

Getting it right from birth to kindergarten

What's new in the Rourke Baby Record?

Leslie Rourke MD FCFP MClInSc Denis Leduc MD CCFP FRCPC FAAP Evelyn Constantin MD CM MSc(Epi) FRCPC FAAP
Sarah Carsley MSc(Epi) James Rourke MD FCFP(EM) MClInSc LLD Patricia Li MD MSc FRCPC FAAP

Abstract

Objective To provide an overview of the 2011 edition of the Rourke Baby Record (RBR), which includes developments on its website and new related initiatives that incorporate recent literature on preventive health care for children aged 0 to 5 years.

Quality of evidence As in past RBR editions, recommendations are identified as supported by good, fair, or consensus evidence, according to the classifications adopted by the Canadian Task Force on Preventive Health Care in 2011.

Main message New information and recommendations are given for growth monitoring, nutrition, physical examination maneuvers, and immunizations for varicella, pneumococcus, meningococcus, and rotavirus. There is now good evidence for converting to the World Health Organization growth charts adapted for Canada, universal newborn hearing screening, and use of immunization pain reduction strategies. Anticipatory guidance has been updated for safe sleeping, health supervision of foster children, fetal alcohol spectrum disorder, lead and anemia screening risk factors, and dental care and oral health. New RBR website items include a parent resources section, modifications for unique populations such as those living in Nunavut, a version of the RBR that highlights what has changed from the 2009 version for quick viewing, and an expansion of the "Explore the RBR" feature with associated links to relevant information. A one-visit-per-page format is now available. The 2011 RBR is endorsed by the College of Family Physicians of Canada and the Canadian Paediatric Society, and is available in English and French in national and Ontario versions.

Conclusion The 2011 RBR is an updated, evidence-based, practical knowledge translation tool for preventive health care for infants from birth to age 5 years that includes extensive Web-based resources for health care professionals, students, residents, and parents.

The early years of life are pivotal, not only for future learning, but also for physical, mental, and emotional health throughout life.¹⁻⁸ Brain development is influenced by a complex interaction between genes ("nature") and experience ("nurture"), resulting in lifelong modifications of gene expression (epigenetics) and of physiologic responses. We now know that there are sensitive times in the first few years of life for brain pathway development for functions such as binocular vision, the central auditory system, language development, symbol comprehension, understanding of numbers and relative quantity, habitual ways of responding, emotional control, and peer social skills. These have implications, not only for learning, but also for emotional development. With this recent knowledge, preventive care and health supervision for infants and children in the first few years of life assume an increasing importance, especially with respect to healthy child development and future health outcomes.

Since it was first published in 1985,⁹ the Rourke Baby Record (RBR) has provided a structured system for preventive well-baby and well-child care for infants and children up to 5 years of age by primary health care providers. Endorsed by both the College of Family Physicians of Canada and the Canadian Paediatric Society (CPS), it is evidence-based, has undergone validation testing,¹⁰ and is periodically updated to keep abreast of new evidence.¹¹⁻¹⁷ The RBR website (www.rourkebabyrecord.ca) allows for downloading of the RBR guides and World Health Organization (WHO) growth

KEY POINTS Early child development and experiences, both positive and negative, affect physical, mental, and emotional health throughout life. The 2011 Rourke Baby Record (RBR) includes updates in the literature since the previous edition in 2009. The "Explore the RBR" feature of the RBR website (www.rourkebabyrecord.ca) provides "one-stop shopping" for links to resources both for health care providers and for parents. Immunization pain reduction strategies and resources with good evidence are now available.

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monitoring charts, and also functions as a knowledge translation tool, with “one-stop shopping” for links to resources for both health care providers and parents.

This article describes the advances in the 2011 RBR (which replaces the 2009 edition), as well as developments in the RBR website and new related initiatives.

