Evidence-based well-baby care

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

Laurie Panagiotou, RN, BSCN Leslie L. Rourke, MD, CCFP, MCLSC James T.B. Rourke, MD, CCFP(EM), MCLSC
Jacqueline G. Wakefield, MD, CCFP Doris Winfield, BSC, MD, CCFP

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 VOLETS 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.

Ms Panagiotou *is a primary care nurse in the Department of Family Medicine at McMaster University and practises at Stonechurch Family Health Centre in Hamilton, Ont.* **Drs Leslie** *and* **James Rourke** *practise and teach family medicine in Goderich, Ont, and are part-time members of the Department of Family Medicine at the University of Western Ontario in London.*
Dr Wakefield *is a family physician at Stonechurch Family Health Centre in Hamilton, and is an active member of the Department of Family Medicine at McMaster University*. **Dr Winfield** *is a family physician in Kitchener-Waterloo, Ont.*

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 medecine clinique preventive*.[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

Drs. Leslie & James Rourke, Goderich, Ontario,
in collaboration with L. Panagiotou, RN, BScN and
Drs. J. Wakefield and D. Winfield, Hamilton, Ontario
Revised January 1998

Birth remarks:

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

NAME _____ Birth Date (d/m/yr) _____ M[ ] F[ ]

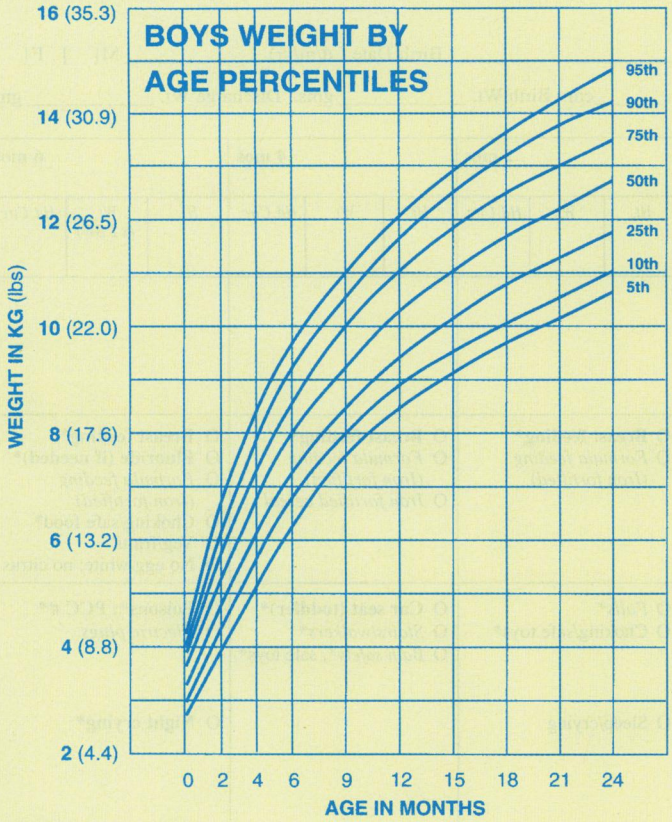
Length: _____cm. Head Circ: _____cm. Birth Wt. _____ gms. Discharge Wt. _____ gms

