

Rourke Baby Record 2017

Clinical update for preventive care of children up to 5 years of age

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Abstract

Objective To describe the process and evidence used to update preventive care recommendations in the 2017 Rourke Baby Record to assist primary care providers' decisions around which maneuvers to prioritize and implement in practice.

Quality of evidence A search of the literature from June 2013 to June 2016 was conducted, using the GRADE (Grading of Recommendations Assessment, Development and Evaluation) methodology to critically appraise primary research studies, and recommendations were changed where there was substantial support from the new literature.

Main message The important changes in preventive care recommendations for children up to 5 years of age include the addition of body mass index monitoring as of 2 years of age; stronger evidence to support the introduction of allergenic foods without delay (strength of recommendation change from fair to good); the recommendation to ask validated questions regarding the effects of poverty; evidence showing no safe level of lead exposure in children; the recommendation of a daily sleep duration; the upgrade of recommendation strength from fair to good of items related to the prevention and detection of adverse childhood experiences, including assessment of bruising in babies younger than 9 months; and blood pressure monitoring only for children at risk.

Conclusion Early childhood exposures and habits have short- and long-term health consequences. The Rourke Baby Record will continue to publish updates to ensure that primary care providers are equipped to promote lifelong health and well-being through evidence-informed care in young children.

There is no doubt that the early years of a child's life are crucial, not only for his or her potential for learning, but indeed for his or her lifelong physical, mental, social, and emotional health. Brain development in the first few years of life occurs sequentially, has sensitive periods, and is affected positively or negatively by experiences.¹⁻³ Given this important window of opportunity to positively influence developmental outcomes, preventive care for families of young children assumes increasing importance, and is especially relevant when it is based on current best evidence.

The Rourke Baby Record (RBR) is a freely available evidence-informed health maintenance record for primary health care providers caring for infants and young children. Endorsed by the College of Family Physicians of Canada (CFPC), the Canadian Paediatric Society (CPS), and the Dietitians of Canada, the RBR has become the criterion standard in Canada for tracking health and development in children up to 5 years of age. First published in 1985,⁴ it has been validated⁵ and rigorously updated over the years.⁶⁻¹⁴ Available in English and French, in national and Ontario versions, it has also been adapted to various locales and unique populations (including Nunavut, Alberta First Nations, Northwest Territories, and Nova Scotia) with the permission of and review by the RBR authors.

Editor's key points

► The 2017 Rourke Baby Record (RBR) is an update of the 2014 edition and incorporates the most recent evidence for the health supervision of infants and children up to 5 years of age. Tools to aid in knowledge translation and clinical decision making are available on the RBR website (www.rourkebabyrecord.ca).

► The most substantial revisions in the 2017 RBR for children up to 5 years of age include the addition of body mass index monitoring as of 2 years of age; stronger evidence to support the introduction of allergenic foods without delay (change in strength of recommendation from fair to good); the recommendation to ask parents validated questions regarding the effects of poverty; evidence showing no safe level of lead exposure in children; the recommendation of a daily sleep duration; the strength of recommendation upgrade from fair to good of items related to the prevention and detection of adverse childhood experiences, including assessment of bruising in babies younger than 9 months; and blood pressure monitoring only for children at risk.

► The "Interactive RBR" section of the website displays Guides I to V with shading that links to the summary of evidence, to selected guidelines, and to parent resources for each topic. The "Literature Review" section lists the critically appraised references supporting the items included in the 2017 RBR (www.rourkebabyrecord.ca/literature_review).

The RBR consists of structured forms for well-baby and well-child visits (Guides I to IV), an immunization chart (Guide V), and a summary of current evidence for most items (Resources 1 to 4). Three fonts—**bold**, *italics*, and regular, bold being the strongest—indicate the strength of the recommendation for each item, and footnotes direct the user to the corresponding resource page (ie, one of Resources 1 to 4). It is an ideal tool for team-based and multidisciplinary care, and for teaching. The RBR website (www.rourkebabyrecord.ca) provides extensive resources for health care providers and parents. A Web application provides another format for reliable health information to answer parents' common questions. The RBR has recently been translated into a teaching tool for medical students and other health care professionals through an open-access national curriculum (<https://sites.google.com/site/sharcfm>) devised by the Canadian Undergraduate Family Medicine Education Directors and supported by the CFPC.¹⁵

This article is a clinical review of the 2017 RBR, highlighting new evidence from the literature that has informed revisions from the 2014 edition of the RBR. By providing details of the process and evidence used to generate our preventive care recommendations, we aim to assist primary care providers in deciding which maneuvers to prioritize and implement in practice.