QUALITY OF EVIDENCE

As in past editions of the RBR, an extensive literature review and a critical appraisal of the evidence for RBR items were performed. Several RBR items were appraised comprehensively through detailed review of the literature. These items included vitamin D supplementation, soy-based formulas, nutritional guidelines, swaddling, parenting programs for care of high-risk children, and 2 topics in the physical examination section: hip examination and eye examination. The search for all relevant peer-reviewed articles was conducted using the Ovid MEDLINE and PubMed databases and key words relevant to each RBR item. In addition, position statements from the CPS and the American Academy of Pediatrics pertaining to each RBR item were reviewed. For each of the reviewed articles, the level of evidence (I to III) and—when possible, which was in most cases—the grade of evidence (A to E, or I) were established by authors with epidemiology training (E.C., S.C., and P.L.) using the classification criteria of the Canadian Task Force on Preventive Health Care in use at that time.¹⁸ A strength of the recommendation—*good*, *fair*, or *consensus*—was then assigned by our group for each RBR item, based on careful and thorough review of the conclusions and recommendations from each study, taking into account the level and grade of the evidence. These 3 strengths of recommendation are reflected in the RBR guides in 3 fonts: good in **bold** type, fair in *italic* type, and consensus in plain type.

MAIN MESSAGE

The RBR form has been improved for 2011. It now allows caregivers as well as parents to report concerns about infants or children. Immunizations are now included in the investigations section to keep the problems and plans section open. The 1-month visit is no longer considered optional, in order to ensure adequate growth, nutrition, and parent adjustment.

A one-visit-per-page format of the English version of the national RBR for 2011 is now available on the RBR website. This format gives the choice of larger print and more writing space. However, it does result in more repetition of the anticipatory guidance items in the education and advice section, which in the usual format are spread over 3 visits to avoid omission and repetition.

As in the past, the 2011 RBR is available in English and French in both national and Ontario versions.

Further development of the RBR website

The RBR website was created to be a practical and comprehensive knowledge translation tool for the field of preventive pediatric health care. Originally launched in 2008 as a source for downloading the RBR and growth monitoring charts, it has now been extensively redeveloped to also include a summary of current evidence; a critically appraised and annotated literature review of most RBR topics; reliable parent resources; publications about the RBR; a trail of the changes to RBR editions over the years; and related news items.

The “Explore the RBR” feature brings the RBR guides to life. Links to current evidence, parent resources, and literature reviews have been added. The Web links for all of the resources listed in this article are easily accessible via the RBR website.

To aid users in quickly seeing the changes in the 2011 RBR compared with the previous 2009 edition, the website includes a version of the RBR with the revisions shown in different colours—magenta for content changes and green for Web link changes (www.rourkebabyrecord.ca/pdf/RBR2011Nat_Eng_High.pdf).

A parent-focused section with reliable Web-based parent resources on various topics is the most recent addition to the website. Information sheets for children of different ages are currently under development.

Main RBR 2011 content updates

Growth monitoring. The 2009 RBR recommended using the WHO Child Growth Standards based on the 2006 WHO Multicentre Growth Reference Study.¹⁹ This recommendation has been reinforced by the 2010 collaborative statement by the Dietitians of Canada, CPS, College of Family Physicians of Canada, and Community Health Nurses of Canada.²⁰ The strength of the evidence for growth monitoring has improved from fair to good with use of the WHO growth charts.

The WHO growth charts have since been adapted for Canada in English and French, with a more familiar appearance including both imperial and metric scales. The RBR website provides a link to the growth charts via the Dietitians of Canada website, which also provides Mainpro-M1 accredited online education modules for growth monitoring.²¹

To help the physician recognize early signs of growth problems, there is an added reminder on the 2-week visit that infants should regain their birth weight between 1 and 3 weeks of age.