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	O **Breast feeding*** O *Formula feeding (Iron fortified) [150 ml = 5 oz/Kg/day]* O Stool pattern & urine output			O **Breast feeding*** O *Formula feeding (Iron fortified)*			O **Breast feeding*** O *Formula feeding (Iron fortified)*			O **Breast feeding*** O *Formula feeding (Iron fortified)* O *Iron fortified cereal*			O **Breast feeding*** O **Fluoride (if needed)*** O *Formula feeding (Iron fortified)* O Choking/safe food* O Veg/fruits O No egg white; no citrus		
EDUCATION & ADVICE **Safety**	O **Car seat (infant)*** O Crib safety			O *Smoke detectors** O *Non-inflam. sleepwear** O *Hot water < 54° C** O Choking/safe toys*			O *Falls** O Choking/safe toys*			O **Car seat (toddler)*** O *Stairs/walkers** O *Bath safety**; safe toys*			O **Poisons*; PCC #*** O *Electric plugs*		
Behaviour	O Sleep/crying			O Sleep/crying			O Sleep/crying						O **Night crying***		
Family coping	O Parenting/bonding/fatigue O Siblings														
High risk	O **Assess home visit need***												O **Assess day care need***		
Other	O **Sleep position*** O *Temperature control & overdressing** O **Second hand smoke***			O **Sleep position*** O *Temperature control & overdressing** O **Second hand smoke***			O Fever control			O Teething*					
DEVELOPMENT Inquiry & observation of milestones:	O ? Neonatal problems			O *Focuses gaze* O *Responds to noise*			O *Smiles* O *Raises head 45° (lying on stomach)*			O *Laughs/squeals* O *Startles @ loud noises* O *Head steady* O *Grasps/reaches*			O *Babbles* O *Stops when called* O *Almost sits alone* O *Supports self on hands*		
PHYSICAL **Further examination at examiner's discretion especially with symptoms or concerns.**	O *Skin (jaundice, dry)* O Fontanelles O *Eyes (red reflex)* O *Ears (drums)* O Heart O Umbilicus O Femoral pulses O **Hips** O Testicles O Male urinary stream			O **Cover/uncover test & inquiry*** O **Clap test & inquiry** O **Hips**			O Fontanelles O **Cover/uncover test & inquiry*** O **Clap test & inquiry** O Heart O **Hips**			O **Cover/uncover test & inquiry*** O **Clap test & inquiry** O Babbling O **Hips**			O Fontanelles O **Cover/uncover test & inquiry*** O **Clap test & inquiry** O **Hips**		
PROBLEMS & PLANS	Within 7 days of life: O **PKU, Thyroid** O **Blood gp. antibodies** O **Hgb-opathy Screen (if at risk)***												O Inquire about possible TB exposure*		
IMMUNIZATION **Guidelines may vary by province.**	If HBsAG-pos mother: O **Hep B Vaccine*** O **Hep B Ig*** (? given in hospital)			Give information: O Immunization O Acetaminophen If HBsAG-pos mother: O **Hep. B vaccine***			O **Act HIB** O **cPDTpolio**			O **Act HIB** O **cPDTpolio**			O **Act HIB** O **cPDTpolio** If HBsAG-pos mother: O **Hep. B vaccine***		
Signature															

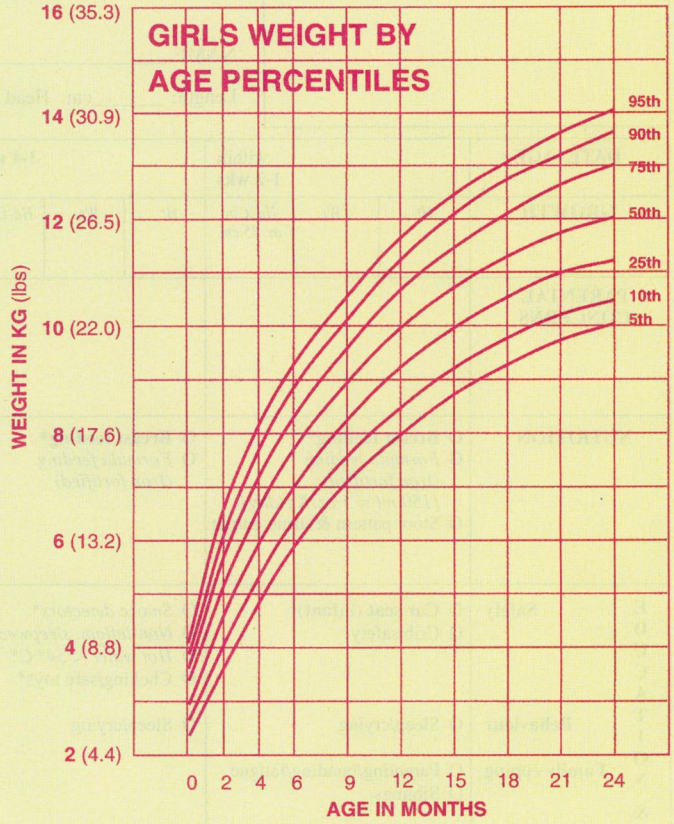
Grade of evidence: (A) **Bold type – Good evidence:** (B) *Italic – Fair evidence* (C) Plain – Optional
(*) *see Infant Health Maintenance: Selected Guidelines.*