Quality of evidence

Our systematic approach to updating the RBR follows the framework of AGREE II (Appraisal of Guidelines for Research and Evaluation II; www.agreetrust.org).¹⁶ In general, we sought new or updated evidence regarding existing RBR items, as well as evidence to support the creation of new RBR items related to the preventive care of children up to 5 years of age in the key domains of growth monitoring, nutrition, education and advice (injury prevention, behaviour and family issues, environmental health, other), developmental surveillance, physical examination, investigations and screening, and immunization. The core RBR update team, consisting of a family physician (L.R.), a pediatrician (D.L.), a pediatric clinical epidemiologist (P.L.), and research assistants (S.A., K.R.), were involved in the literature search, appraisal of evidence, and final recommendations. We employed methods previously described¹⁴ to retrieve and appraise new or updated articles, reports, and position statements. For the current RBR, we searched the literature published from June 2013 (since the last RBR update) to June 2016. We used the GRADE (Grading of Recommendations Assessment, Development and Evaluation) methodology¹⁷ to critically appraise primary research studies. As the RBR is intended for primary care providers, stakeholders and advisory members involved in the update of the RBR were affiliated with the CFPC, the CPS, and the Dietitians of Canada. We collaborated with this team of knowledge users to ensure that key

evidence and resources were reviewed and validated. We changed or modified recommendations where there was substantial support from the new literature. We classified recommendations using our long-standing and practical system consisting of *good*, *fair*, and *consensus or inconclusive evidence*, which appear in bold, italics, and regular font in the RBR, respectively.

With every iteration of the RBR, there is an accompanying literature review table to document the main evidence appraised to support our recommendations. In the current table, we included additional resources and any substantial evidence published from June 2016 to November 2017, although these did not necessarily contribute to the recommendations owing to the lead time required to send the updated tool for external review. We also archived old policy statements and clinical practice points that were either published more than 10 years ago and no longer pertinent or withdrawn by the professional bodies that originally endorsed them.

Main message

The main content changes in the RBR 2017 are outlined below. Further details and rationale for the changes are found in **Table 1**.^{2,18-68}

A version of the 2017 national RBR showing all changes since the 2014 RBR in teal text and a list of all revisions can be found on the RBR website in the "Updates/Changes" section (www.rourkebabyrecord.ca/updates).

Growth monitoring. The calculation of body mass index is now recommended for children aged 2 years and older, in keeping with the 2015 Canadian Task Force on Preventive Health Care statement on growth monitoring.¹⁸

Nutrition. Content changes in the 2017 RBR related to nutrition include advising against the use of home-made infant formulas,¹⁹ deletion of the absolute contraindication to breastfeeding by all mothers with HIV-1 infection,²⁰ vitamin D supplementation for all breast-fed infants and children regardless of age and diet,²¹⁻²³ encourage a variety of soft-texture foods,²⁴ stronger evidence to support the introduction of allergenic foods without delay,²⁵⁻²⁹ expansion of choking avoidance strategies,²³ and expansion of the statement on juices and sweetened liquids.²³

Education and advice. In the guides, the "Education and Advice" domain title is now qualified with the phrase: "Repeat discussion of items is based on perceived risk or need." This is meant to clarify that an item might require discussion at more than 1 visit depending on risk or need. Likewise, an item does not need to be automatically readdressed, especially if there has been no concern with it and no change in care. This is particularly relevant for RBR formats that list all anticipatory guidance items at each visit.

