Ht.	Wt.
PARENTAL CONCERNS												
NUTRITION	<input type="checkbox"/> Breast feeding* <input type="checkbox"/> Formula feeding (Iron fortified) <input type="checkbox"/> No bottles in bed <input type="checkbox"/> Meats <input type="checkbox"/> No egg white; no citrus <input type="checkbox"/> Choking/safe food*			<input type="checkbox"/> Fluoride (if needed)* <input type="checkbox"/> Homo milk <input type="checkbox"/> Egg white & yolk, citrus <input type="checkbox"/> Appetite reduced			<input type="checkbox"/> No bottles in bed		<input type="checkbox"/> Fluoride (if needed)* <input type="checkbox"/> Homo or 2% milk <input type="checkbox"/> Canada's Food Guide		<input type="checkbox"/> Fluoride (if needed)* <input type="checkbox"/> 2% milk <input type="checkbox"/> Canada's Food Guide	
E D U C A T I O N & A D V I C E	Safety <input type="checkbox"/> Car seat (toddler)* <input type="checkbox"/> Poisons/PCC #* <input type="checkbox"/> Stairs/walkers* <input type="checkbox"/> Bath Safety* <input type="checkbox"/> Electrical Plugs <input type="checkbox"/> Choking/safe toys*			<input type="checkbox"/> Smoke detectors* <input type="checkbox"/> Non-inflam. sleepwear* <input type="checkbox"/> Hot water < 54° C*					<input type="checkbox"/> Bike helmets* <input type="checkbox"/> Matches		<input type="checkbox"/> Bike helmets* <input type="checkbox"/> Matches <input type="checkbox"/> Water Safety*	
	Behaviour <input type="checkbox"/> Night crying*						<input type="checkbox"/> Discipline					
	High risk <input type="checkbox"/> Assess day care need* <input type="checkbox"/> Assess home visit need*								<input type="checkbox"/> Assess day care & preschool need*			
	Other <input type="checkbox"/> Second hand smoke*			<input type="checkbox"/> Teething*			<input type="checkbox"/> Dental Care* <input type="checkbox"/> Toilet training		<input type="checkbox"/> Dental Care* <input type="checkbox"/> Toilet training		<input type="checkbox"/> Dental Care*	
DEVELOPMENT	<input type="checkbox"/> Non-specific "Dadamama" <input type="checkbox"/> Peek-a-boo <input type="checkbox"/> Stands - holding <input type="checkbox"/> Pulls to a stand <input type="checkbox"/> Gets to sitting position <input type="checkbox"/> Opposes thumb & index			<input type="checkbox"/> First word <input type="checkbox"/> Stands for a moment <input type="checkbox"/> Walks with support			<input type="checkbox"/> 10-20 words <input type="checkbox"/> Points & asks <input type="checkbox"/> Follows commands <input type="checkbox"/> Walks backward <input type="checkbox"/> Uses spoon well <input type="checkbox"/> Piles 2-3 blocks		<input type="checkbox"/> 50 words <input type="checkbox"/> 2-word sentences <input type="checkbox"/> Walks up steps <input type="checkbox"/> Kicks/throw ball		<input type="checkbox"/> Complete sentences <input type="checkbox"/> Asks "Wh.." questions <input type="checkbox"/> Balances on 1 foot <input type="checkbox"/> Hops on 1 foot <input type="checkbox"/> Walks heel-to-toe	
Inquiry & Observations of Milestones:												
PHYSICAL				<input type="checkbox"/> Cover/uncover test & inquiry* <input type="checkbox"/> Clap test & inquiry <input type="checkbox"/> Hips			<input type="checkbox"/> Cover/uncover test & inquiry* <input type="checkbox"/> Clap test & inquiry		<input type="checkbox"/> Visual acuity <input type="checkbox"/> Cover/uncover test* <input type="checkbox"/> Hearing inquiry		<input type="checkbox"/> Visual acuity <input type="checkbox"/> Cover/uncover test* <input type="checkbox"/> Hearing inquiry	
Further examination at examiner's discretion especially with symptoms or concerns.												
PROBLEMS & PLANS	<input type="checkbox"/> Anti-HBs & HBsAg* (If HBsAg pos mother) <input type="checkbox"/> Hgb. (If at risk)*			<input type="checkbox"/> Hgb. (If at risk)* <input type="checkbox"/> Serum Pb. (If at risk)*					<input type="checkbox"/> Serum Pb (If at risk)*			
IMMUNIZATION Guidelines may vary by province.	<input type="checkbox"/> TB skin test ? *			<input type="checkbox"/> MMR			<input type="checkbox"/> Act HIB <input type="checkbox"/> cPDTpolio				<input type="checkbox"/> MMR <input type="checkbox"/> cPDTpolio	
Signature												