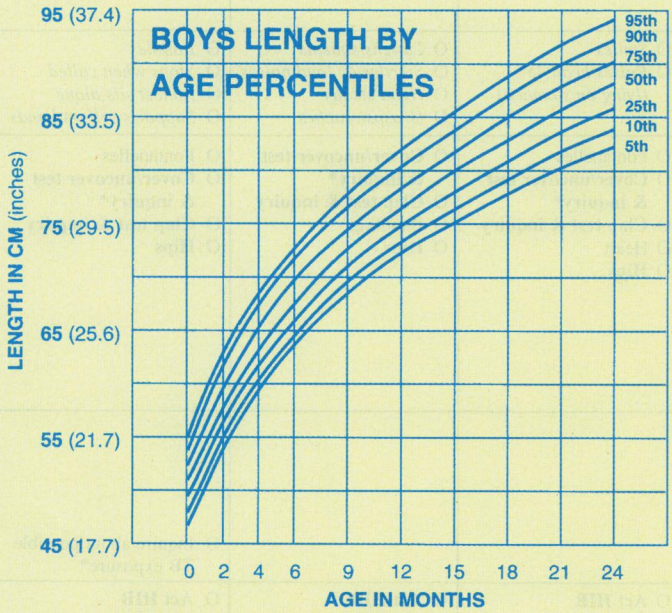
ROURKE BABY RECORD – GROWTH MONITORING CHARTS

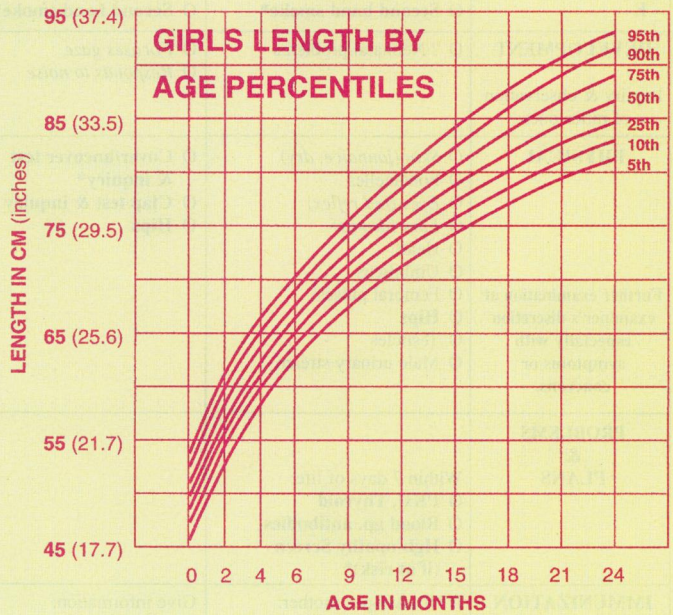
BOYS: 0 - 24 MONTHS



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

Jan. 98

Drs. Leslie & James Rourke, Goderich, Ontario,
in collaboration with L. Panagiotou, RN, BScN and
Drs. J. Wakefield and D. Winfield, Hamilton, Ontario
Revised January 1998

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	O **Breast feeding*** O Formula feeding (Iron fortified) O No bottles in bed O Meats O No egg white; no citrus O Choking/safe food*			O **Fluoride (if needed)*** O Homo milk O Egg white & yolk, citrus O Appetite reduced			O No bottles in bed		O **Fluoride (if needed)*** O Homo or 2% milk O Canada's Food Guide		O **Fluoride (if needed)*** O 2% milk O Canada's Food Guide	
EDUCATION & ADVICE **Safety**	O **Car seat (toddler)*** O **Poisons/ PCC #*** O *Stairs/walkers** O *Bath Safety** O *Electrical Plugs* O Choking/safe toys*			O *Smoke detectors** O *Non-inflam. sleepwear** O *Hot water < 54° C**					O *Bike helmets** O Matches		O *Bike helmets** O Matches O Water Safety*	
Behaviour	O **Night crying***						O Discipline					
High risk	O **Assess day care need*** O **Assess home visit need***								O **Assess day care & preschool need***			
Other	O **Second hand smoke***			O Teething*			O **Dental Care*** O Toilet training		O **Dental Care*** O Toilet training		O **Dental Care***	
DEVELOPMENT **Inquiry & Observations of Milestones:**	O *Non-specific "Dadamama"* O *Peek-a-boo* O *Stands - holding* O *Pulls to a stand* O *Gets to sitting position* O *Opposes thumb & index*			O *First word* O *Stands for a moment* O *Walks with support*			O *10-20 words* O *Points & asks* O *Follows commands* O *Walks backward* O *Uses spoon well* O *Piles 2-3 blocks*		O *50 words* O *2-word sentences* O *Walks up steps* O *Kicks/throw ball*		O *Complete sentences* O *Asks "Wh.." questions* O *Balances on 1 foot* O *Hops on 1 foot* O *Walks heel-to-toe*	
PHYSICAL **Further examination at examiner's discretion especially with symptoms or concerns.**				O **Cover/uncover test & inquiry*** O **Clap test & inquiry** O **Hips**			O **Cover/uncover test & inquiry*** O **Clap test & inquiry**		O *Visual acuity* O Cover/uncover test* O Hearing inquiry		O *Visual acuity* O Cover/uncover test* O Hearing inquiry	
PROBLEMS & PLANS	O **Anti-HBs & HBsAg*** (If HBsAg pos mother) O *Hgb. (If at risk)**			O *Hgb. (If at risk)** O *Serum Pb. (If at risk)**					O *Serum Pb (If at risk)**			
IMMUNIZATION **Guidelines may vary by province.**	O TB skin test ? *			O **MMR**			O **Act HIB** O **cPDTpolio**				O **MMR** O **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

DOSE SCHEDULE FOR DIETARY FLUORIDE SUPPLEMENTS (mg/day)			
	Fluoride concentration in principal drinking water source (ppm)		
AGE	< 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**
5. *Falls:*
   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 ipecac 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.