Table 1. Main changes and additions to the 2017 RBR: *Important changes are shown in bold.*

CHANGE OR ADDITION	DETAILS OR RATIONALE
Growth monitoring	
<ul style="list-style-type: none"> • Calculation of BMI for visits at ≥2 y of age 	<ul style="list-style-type: none"> • Addition of BMI calculation is based on the 2015 CTFPHC statement on growth monitoring.¹⁸ Although the CTFPHC based their decision on very low-quality evidence, the strength of the recommendation for growth monitoring was strong. They deemed the preventive maneuver to be a “long-standing, feasible, low-cost intervention that is unlikely to result in harms”¹⁸ and that might help identify children at risk of weight-related problems, including hypertension, dyslipidemia, diabetes, and nonalcoholic fatty liver disease • Growth monitoring includes the measurement of recumbent length (birth to 2 to 3 y) or standing height (≥2 y), weight, head circumference (birth to 2 y), and calculation of BMI (2 to 5 y). The RBR endorses the WHO growth charts adapted for Canada, available from the Dietitians of Canada (www.dietitians.ca/growthcharts), which include BMI curves for boys and girls aged 2 to 19 y, along with BMI calculators
Nutrition	
<ul style="list-style-type: none"> • The use of homemade infant formulas is discouraged • Statement removed: breastfeeding is contraindicated for HIV-1 infected mothers even if they are receiving antiretroviral therapy • Vitamin D supplementation of 400 IU/d (800 IU/d in high-risk infants) is recommended for infants and children for as long as they are breastfed (previous RBR recommended this until the diet provided a sufficient source of vitamin D at about 1 to 2 y) • Introduction to solids: a few weeks before to just after 6 mo, start iron-containing foods to avoid iron deficiency. A variety of soft-texture foods, ranging from purees to finger foods, can be introduced • Allergenic foods: delaying the introduction of priority food allergens is not currently recommended to prevent food allergies, including for infants at risk of atopy (good evidence; previously fair) • Avoid hard, small, round, smooth, and sticky solid foods until 3 y of age. Encourage child to remain seated while eating and drinking • Avoid sweetened juices and liquids (good evidence; previously consensus) • Avoid all sweetened fruit drinks, sport drinks, energy drinks, and soft drinks; restrict fruit juice consumption to a maximum of 1/2 cup (125 mL) per d • Promote family meals with independent feeding or self-feeding while offering a variety of healthy foods 	<ul style="list-style-type: none"> • Homemade formula is discouraged owing to nutrition and safety concerns¹⁹ • Emerging evidence shows that the breastfeeding contraindication is no longer absolute. It is currently a more complex issue²⁰ • Recent evidence shows low vitamin D levels in breastfed infants and children eating solid foods, and particularly in those >1 y of age, along with difficulty in knowing when the diet of a breastfed infant or child contains sufficient vitamin D²¹⁻²³ • Addition is based on the 2014 joint statement on nutrition for healthy term infants produced by Health Canada, the CPS, the Dietitians of Canada, and the Breastfeeding Committee for Canada.^{22,23} Specific timing of introduction is based on signs of infant readiness, which include that the infant transitions from sucking to swallowing from a spoon, holds head up well, sits with little help, opens mouth when food is offered, and turns head to refuse food. Early participation of the infant in the feeding process might avoid feeding difficulties and poorer nutrition in childhood²⁴ • Early introduction and repeated ingestion of food allergens, such as egg, fish, and peanut products, starting at 6 mo of age or earlier is associated with a statistically significant reduction in risk of these respective food allergies²⁵⁻²⁹ • Further strategies provided for the prevention of choking²³ • Limit sweetened drinks or juice to prevent dental caries and obesity, and because these liquids take the place of more nutritious foods²³ • A healthy approach to eating promotes a parent-child division of responsibility in feeding. The parent decides what, where, and when, whereas the child decides how much²³