Grade of evidence: (A) **Bold type** – Good evidence; (B) *Italic* – Fair evidence; (C) Plain – Optional
(*) see Infant Health Maintenance: Selected Guidelines.

Further copies may be ordered from:
McNeil Consumer Products Company, 890 Woodlawn Rd. W., Guelph, Ontario N1K 1A5 1-800-265-7323 Fax: 1-519-826-6205

INFANT HEALTH MAINTENANCE: SELECTED GUIDELINES

NUTRITION

• Breastfeeding:

Breastfeeding reduces gastrointestinal and respiratory infections. Counselling (both ante- and post partum) increases breastfeeding and prolongs its duration. Early and frequent mother-infant contact, rooming in, and banning handouts of free infant formula increase breastfeeding rates. Routine vit. D supplementation is controversial.

• Fluoride:

- > The Canadian Pediatric Society Nutrition Committee recommends the fluoridation of municipal water supplies as a safe, economical and effective means of preventing dental caries in all age groups.
- > Fluoride supplements are recommended where ingestion from all sources is low.
- > Sources include all home and child-care water sources and the reduction in fluoride by home water filtration devices.
- > Dosage is based on age and fluoride in the water supply.
- > Chewable tablets or lozenges are preferred.

THE CANADIAN PAEDIATRIC SOCIETY RECOMMENDATIONS FOR FLUORIDE SUPPLEMENTATION

AGE	DOSE SCHEDULE FOR DIETARY FLUORIDE SUPPLEMENTS (mg/day)		
	Fluoride concentration in principal drinking water source (ppm)		
	< 0.3	0.3 - 0.6	> 0.6
6 mths - 3 yrs	0.25	0	0
3 - 6 yrs	0.5	0.25	0
6 - 16 yrs	1.0	0.5	0

ref: Canadian Paediatric Society Statement - *Paediatric Child Health* vol. 2 Fall 1996

**The Canadian Dental Association does not recommend starting fluoride supplements until 3 years of age.

SAFETY

Accidents:

In Canada childhood injuries cause 4 times more deaths than does disease. Between the ages 1 - 24 months, 63% of deaths are from injuries.

The leading causes are:

1. motor vehicle accidents
2. drownings
3. burns
4. choking
5. falls

Preventive measures:

1. Motor vehicle accidents:

• Car seats - infant/toddler:

Use infant (rear facing) car seat until baby weighs 20 lbs. (9 Kg). Ensure proper installation of toddler (forward-facing) car seat, using tether straps to secure car seat to the car frame. Do not place a car seat, or a child under 12 years of age, in a front passenger seat which has an airbag.

2. Drownings:

• Bath safety:

Never leave a child younger than 3 years alone in the bath tub.

• Water safety:

Encourage swimming lessons, diving safety and boating safety to reduce the risk of drowning.

3. Burns:

Installs **smoke detectors** in the home.

Use **non-inflammable sleepwear**.

Use hot water at a temperature < 54°C.

4. Choking:

• Use safe toys and safe food

- Assess home for hazards
- e.g. Table for changing baby;
- do not use baby walkers** (used in 80-90% homes);
- use **window and stair guards**;
- wear **bike helmets**.

6. • Poisons:

- > have **Poison Control Centre Phone number** handy.
- > **safety proof cupboards & drawers** containing medicines, cleaners & solvents.
- > have **ipeccac** and be aware of its appropriate use.