Nutrition. With the evolving evidence of the importance of vitamin D, breastfeeding mothers are advised to continue vitamin D supplementation for themselves for the duration of breastfeeding and for the baby until the diet provides a sufficient source of vitamin D (at about 1 year of age). Although infant formula is

fortified with vitamin D (currently 400 IU of vitamin D per 1 L of formula), formula-fed infants drinking less than 1 L (33 oz) per day are receiving less than the recommended daily vitamin D allowance. Vitamin D supplements are even more important for non-white infants, whose darker skin pigmentation is less able to synthesize vitamin D from exposure to sunlight.²² The RBR website provides links to new and updated nutrition resources (**Box 1**).

Box 1. Links to new and updated nutrition resources

- General nutrition: www.osnpph.on.ca/resources/index.php
- Colic: www.cps.ca/english/statements/N/InfantileColic.htm
- Vegetarian diets: www.cps.ca/english/statements/CP/cp10-02.htm
- Infant formula composition and algorithm for use: www.albertahealthservices.ca/3505.asp
- Maternal medications during breastfeeding: <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT>
- Mercury in fish: www.hc-sc.gc.ca/fn-an/secureit/chem-chim/environ/mercur/index-eng.php

On the 2011 RBR, discussion about changing from bottle feeding to cup feeding now first occurs earlier (at 9 months) to reduce weaning time. There is now more emphasis on avoiding sweetened liquids, including sweetened juices, which adversely affect oral health and body weight.

Education and advice. Anticipatory guidance in the RBR is organized under injury prevention, behaviour and family issues, and other miscellaneous topics.

Injury prevention: Safe sleeping suggestions include stronger advice against bed-sharing, which is associated with an increased risk of sudden infant death syndrome; advice against using sleep positioners; and the addition of a new cradle and bassinet safety statement.²³ The term *room-sharing* has replaced the ambiguous term *co-sleeping*. Room-sharing is recommended for the first 6 months.

Behaviour and family issues: Children in foster care have been highlighted as a high-risk population with special needs for health supervision.²⁴ New and updated resources have been incorporated for shaken baby syndrome (now also known as *abusive head trauma*)²⁵ and fetal alcohol spectrum disorder.²⁶

Other issues: Lead screening risk factors have been expanded to include children living near point sources of lead contamination, and those with household members who have lead-related occupations or hobbies. In addition, refugees aged 6 months to 6 years should be screened within 3 months of arrival and again 3 to 6 months later.²⁷ Resources for other environmental issues have been updated.^{28,29}

In 2010, the Canadian Dental Association slightly modified its recommendations. As excessive swallowing of toothpaste by young children might result in dental fluorosis, children 3 to 6 years of age should be supervised while brushing teeth and only use a small amount (pea-sized portion) of fluoridated toothpaste twice a day. Children younger than 3 years of age should have their teeth and gums brushed twice a day by an adult using either water (if child is at a low risk of tooth decay) or a rice grain-sized portion of fluoridated toothpaste (if at risk of caries). Fluoride supplements are not recommended before eruption of the first permanent tooth (around age 6 to 8 years) unless the child is at high risk of dental caries. Subsequent to the completion of the 2011 RBR, a new Canadian Dental Association position statement was released in March 2012.³⁰

Physical examination. Fontanelle closure is now included (posterior fontanelle closed by 2 months and anterior fontanelle by 18 months).³¹ Hip examination is recommended until at least 1 year of age, or until the child can walk.^{32,33} Health care providers are reminded that Ortolani and Barlow tests for developmental dysplasia of the hip are only reliable, at best, in the first 3 months. Signs of developmental dysplasia of the hip in older infants include limitation of hip abduction (best sign), asymmetry of femur length or skin folds, or abnormal Galeazzi test result (asymmetric knee position when hips and knees are flexed with the feet flat on the bed while lying supine).

The presence of snoring is highlighted, along with sleep-disordered breathing (particularly obstructive sleep apnea). Healthy sleep practices are encouraged from birth to 5 years.

Investigations and screening. In addition to infants of low socioeconomic status, Asian and First Nations infants, low-birth-weight infants, and infants fed whole cow's milk in the first year of life, preterm infants have now been added to the at-risk group requiring anemia screening between 6 and 12 months of age.