Table 1 continued on page 186

Table 1 continued from page 185

CHANGE OR ADDITION	DETAILS OR ADDITION
Education and advice: repeat discussion of items is based on perceived risk or need	
Injury prevention	
<ul style="list-style-type: none"> • Assessment of bruising: unexplained injuries (eg, fractures, bruising, burns) or injuries that do not fit the rationale provided or developmental stage raise concern of child maltreatment 	<ul style="list-style-type: none"> • Caregiver frustration with infant crying can lead to child maltreatment or inflicted injury (eg, head injury, fractures, bruising)³⁰
<ul style="list-style-type: none"> • Motorized vehicle safety recommendations now include all-terrain vehicles and snowmobiles^{31,32} 	NA
<ul style="list-style-type: none"> • Use rear-facing infant or child seat that is approved by the manufacturer for use until at least 2 y of age. After this, use booster seat for children 18 to 36 kg (40 to 80 lbs) and up to 145 cm (4 ft 9 in) 	<ul style="list-style-type: none"> • Car seat wording has been updated according to Transport Canada recommendations³³
<ul style="list-style-type: none"> • Crib safety or room-sharing: infants should sleep in a crib, cradle, or bassinet, without soft objects, loose bedding, and similar items that meet current 2015 Health Canada regulations, in the parents' room for the first 6 mo of life.^{34,35} Room-sharing is protective against SIDS 	NA
<ul style="list-style-type: none"> • While supine for sleep, the orientation of the infant's head should be varied. After the umbilical cord stump has detached, infants should have supervised "tummy time" while awake 	<ul style="list-style-type: none"> • These recommendations were updated for the prevention of positional plagiocephaly³⁶
<ul style="list-style-type: none"> • Swaddling must be done properly and is not recommended after the first 2 mo of life (change from 6 mo). A swaddled infant must always be placed supine, with free movement of hips and legs, and the head uncovered 	<ul style="list-style-type: none"> • Although proper swaddling of the infant for the first 2 mo of life might promote longer sleep periods, it can be associated with adverse events (hyperthermia, SIDS, or development of hip dysplasia) if misapplied, and is not recommended beyond 2 mo of life^{37,38}
Behaviour and family issues	
<ul style="list-style-type: none"> • Recommended sleep duration per 24 h: 12 to 16 h for infants 4 to 12 mo of age; 11 to 14 h for children 1 to 2 y of age; 10 to 13 h for children 3 to 5 y of age; 9 to 12 h for children 6 to 12 y of age; and 8 to 10 h for children 13 to 18 y of age 	<ul style="list-style-type: none"> • Normal sleep (quality and quantity for age) is associated with normal development and leads to better health outcomes³⁹⁻⁴¹
<ul style="list-style-type: none"> • Turn off computer or television screens 60 min before bedtime. No computer or television screens should be in the bedroom 	
<ul style="list-style-type: none"> • Inquire about effects of poverty: "Do you have difficulty making ends meet? Do you have trouble feeding your family?" 	<ul style="list-style-type: none"> • There is increasing evidence of the importance of addressing SDH to optimize early child development and long-term health outcomes⁴²⁻⁴⁴
<ul style="list-style-type: none"> • Discipline and parenting skills programs are advised (good evidence) 	<ul style="list-style-type: none"> • Adverse childhood experiences have negative outcomes and there is strong evidence to support positive parenting^{2,45-49}
<ul style="list-style-type: none"> • Inform parents that warm, responsive, flexible, and consistent discipline techniques are associated with positive child outcomes. Overreactive, inconsistent, cold, and coercive techniques are associated with negative child outcomes. Use of any physical punishment, including spanking, should be discouraged in all ages 	
<ul style="list-style-type: none"> • Risk factors for child maltreatment are categorized as follows: <ul style="list-style-type: none"> -Parent (low socioeconomic status, maternal age < 19 y, child is in a single-parent family, child has nonbiologic parents, abused as child, substance abuse, lack of social support, unplanned pregnancy or negative parental attitude toward pregnancy) -Family (spousal violence, poor marital relations, poor child-parent relationship, unhappy family life) -Child (behaviour problems, disability) 	

