

# Knowledge mobilization for primary care

## Lessons learned from 40 years of the Rourke Baby Record

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*In hospitals diseases stay and people come and go; in general practice people stay and diseases come and go.*

Iona Heath<sup>1</sup>

**T**he Rourke Baby Record (RBR): why and how has this practice tool survived and maintained its clinical relevance and academic rigour? In this article we share lessons learned in knowledge mobilization (KM) and clinical uptake (**Box 1**).

In contrast to single-issue or single-disease guidelines, the RBR is deeply rooted in the broad continuity-of-care realities of general or family practice, as expressed by the 4 principles of family medicine.<sup>2</sup> The RBR provides effective, efficient, evidence-based preventive care guidance for infants and children from birth to 5 years of age within domains such as growth, nutrition, development, injury prevention, and physical assessment. It captures relevant topics, is readily accessible, partners FP content experts with non-FP-specialist content experts, and places primary care as a focus of KM to help FPs and other health care providers (HCPs) keep current with the overwhelming amount of evolving relevant research findings.

### Created by FPs for office use

The RBR began in 1979 as an aide-mémoire flowchart in the Goderich, Ont, family practice of Drs James and Leslie Rourke to facilitate office team-based collaborative comprehensive care. It has become the de facto Canadian national standard to guide the preventive health care of infants and children from birth to age 5 years.<sup>3-5</sup> Like children growing into adults, the RBR has gone through many stages of development.

### Incorporating evidence-based medicine

*Evidence suggests that society should invest much more heavily in the early years of childhood and in providing opportunity for families to thrive.*

Iona Heath<sup>1</sup>

The initial RBR worked very well in our practice and we were encouraged to share it through journal publication. To ensure accuracy, we undertook a literature search for each topic in the tool. This was an enormous task and a big leap into the unknown for 2 rural FPs at some distance from a health sciences library and without the benefit of the Internet or funded academic time. The new method of critical appraisal had just been described in

the 1981 *Canadian Medical Association Journal* series “How to read clinical journals.”<sup>6</sup> Evidence-based medicine as a new paradigm for medical practice was not described in the literature until 1991.<sup>7,8</sup> The Canadian Library of Family Medicine and its then-librarian Lynn Dunikowski, as well as Dr James Boone (then Chair of Paediatrics at what was then known as the University of Western Ontario in London, Ont) and Dr Ian McWhinney (Chair of Family Medicine at the University of Western Ontario at the time), provided enormous assistance.

Our manuscript was published in *Canadian Family Physician* in May 1985 as a practical guide and charting system for preventive care of infants and young children.<sup>3</sup> The journal received multiple reprint requests and we received many direct inquiries for print copies of the charting system.

### Made readily accessible

Before the Internet, the dissemination and uptake of practice innovations were particularly difficult. After publication, we were approached by and subsequently allowed McNeil Consumer Healthcare to distribute the initial article and copies of the RBR forms to FPs in Canada, who could order them free of charge using a toll-free telephone number. This mutually beneficial arrangement continued for almost 20 years without us losing control of the RBR content and intellectual property.

### Updates required

After several years it became apparent that the RBR's information and recommendations needed to be reviewed and updated with new evidence. We felt an obligation to not let the RBR, a popular and freely available clinical practice tool, become a “one and done” project, and published an update in 1994.<sup>9</sup>

Also that year, the Canadian Task Force on the Periodic Health Examination (now the Canadian Task Force on Preventive Health Care) published *The Canadian Guide to Clinical Preventive Health Care*.<sup>10</sup> We partnered with Dr Jacqueline Wakefield and colleagues at McMaster University in Hamilton, Ont, to incorporate levels of evidence and identify strengths of recommendations, which resulted in the adoption of 3 print types in the 1998 RBR guides: bold type for items with good evidence, italics for those with fair evidence, and regular type for inconclusive or consensus evidence items.<sup>11-13</sup>

### Box 1. Lessons learned over 4 decades of the RBR KM tool

**Lesson 1. Knowledge mobilization tools are best developed by involving practising physicians to provide evidence-informed care effectively and efficiently for their patients.** There has been substantial pressure to include many more items in the RBR, often by special interest groups. The overarching requirements for choice of items in the RBR are the following:

- Evidence based: impact on health from 0 to 5 y
- Effective and important: if applied, included items will improve outcomes
- Efficient: practical to apply and prioritize

**Lesson 2. It is important to get expert advice early and throughout the process.** Just as important as the understanding of the primary care context are the expertise and knowledge of content specialists. The family physician–pediatrician partnership has been vital, as has the input of other experts

**Lesson 3. Determining the evidence and appropriate recommendations requires much work and a skilled research team.** Evidence changes necessitate updates to recommendations. This process has become more complicated as the amount of literature increases, and the interpretation of the evidence to determine the strength of recommendations has become more complex. Adding clinician-scientists skilled in epidemiology and research methods to the RBR core team and, more recently, collaborating with the McMaster Evidence Review and Synthesis Team, has greatly improved this process