BEHAVIOUR

• Night crying:

Night crying will occur in 20% of infants and toddlers who do not require night feeding. Counselling around systematic ignoring and scheduled awakenings has been shown to reduce the prevalence of night crying.

• Resources:

The Canadian Task Force on the Periodic Health Examination, *The Canadian Guide to Clinical Preventive Care*, Minister of Supply and Services Canada, 1994.

Rourke L L, Rourke J T B, Well baby assessment revisited. 1994 Update of the Rourke Baby Record Flow Charts. *Canadian Family Physician* 1994;40:1796-1803.

Rourke J T B, Rourke L L, Well baby visits: Screening and health promotion. *Canadian Family Physician* 1985;31:997-1002.

HIGH RISK INFANTS

• Day care:

Specialized day care or preschool is beneficial for children living in poverty (family income at or below Statistics Canada low income cut-off). These disadvantaged children are at an increased risk of mortality and morbidity, including physical, emotional, social and educational deficits.

• Home visits:

Regular home visiting has been shown to prevent physical abuse and neglect.

Risk factors for physical abuse:

- > low SES
- > young maternal age
- > single parent family
- > parental experiences of own physical abuse in childhood
- > spousal violence
- > lack of social support
- > unplanned pregnancy or negative parental attitude towards pregnancy

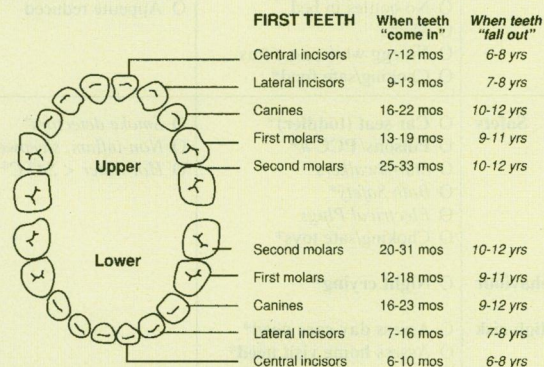
Risk factors for sexual abuse:

- > living in a family without a natural parent
- > growing up in a family with poor marital relations between parents
- > presence of a stepfather
- > poor child-parent relationships
- > unhappy family life.

OTHER

• Dental Care:

Teeth brushing is recommended for children. Flossing should also be encouraged, to develop the habit. (Flossing is an 'A' recommendation for adults.)



• Second hand smoke exposure:

Second hand smoke contributes to childhood illnesses such as URTI, bronchitis, pneumonia, middle ear effusion, asthma, and SIDS.

• Sleep position & SIDS:

Healthy infants should be positioned on their backs, or on their sides for sleep. Counsel parents on the dangers of such contributory causes of SIDS as overheating and second hand smoke.

PHYSICAL

• Cover/uncover test for strabismus:

With the child focusing on a light source, the light reflexes should be symmetrical. Each eye is then covered, in turn, for 2-3 seconds, and then quickly uncovered. The covered eye "wanders" and when uncovered moves inwards, or outwards to focus or "fix" on the light source.

PROBLEMS & PLANS (SCREENING)

• Hemoglobin screening:

All infants, from high risk groups for iron deficiency anemia, require Hgb. determination between 6 -12 mos. of age, e.g. Lower SES; Asian; First Nation children; low birth weight infants, and infants fed whole cow's milk during their first year of life.

• Hemoglobinopathy screening:

Screen all neonates from high risk groups: e.g. Asian, African, Mediterranean.

• Lead Screening is recommended for children:

- > who live, or regularly visit homes built before 1950, with peeling paint or recent renovation;
- > who have a sibling, housemate, or playmate exposed to lead;
- > who live with an adult who (from work or hobby) is exposed to lead;
- > who live near lead industries or busy highways.

IMMUNIZATION:

• Hep B Ig & Immunization:

Neonates of HBsAg-pos mothers require Hep B Ig at birth and Hep B vaccine at birth, at 1 month, and 6 months of age. Anti-HBs and HBsAg should be done at 9-10 months of age.