Table 1 continued on page 187

Table 1 continued from page 186

CHANGE OR ADDITION	DETAILS OR ADDITION
<p>Environmental health</p> <ul style="list-style-type: none"> • Lead: there is no safe level of lead exposure in children • Blood screening for lead is recommended for children who ... <ul style="list-style-type: none"> -in the past 6 mo lived in a house or apartment built before 1978, -live in a home with recent or ongoing renovations or peeling or chipped paint, -have a sibling, housemate, or playmate with a history of lead poisoning, -live near point sources of lead contamination, -have household members with lead-related occupations or hobbies, or -are refugees aged 6 mo to 6 y. Testing should be done within 3 mo of arrival and again in 3 to 6 mo • Second-hand smoke exposure: there is no safe level of exposure <ul style="list-style-type: none"> -Advise caregivers to stop smoking or reduce second-hand smoke exposure. Offer smoking cessation resources <p>Other</p> <ul style="list-style-type: none"> • Dental cleaning: as excessive swallowing of toothpaste by young children might result in dental fluorosis, children <3 y of age should have their teeth and gums brushed twice daily by an adult using either water (if at low risk of tooth decay) or a rice grain-sized portion of fluoridated toothpaste (if at risk of caries). Children 3 to 6 y of age should be assisted during brushing and only use a small amount (eg, pea-sized portion) of fluoridated toothpaste twice daily. Caregiver should brush a child's teeth twice daily until they develop the manual dexterity to do this alone, and should continue to intermittently supervise brushing after children assume independence. Begin flossing daily when teeth touch • Caries risk factors include caries or enamel defects, concerns about hygiene or diet, parent has caries, premature or low-birth-weight infant, or no water fluoridation • Fluoride varnish should be used for those at risk of caries. Consider dietary fluoride supplements only for high-risk children who do not have access to systemic community water fluoridation • Consider the first dentist visit by 6 mo after eruption of first tooth, or at age 1 y <p>Developmental surveillance: ongoing monitoring of development, identification of risk factors, and elicitation of parental concerns^{56,57}</p> <p>Assess the following:</p> <ul style="list-style-type: none"> • Within 1 wk: Sucks well on nipple • 9 mo: Opposes thumb and fingers when grasping objects and finger foods • Added at 12 mo: Has pincer grasp to pick up and eat finger foods • 18 mo: Says 15 or more words (words do not have to be clear) (previously 20 or more words) 	<ul style="list-style-type: none"> • Evidence suggests that even low blood lead levels can have adverse health effects on a child's cognitive function^{50,51} • Blood lead level, not serum lead level, should be measured • Second-hand smoke exposure contributes to childhood respiratory illnesses, SIDS, and neurobehavioural disorders⁵²⁻⁵⁴ • Recommendations in keeping with the CPS-endorsed Canadian version of the Smiles for Life oral health online education tool (www.smilesforlifeoralhealth.org)⁵⁵ • Updated for surveillance of development and as a red flag for inadequate hydration • Updated in keeping with evidence-informed milestones⁵⁸