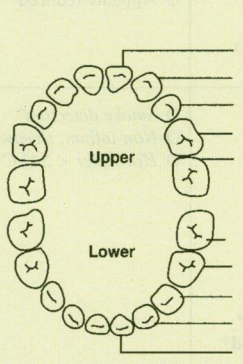
HIGH RISK INFANTS

- **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.)



FIRST TEETH	When teeth "come in"	When teeth "fall out"
Central incisors	7-12 mos	6-8 yrs
Lateral incisors	9-13 mos	7-8 yrs
Canines	16-22 mos	10-12 yrs
First molars	13-19 mos	9-11 yrs
Second molars	25-33 mos	10-12 yrs
Second molars	20-31 mos	10-12 yrs
First molars	12-18 mos	9-11 yrs
Canines	16-23 mos	9-12 yrs
Lateral incisors	7-16 mos	7-8 yrs
Central incisors	6-10 mos	6-8 yrs

- **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. ✤

Correspondence to: *Dr L.L. Rourke, 53 North St, Goderich, ON N7A 2T5; telephone (519) 524-4533; fax (519) 524-5577.* *Copies of the Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance Guide can be ordered from McNeil Consumer Products Co, 890 Woodlawn Rd W, Guelph, ON N1K 1A5; telephone 1-800-265-7323; fax (519) 826-6205.*

Acknowledgment

We thank Dr W.L. Lee for his valuable (and patient) contributions and advice on formatting the Rourke Baby Record: Evidence-Based Infant/Child Health Maintenance Guide, and Dr D. Grenier, Executive Vice President of the Canadian Paediatric Society, for her detailed review of the manuscript and the baby record.

References

1. Task Force on Child Health. Our strength for tomorrow: valuing our children. The CFPC's report on child health. *Can Fam Physician* 1997;43:1265-70.
2. Task Force on Child Health. Our strength for tomorrow: valuing our children. Part 1: consultations. *Can Fam Physician* 1997;43:1409-12.
3. Task Force on Child Health. Our strength for tomorrow: valuing our children. Part 2: unborn and newborn babies. *Can Fam Physician* 1997;43:1585-9.
4. Task Force on Child Health. Our strength for tomorrow: valuing our children. Part 3: child health and the environment. *Can Fam Physician* 1997;43:1789-93.
5. The Canadian Task Force on the Periodic Health Examination. *The Canadian guide to clinical preventive health care.* Ottawa: Supply and Services Canada; 1994.
6. Rourke JTB, Rourke LL. Well baby visits: screening and health promotion. *Can Fam Physician* 1985;31:997-1002.
7. Rourke LL, Rourke JTB. Well-baby assessment revisited. 1994 update of the *Rourke Baby Record* flow charts. *Can Fam Physician* 1994;40:1796-803.
8. National Advisory Committee on Immunization. *Canadian immunization guide.* 4th ed. Ottawa: Supply and Services Canada; 1993.

9. Canadian Paediatric Society. Facilitating discharge home following a normal term birth. Statement FN96-02. *Paediatr Child Health* 1996;1(2):165-9.
10. Innocenti declaration. *On the protection, promotion and support of breastfeeding.* Adopted at the WHO/UNICEF policy makers' meeting on "Breastfeeding in the 1990s: a global initiative"; 1990 July 30 to Aug 1; Spedale degli Innocenti, Italy. New York: UNICEF Nutrition Cluster (H-8F); 1990.
11. Nutrition Committee, Canadian Paediatric Society. *Meeting the iron needs of infants and young children: an update.* Statement N91-01. *Can Med Assoc J* 1991;144:1451-3.
12. Canadian Paediatric Society. The use of fluoride in infants and children. Statement N95-02. *Paediatr Child Health* 1996; 1(2):131-4.
13. Clarke DC. Appropriate uses of fluorides for children: guidelines from the Canadian Workshop on the Evaluation of Current Recommendations Concerning Fluorides. *Can Med Assoc J* 1993; 149:1787-93.
14. Angus K, Cahalan D, Chenette D, Pinnau Emrich H. *Helping kids discover and develop language.* London, Ont: University of Western Ontario Press; 1993.
15. Canadian Paediatric Society. *Your child's best shot: a parent's guide to vaccination.* Ottawa: Canadian Paediatric Society;1997.

...