Universal newborn hearing screening effectively identifies infants with congenital hearing loss, allows for early intervention and improved outcomes, and is included with good strength of evidence in the 2011 RBR.

Immunization and infectious diseases. The RBR immunization chart (Guide V) and supplementary information (Resources 3) continue to be based on the recommendations of the National Advisory Committee on Immunization.³⁴ As always, funded immunizations are in flux and vary between provinces and territories.

Immunization pain reduction strategies and resources are now included. During vaccination, pain reduction strategies with good strength of evidence include

breastfeeding or use of sweet-tasting solutions, use of the least painful vaccine brand, and consideration of topical anesthetics.³⁵

Statements have been updated for varicella vaccine (booster dose recommended), 13-valent pneumococcal conjugate vaccine, and meningococcal conjugate vaccine (booster dose of Men-C-C or Men-C-ACWY at 12 years of age or during adolescence).

Rotavirus vaccine, an oral vaccine recommended by both the National Advisory Committee on Immunization and the CPS, has been added to the 2011 RBR. Two or 3 doses (depending on the vaccine brand) are given at least 4 weeks apart with the first dose between 6 weeks and 14 weeks, 6 days of age, and the last dose given by 8 months, 0 days of age. More immunization Web links for parents and physicians have been added.

Related initiatives. The news section of the RBR website includes several related projects. Ontario has funded an enhanced 18-month well-baby visit which, in addition to the components of a usual well-baby visit, uses standardized tools to allow physicians to have a discussion with parents on child development and parenting, to identify those children who will require referral to specialized services, and to inform parents about the local community programs that promote healthy child development and early learning.³⁶

The Nunavut Well-Baby Record has been adapted and modified from the RBR by the Government of Nunavut. It is part of the Nutaqqavut "Our Children" Health Information System,³⁷ which includes prenatal, birth defect, and well-baby and well-child forms and resources. Watch for upcoming modifications for other unique populations such as those in the First Nations and Inuit Health Alberta Region (supported by Health Canada).

The Greig Health Record³⁸ is an evidence-based health promotion guide for clinicians caring for children and adolescents aged 6 to 17 years, and consists of guides for ages 6 to 9 years, 10 to 13 years, and 14 to 17 years, along with 3 pages of selected guidelines and resources.

The RBR is increasingly available in various electronic medical records. Fair-use authorization is described and included on the RBR website. Our goal has always been to have the RBR freely and widely available.

Various tools for teaching well-baby and well-child care based on the RBR have been developed. An online module for a 6-month well-baby visit is being evaluated at Memorial University of Newfoundland with plans for wider dissemination. Other centres, such as the Hamilton Family Health Team, have developed local teaching and resource guides to accompany the 2011 RBR.

CONCLUSION

For more than 25 years, the RBR has provided health care professionals with current evidence-based

well-baby and well-child care for children up to 5 years of age. The 2011 RBR continues this tradition of incorporating new advances in the RBR guides, further development of the RBR website as a knowledge translation tool, and increasing electronic availability and supporting resources.

Dr L. Rourke is Associate Professor of Family Medicine in the Faculty of Medicine at Memorial University of Newfoundland in St John's. **Dr Leduc** is Associate Professor of Pediatrics in the Faculty of Medicine at McGill University in Montreal, Que. **Dr Constantin** is Associate Professor of Pediatrics at McGill University. **Ms Carsley** is Clinical Research Project Coordinator in Paediatric Medicine at the Hospital for Sick Children in Toronto, Ont. **Dr J. Rourke** is Professor of Family Medicine and Dean of Medicine at Memorial University of Newfoundland. **Dr Li** is Assistant Professor of Pediatrics at Montreal Children's Hospital in the McGill University Health Centre.

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Contributors

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Competing interests

None declared

Correspondence

Dr Leslie Rourke, Discipline of Family Medicine, Health Sciences Centre, St John's, NL A1B 3V6; e-mail lrourke@mun.ca

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