Table 1 continued on page 188

Table 1 continued from page 187

CHANGE OR ADDITION	DETAILS OR ADDITION
Physical examination <ul style="list-style-type: none"> • Within 1 wk to 1 mo: skin (jaundice, bruising) • Up to 6 mo old: assessment of bruising • Assessment of jaundice up to 2 mo of age (previously 1 mo) • Jaundice: bilirubin testing (total and conjugated) if jaundice persists beyond 2 wk of age • 2 to 3 y and 4 to 5 y of age: blood pressure measurement if at risk (instead of all children) • Assess teeth from 6 mo onward (previously ≥ 12 mo) • Assess torticollis from < 1 wk to 4 mo • Assess abdomen until 2 mo • Hip examination details added: Barlow-Ortolani test (up to 2 mo) and limited hip abduction (4 to 15 mo) • Genitalia examination added to examination of testicles (up to 2 wk) 	<ul style="list-style-type: none"> • “Dry skin” was removed as it is not a reliable assessment of dehydration • Unexplained bruising warrants evaluation for child maltreatment or medical illness. Bruising is rare ($< 1\%$) in infants < 9 mo of age, in contrast to common (40% to 90%) in those ≥ 9 mo of age⁵⁹ • To assess the possibility of biliary atresia⁶⁰ • Current evidence suggests low-risk children up to 5 y of age do not need their blood pressure measured. Children with the following conditions should have their blood pressure measured: history of prematurity, very low birth weight, or other neonatal complication requiring intensive care; congenital heart disease (repaired or unrepaired); recurrent urinary tract infections, hematuria, or proteinuria; known renal disease or urologic malformations; family history of congenital renal disease; history of solid organ transplant; history of malignancy or bone marrow transplant; treatment with drugs known to raise blood pressure; other systemic illnesses associated with hypertension (neurofibromatosis, tuberous sclerosis, etc); evidence of elevated intracranial pressure; obesity; and any symptoms or concerns^{61,62} • Revised to be consistent with the average age of first tooth eruption • Recommended to be done in association with positional plagiocephaly and orientation of the infant's head while sleeping⁶³ • To be consistent with the inclusion of the examination of the heart until 2 mo of age for the diagnosis of congenital heart disease, we added an abdominal examination until 2 mo for the detection of a congenital or acquired renal lesion presenting as an abdominal mass • Appropriate examination technique varies with age⁶⁴ • Genitalia examination should be done for both female and male infants
Investigations and screening <ul style="list-style-type: none"> • All infants and children from high-risk groups for iron deficiency anemia require screening between 6 and 18 mo of age (eg, low socioeconomic status; Asian ethnicity; First Nations children; low-birth-weight and premature infants; infants or children fed whole cow's milk before 9 mo of age or at quantities greater than 750 mL/d, or if iron-containing foods are not provided) 	<ul style="list-style-type: none"> • Children continue to be at risk of iron deficiency anemia beyond 12 mo of age^{65,66}
Immunizations: see Guide V and Resources 3 pages for updated schedule according to NACI <ul style="list-style-type: none"> • See the Canadian Immunization Guide (www.canada.ca/en/public-health/services/canadian-immunization-guide.html) for recommended immunization schedules for infants, children, youth, and pregnant women • Acetaminophen or ibuprofen should not be given before, but can be given after vaccination as required • The qualifier on the immunization table (Guide V) for HPV has been revised to “starting at 9 years of age, as per provincial/territorial guidelines,” and the HPV vaccine notes have been deleted 	<ul style="list-style-type: none"> • To protect the infant, immunization recommendations for pregnant women are included. However, the 2017 RBR does not contain the most recent (February 2018) recommendations for Tdap in pregnancy, which recommends that the Tdap vaccine be offered in every pregnancy, irrespective of previous immunization history⁶⁷ • Prophylactic antipyretics are not recommended owing to the possibility of a reduced antibody response to vaccine antigens⁶⁸ • The HPV vaccine is not given in the birth-to-5-y age range of the RBR, and the schedule is evolving

BMI—body mass index; CPS—Canadian Paediatric Society; CTFPHC—Canadian Task Force on Preventive Health Care; HPV—human papillomavirus; NA—not applicable; NACI—National Advisory Committee on Immunization; RBR—Rourke Baby Record; SDH—social determinants of health; SIDS—sudden infant death syndrome; Tdap—tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis; WHO—World Health Organization.

Injury prevention items with updates include unexplained or inconsistent injuries,³⁰ motorized vehicle injuries,³¹⁻³³ crib safety,^{34,35} prevention of positional plagiocephaly,³⁶ and the age limit for swaddling.^{37,38}

Revised behaviour and family items include addition of recommended daily sleep duration with no screen time 60 minutes before bedtime,³⁹⁻⁴¹ the recommendation to ask the parents validated questions about the effects of poverty,⁴²⁻⁴⁴ and the recommendation upgrade from fair to good of items related to the prevention and detection of adverse childhood experiences and support of positive parenting.^{2,45-49}

The update to the environmental health items states there is no safe level of exposure to lead^{50,51} or second-hand smoke.⁵²⁻⁵⁴

The oral health section in Resources 1 has been expanded to list caries risk factors, to explain assistance with brushing and flossing teeth, and to clarify indications for fluoride use. A Canadian version of a module of the American “Smiles for Life” oral health online education tool has been developed and has been endorsed by the CPS.⁵⁵ Currently it is found at www.smilesforlifeoralhealth.org (click on “Teach Curriculum” and select course 11, “Canadian Modules”).