• TB Skin testing:

TB skin testing should be done if the infant is living with anyone being investigated or treated for TB.

at the first visit in order to assess hydration, which could be at risk if breastfeeding has not been established adequately.⁹

We have not included either breastfeeding or formula feeding on the record beyond the 9-month visit. The World Health Organization currently recommends that all infants be breastfed up to 2 years of age.¹⁰ Practitioners are encouraged to share this information with parents as they make decisions about weaning. Plain cow's milk should not be introduced until babies are eating an adequate amount of solid food containing iron and vitamin C in their diets, preferably not before 9 to 12 months old.¹¹

Routine vitamin D supplementation for breastfed infants remains controversial, but we note that in winter, in northern countries, sun exposure might be inadequate to produce sufficient vitamin D in breastfed babies. Primary care providers are encouraged to refer to the new infant feeding guidelines, soon to be published by the Canadian Paediatric Society (CPS), for information on vitamin D supplementation and breastfeeding.

When mothers decide not to breastfeed or to wean their infants before 6 (or possibly 9) months of age, fair evidence suggests that infants should receive an iron-fortified formula to prevent iron deficiency anemia.⁵ On fair evidence, the CTFPHE recommends introducing iron-fortified cereal into an infant's diet at 4 to 6 months of age.⁵ Iron fortification is an area of emerging controversy, so practitioners should be alert to new evidence.

Good evidence indicates that water fluoridation remains the single most effective, feasible, and efficient means of preventing dental caries.⁵ Based on this evidence, the CTFPHE recommends fluoride supplements in low-fluoride areas (with careful adherence to low dosage schedules to prevent fluorosis). The growing number of home water-filtration devices that could remove fluoride are of concern. In the record, fluoride supplements are recommended beginning at 6 months of age; this is based on the most recent CPS recommendations for age-related dosage.¹² The age for beginning fluoride supplementation, however, has become controversial. The Canadian Dental Association recently changed its recommendations and now does not suggest fluoride supplements for high-risk children until 3 years of age.¹³ The CPS Nutrition Committee, however, determined that the potential benefits of caries protection provided by fluoride supplements from 6 months on outweigh the risks of fluorosis.¹²

Education and advice. This part of the well-baby visit often offers the most opportunity for influencing infant and child well-being, yet it is the most inconsistently performed activity listed in the record. This important section is the focus of Part 2 of this article; we will suggest to primary care providers topics for discussion that have been shown to be effective in outcome. Topics for education and advice are discussed under the subheadings safety, behaviour, family coping, high-risk children, and other.

Development. Although the CTFPHE found fair evidence to exclude use of the Denver Developmental Screening Test (because of poor sensitivity) and insufficient evidence to include other promising developmental screening instruments (eg, Early Screening Inventory, Minneapolis Pre-school Screening Instrument),⁵ inquiring about achievement of developmental milestones at each well-baby visit is recommended (fair evidence) for the first 2 years of life.⁵ Evidence indicates that providing an enriched environment for deprived infants might enhance normal mental development.⁵ Identifying developmental delays is the first step in this process. Developmental screening instruments of acceptable quality need to be developed and evaluated.

Although the developmental milestones in the Rourke Baby Record were originally modeled on the 75th percentile of the Denver Developmental Screening Test, they have been modified over the years using other tested instruments, such as the review of speech milestones written by Angus et al.¹⁴

Physical examination. Traditional physical examinations of infants and children are a mixed bag of proven benefits and unproven rituals. Elements of the examinations with good and fair evidence for continued inclusion in routine assessment of well babies and children are highlighted appropriately.

Most clinicians agree that examining newborns is the most important complete physical check in this age group. Most serious congenital anomalies will be identified at this time, and examination results provide a baseline for subsequent "targeted" assessments.

Good evidence suggests screening for congenital dislocation of the hip and vision and hearing problems, so these are included throughout the first year of life.⁵ Newborn examination of the fundi and the tympanic membranes can uncover potential problems with vision and hearing, so they are also included.

With early discharge after birth, assessment of weight and examination of the skin are helpful in identifying early problems (eg, feeding difficulties, hemolysis, sepsis) that might not have been noted during the brief newborn period in hospital.