Developmental surveillance. Developmental surveillance, as used in the RBR, involves the “ongoing monitoring of development, identification of risk factors and elicitation of parental concerns,” whereas screening is the “use of a standardized tool to search for developmental delay in asymptomatic populations.”⁵⁶ The strength of recommendations for developmental surveillance items on the RBR has not changed. However, the Canadian Task Force on Preventive Health Care now recommends against screening for developmental delay with standardized tools in children 1 to 4 years of age who have no signs of developmental delay, and when caregivers and clinicians have no developmental concerns (strong recommendation; low-quality evidence).⁵⁶ The CPS continues to endorse an enhanced 18-month well-child visit, in which they promote the use of an evidence-informed health supervision guide such as the RBR, as well as a developmental screening tool (common ones include the Nipissing District Developmental Screen, Ages and Stages Questionnaire, Parents’ Evaluation of Developmental Status, and Parents’ Evaluation of Developmental Status: Developmental Milestones) to encourage discussion of a child’s development.⁵⁷

Revisions regarding specific developmental milestones have been made including sucking ability, fine motor control items, and 18-month speech acquisition.⁵⁸

Physical examination. Several physical examination maneuvers have been revised in the 2017 RBR: removal of examining for dry skin in the neonate, emphasis on

the importance of prolonged jaundice up to 2 months of age,⁶⁰ assessment for bruising in infants younger than 9 months of age,⁵⁹ risk factors requiring blood pressure assessment,^{61,62} age for examining teeth, assessment for torticollis up to 4 months of age,⁶³ abdominal examination, techniques of hip examination,⁶⁴ and genitalia examination for all infants.

Investigations and screening. Anemia screening indications and timing have been revised.^{65,66}

Immunizations. The recommended immunization schedule according to the National Advisory Committee on Immunization (NACI) has been updated in Guide V and Resources 3.

Changes in this version of the RBR include inclusion of immunization recommendations for pregnant women,⁶⁷ restriction of use and timing of antipyretics during vaccination,⁶⁸ and human papillomavirus vaccine recommendations.

In February 2018, NACI and the Society of Obstetricians and Gynaecologists of Canada revised the recommendation on immunization in pregnancy with tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap) vaccine: immunization with Tdap vaccine should be offered in every pregnancy, irrespective of previous Tdap immunization history (strong NACI recommendation); NACI concludes that there is good evidence to recommend immunization (high-quality evidence). Immunization in pregnancy is safe and protects infants until they can receive the pertussis vaccine at 2 months of age.⁶⁷ Note that this is not reflected in the content of the 2017 RBR.

Format changes. The RBR resource pages, which provide a summary of current evidence for items in the RBR guides, have been expanded and now more closely follow their order in the RBR guides.

- Resources 1 includes growth, nutrition, injury prevention, environment, and other items.
- Resources 2 includes family, behaviour, development, physical examination, investigations, and screening.
- Resources 3 includes immunizations.
- Resources 4 includes early child development, a parenting resource system, and a local resources and referrals table.

In the guides, the “Problems and Plans” domain has been expanded to include “Current and New Referrals,” with a new table in Resources 4 listing contact information for these referrals or other local resources.

All Web links have been updated and are more clearly and consistently identified in the resource pages with the title or topic followed by the associated organization or journal, and a link has been added to the guides and resource pages to associated parent resources.

A new paper format, the “stretched” version, has a larger font size and more writing space while maintaining

the 3-visits-per-page format by stretching each guide vertically onto 2 pages.

Increasingly, through licence agreements with the authors, the RBR is being incorporated in electronic medical records. These ideally incorporate interactive components.

Conclusion

This clinical review reports the process and evidence behind the updated 2017 RBR. The important changes in preventive care recommendations for children up to 5 years of age include the addition of body mass index monitoring as of age 2; stronger evidence to support the introduction of allergenic foods without delay (strength of recommendation upgrade from fair to good); the recommendation to ask validated questions regarding social determinants of health; evidence showing no safe level of lead exposure in children; the recommendation of daily sleep duration; the upgrade of recommendation strength from fair to good of items related to the prevention and detection of adverse childhood experiences, including assessment of bruising in babies younger than 9 months; and blood pressure monitoring only for children at risk. With cumulative research demonstrating the effects of early childhood exposures and habits on short- and long-term outcomes, the RBR will continue to publish updates to ensure that primary care providers are equipped to promote lifelong health and well-being through evidence-informed care in young children. 🌱

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Contributors

Drs Li, L. Rourke, and Leduc, and **Ms Arulthas** and **Ms Rezk** contributed to the literature review and interpretation. All authors contributed to development of the Rourke Baby Record and to preparing the manuscript for submission.

Competing interests

None declared

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