Space is provided on the record to allow easy charting of the results of examinations of other organs and systems. As with other routine examinations, however, primary care providers are encouraged to continually set appropriate priorities when time is limited. Thus, at the 6-month visit, a discussion about nutrition, safety, and development could take priority over repeated examination of body parts that have been normal at all previous assessments.

We note that examinations of infants and children can at times be less than ideal, particularly if children are upset or uncooperative. Repeating examinations at several visits, therefore, might be beneficial. The discretion of the examiner is the most important consideration, and the extent of each examination should be guided by symptoms and concerns.

Problems and plans. Space is provided on the Rourke Baby Record: EB for short summaries of information gleaned during well-baby visits. This can help ensure appropriate follow up at subsequent visits, especially if the baby is in a high-risk group or problems do develop. When there is strong evidence for certain maneuvers in prevalent risk groups, these are noted in this space (eg, various types of screening, such as tuberculosis testing, hepatitis screening, and measuring serum lead levels).

Immunization. The vaccines recommended for infants and children at specific ages are identified.^{8,15} It is important to note that these recommendations change continually and vary across the country. Please adapt this section to your setting.

Using the Rourke Baby Record: EB

Given the constantly evolving nature of evidence and changing recommendations, the Rourke Baby Record: EB is meant to be used only as a guide. It might need to be adapted by primary care providers to reflect specific population groups. For example, when working with Canadian-born aboriginal children, inquiring about tuberculosis exposure would be prudent. Primary care providers are encouraged to review and modify the record for use in their own practices.

Conclusion

The Rourke Baby Record, now called the Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance Guide, has been revised to incorporate evidence-based recommendations mainly from the CTFPHE.⁵ The Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance Guide promotes preventive health care supported by research evidence, provides an easily accessible guide for identifying at-risk infants and children, and facilitates concise recording of important parameters of well-baby and well-child care. ♦

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CEFZIL

Tablets, 250 and 500 mg

Powder for oral suspension, 125 mg/5 mL and 250 mg/5 mL ANTIBIOTIC

ACTIONS AND CLINICAL PHARMACOLOGY CEFZIL is a semi synthetic broad spectrum cephalosporin antibiotic intended for oral administration. It has *in vitro* activity against a broad range of gram positive and gram negative bacteria. Its bactericidal action results from inhibition of cell-wall synthesis. **INDICATIONS AND CLINICAL USE** For the treatment of the following infections caused by susceptible strains of the designated microorganisms: **UPPER RESPIRATORY TRACT:** Pharyngitis/tonsillitis caused by group A β -hemolytic (GABHS) *Streptococcus pyogenes*. **Otitis media** caused by *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella (Branhamella) catarrhalis*. **Acute sinusitis** caused by *Streptococcus pneumoniae*, *Haemophilus influenzae* (beta-lactamase positive and negative strains) and *Moraxella (Branhamella) catarrhalis*. **SKIN AND SKIN STRUCTURE: Uncomplicated skin and skin-structure infections** caused by *Staphylococcus aureus* (including penicillinase-producing strains) and *Streptococcus pyogenes*. **URINARY TRACT: Uncomplicated urinary tract infections** (including acute cystitis) caused by *Escherichia coli*, *Klebsiella pneumoniae*, *Proteus mirabilis*. Cultures and susceptibility studies should be performed when appropriate. **CONTRAINDICATIONS** In patients with known allergy to cephalosporins or to any component of the cefprozil preparations. **WARNINGS BEFORE INSTITUTING THERAPY, MAKE CAREFUL INQUIRY TO DETERMINE WHETHER THE PATIENT HAS HAD PREVIOUS HYPERSENSITIVITY REACTIONS TO CEFZIL, CEPHALOSPORINS, PENICILLINS, OR OTHER DRUGS. IF GIVEN TO PENICILLIN-SENSITIVE PATIENTS, CAUTION SHOULD BE EXERCISED BECAUSE CROSS-SENSITIVITY AMONG BETA-LACTAM ANTIBIOTICS HAS BEEN CLEARLY DOCUMENTED.** If an allergic reaction to CEFZIL occurs, discontinue the drug. Serious acute hypersensitivity reactions may require treatment with epinephrine and other emergency measures, including oxygen, intravenous fluids, intravenous antihistamines, corticosteroids, pressor amines, and airway management, as clinically indicated. Treatment with antibacterial agents alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of "antibiotic-associated colitis". Pseudomembranous colitis is associated with the use of broad spectrum antibiotics (including macrolides, semisynthetic penicillins and cephalosporins) and may range in severity from mild to life-threatening. Therefore, it is important to consider this diagnosis in patients who present with diarrhea subsequent to the administration of antibacterial agents. After diagnosing pseudomembranous colitis, initiate therapeutic measures. Mild cases usually respond to drug discontinuation alone. In moderate to severe cases, consideration should be given to management with fluids and electrolytes, protein supplementation, and treatment with an oral antibacterial drug effective against *C. difficile* (e.g., metronidazole). **PRECAUTIONS General:** Evaluate renal status before and during therapy, especially in seriously ill patients. In patients with known or suspected renal impairment (see DOSAGE AND ADMINISTRATION), careful clinical observation and appropriate laboratory studies should be done prior to and during therapy. Reduce total daily dose in patients with creatinine clearance values ≤ 30 mL/min because high and/or prolonged plasma antibiotic concentrations can occur from usual doses. Give with caution to patients receiving concurrent treatment with potent diuretics since these agents are suspected of adversely affecting renal function. Prolonged use of CEFZIL may result in the overgrowth of nonsusceptible organisms. Observe patient carefully. If superinfection occurs during therapy, appropriate measures should be taken. Positive direct Coombs tests have been reported during treatment with cephalosporin antibiotics.

Drug Interactions Nephrotoxicity reported following concomitant administration of aminoglycoside antibiotics and cephalosporin antibiotics. Concomitant administration of probenecid doubled the AUC for cefprozil. If an aminoglycoside is used concurrently with cefprozil, especially if high dosages of the former are used or if therapy is prolonged, monitor renal function because of the potential nephrotoxicity and ototoxicity of aminoglycoside antibiotics. **Drug/Laboratory Test Interactions** Cephalosporin antibiotics may produce a false positive reaction for glucose in the urine with copper reduction tests (Benedict's or Fehling's solution or with Clinistest tablets), but not with enzyme-based tests (glucose oxidase) for glycosuria. A false negative reaction may occur in the ferricyanide test for blood glucose. The presence of cefprozil in the blood does not interfere with the assay of plasma or urine creatinine by the alkaline picrate method. **Use in Pregnancy:** Use only if the potential benefit justifies the potential risk. **Nursing Mothers:** Caution should be exercised. Consider temporary discontinuation of nursing and use of formula feeding. **Pediatric Use:** Safety and effectiveness in children below the age of 6 months not established. Accumulation of other cephalosporin antibiotics reported in newborn infants. **Geriatric Use:** Reduction of dose or of frequency of administration may be indicated. **ADVERSE REACTIONS** Similar to those observed with other orally administered cephalosporins. Cefprozil was usually well tolerated in controlled clinical trials. Approximately 2% of patients discontinued cefprozil therapy due to adverse events. The most common adverse events: **Gastrointestinal:** Diarrhea (2.7%), nausea (2.3%), vomiting (1.4%) and abdominal pain (0.9%). **Hepatobiliary:** cholestatic jaundice reported rarely. **Hypersensitivity:** Rash (1.2%), erythema (0.1%), pruritus (0.3%) and urticaria (0.07%) reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. **CNS:** Dizziness, hyperactivity, headache, nervousness, insomnia, confusion, and drowsiness reported rarely ($< 1\%$) and causal relationship is uncertain. All were reversible. **Other:** Genital pruritus (0.8%) and vaginitis (0.7%). **Laboratory Abnormalities** Transient abnormalities have been reported as follows: **Hepatobiliary:** Elevations of AST, ALT, alkaline phosphatase, and bilirubin. **Hematopoietic:** Transiently decreased leukocyte count and eosinophilia. **Renal:** Slight elevations in BUN and serum creatinine. Adverse reactions reported from post-marketing experience and which were not seen in the clinical trials include serum sickness, pseudomembranous colitis, Stevens Johnson syndrome and exfoliative dermatitis. The association between these events and CEFZIL administration is unknown. In addition to the adverse reactions listed above, the following adverse reactions and altered laboratory tests have been reported for cephalosporin-class antibiotics. Anaphylaxis, erythema multiforme, toxic epidermal necrolysis, fever, renal dysfunction, toxic nephropathy, aplastic anemia, hemolytic anemia, hemorrhage, prolonged prothrombin time, positive Coombs' tests, elevated LDH, pancytopenia, neutropenia, agranulocytosis, thrombocytopenia. Several cephalosporins have been implicated in triggering seizures, particularly in patients with renal impairment, when the dosage was not reduced. (See DOSAGE AND ADMINISTRATION). If seizures associated with drug therapy occur, discontinue drug. Anticonvulsant therapy can be given if clinically indicated. **DOSAGE AND ADMINISTRATION:** Administered orally (with or without food), in the treatment of infections due to susceptible bacteria in the following doses: **Adults (13 years and older)** Upper respiratory tract (pharyngitis/tonsillitis): 500 mg q24h. Acute sinusitis: 250 or 500 mg q12h. Skin & skin structure: 250 mg q12h or 500 mg q24h. Uncomplicated urinary tract: 500 mg q24h. **Children (2 years - 12 years)** Skin & skin structure: 20 mg/kg q24h. **Infants and children (6 months-12 years)** Otitis media: 15 mg/kg q12h. Upper respiratory tract (pharyngitis/tonsillitis): 7.5 mg/kg q12h. Acute sinusitis: 7.5 mg/kg

q12h or 15 mg/kg q12h. The maximum pediatric daily dose should not exceed the maximum daily dose recommended for adults (i.e. 1 g per day). **Duration of Therapy:** 10 to 15 days. Duration should be guided by the patient's clinical and bacteriological response. In the treatment of acute uncomplicated cystitis, a 7 day oral therapy is usually sufficient. In the treatment of infections due to *Streptococcus pyogenes*, administer a therapeutic dosage for at least 10 days. **Renal Impairment:** May be administered to renally impaired patients. No dosage adjustment is necessary for patients with creatinine clearance values > 30 mL/min. For those with creatinine clearance values ≤ 30 mL/min, 50% of the standard dose should be given at the standard dosing interval. Cefprozil is in part removed by hemodialysis; therefore, administer after the completion of hemodialysis. **PHARMACEUTICAL INFORMATION STORAGE:** Store tablets and powder for oral suspension at room temperature (15 - 30°C) and protect from light and excessive humidity. **RECONSTITUTION:** Prior to dispensing, the pharmacist must constitute the dry powder with water as follows:

CEFZIL powder for oral suspension	Bottle size (mL)	Diluent (water) added to bottle (mL)	Approximate available volume (mL)	Final concentration
125 mg/5 mL	75	54	75	125 mg/5 mL
	100	72	100	125 mg/5 mL
250 mg/5 mL	75	54	75	250 mg/5 mL
	100	72	100	250 mg/5 mL

For ease in preparation, the water can be added in two portions. Shake well after each addition and prior to use. **STORAGE OF RECONSTITUTED SUSPENSION:** Store the constituted CEFZIL oral suspension in the refrigerator (2°C - 8°C) for up to 14 days. Keep container tightly closed. Discard unused portion after 14 days. **AVAILABILITY:** CEFZIL (cefprozil) 250 mg tablets are light orange, caplet-shaped, film coated tablets embossed in red ink with 7720 and BMS 250. CEFZIL (cefprozil) 500 mg tablets are white, caplet-shaped, film coated tablets embossed in red ink with 7721 and BMS 500. CEFZIL 250 mg and 500 mg tablets are available in bottles of 100. CEFZIL powder for oral suspension contains cefprozil in a bubble-gum flavored mixture, equivalent to 125 mg or 250 mg cefprozil per 5 mL of constituted solution. Available in bottles of 75 and 100 mL. Product Monograph available to physicians and pharmacists upon request.

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