**Lesson 4. A core dedicated team with administrative support led by a passionate champion is crucial to managing the logistics of creating KM tools and meeting deliverables.** Several RBR core team members have faculty positions, which, in addition to their clinical practice and teaching roles, give them some protected academic time and access to university resources. Funding for administrative staff dedicated to the RBR would be of great assistance. Continuity over time, combined with succession planning, has also been key to keeping the RBR current for more than 4 decades

**Lesson 5. Ongoing stable funding, free of commercial pressure and conflicts of interest, is one of the most important requirements for the maintenance of independence, objectivity, and scientific rigour.** Funding from the Government of Ontario since 2005 has been vital for the RBR criterion validation research and for the ongoing literature review and appraisal. Much in-kind support has been provided by the 3 endorsing organizations and from the Faculty of Medicine at Memorial University of Newfoundland in St John's

**Lesson 6. Support and endorsement from relevant professional organizations provide external expertise and result in more recognition, acceptance, and dissemination.** The CPS, the CFPC, and Dietitians of Canada have played this important role for the RBR. The RBR is now affiliated with the CPS and the CFPC

**Lesson 7. The ability to evolve with the changing times is necessary.** Distribution of the RBR has evolved from postal mailing to downloading online, to EMRs, to Web-based applications. Different RBR formats have been developed, as systems of practice are changing to team-based multidisciplinary medical home models. As the tsunami of Internet-based information has grown, the RBR has embedded links to current relevant evidence and resources

**Lesson 8. The KM team itself needs to include clinical practitioners, researchers, parents, and implementation science experts.** The RBR is looking to further broaden input, participation, and collaboration with HCPs and programs in different clinical settings and, most importantly, with parents, families, and caregivers, especially in communities that are socioeconomically and culturally diverse

**Lesson 9. Knowledge is meant to be shared!** The RBR team presents its new editions at major family medicine and pediatric conferences, publishes in reputable medical journals, keeps the RBR website current, and notifies key stakeholders including educational programs and EMR firms. New dissemination formats include podcasts and e-learning modules. A multidisciplinary and diverse KM team has more impact on implementation and ultimately on improving health. Connection with similar KM groups provides potential to advance the field

**Lesson 10. Beyond determining KM content, there is a great need to develop active research, both to study the use and effectiveness of the KM tool and to use the KM tool itself as a research facilitation instrument.** The widespread use of the RBR in EMRs provides the potential to harness big data in many innovative ways while still ensuring patient confidentiality. Different EMR platforms make this a complicated challenge that will require collaboration and funding. An exciting 2-year CIHR-funded research project is currently under way and will use EMR data to measure and compare preventive care use, child outcomes, inequalities, and innovations in the pre-COVID-19 and COVID-19 eras

CFPC—College of Family Physicians of Canada, CIHR—Canadian Institutes of Health Research, CPS—Canadian Paediatric Society, EMR—electronic medical record, HCP—health care provider, KM—knowledge mobilization, RBR—Rourke Baby Record.

## Partnering with pediatricians and dietitians

*The interface between GP and specialist care needs to be seen primarily as a means of extending the effectiveness of both.*

Iona Heath<sup>1</sup>

In 1998 the College of Family Physicians of Canada (CFPC) and the Canadian Paediatric Society (CPS) established the Joint Action Committee on Child and Adolescent Health to build organizational bridges toward common goals in improving child and youth health. As an inaugural member of the committee, Dr Leslie Rourke gained invaluable input from the CPS and, most importantly, a third co-author, community pediatrician Dr Denis Leduc. By 2000 the RBR was officially endorsed by both the CFPC and the CPS.<sup>14</sup> Dietitians of Canada subsequently provided both consultative expertise on nutrition and its endorsement beginning in 2014. The RBR is now officially affiliated with both the CPS and the CFPC.

## Evolving and overwhelming amount of related literature

Literature has been critically appraised throughout the life of the RBR. The time required to update the RBR has increased in step with the growing body of new literature, which creates a substantial challenge for busy clinicians.

Additional scientific rigour for the literature review and appraisal and the resultant levels of evidence and recommendation strengths were obtained by adding clinician epidemiology expertise to the core RBR team (Dr Evelyn Constantin from 2005 to 2011, Dr Patricia Li from 2011 onward, and Dr Imaan Bayoumi from 2020 onward).<sup>4,15-19</sup> Since 2010 the RBR website has included a table of evidence from the reviewed and appraised literature with the corresponding recommendations by topic ([https://www.rourkebabyrecord.ca/literature\\_review](https://www.rourkebabyrecord.ca/literature_review)). Recent collaboration with the McMaster Evidence Review and Synthesis Team in Hamilton, Ont, has further increased rigour, transparency, and documentation. The RBR website distils this table of evidence for use in clinical encounters, with additional website resources for both clinicians and families.

## Primary care as a focus of KM

In its *Strategic Plan 2021-2031: A Vision for a Healthier Future*, the Canadian Institutes of Health Research (CIHR) notes that “Canadians are often unaware of valuable health information that could improve their lives and research evidence still takes too long to move from the centres of discovery to our health systems.”<sup>20</sup> One of the 5 CIHR priorities is to “integrate evidence in health decisions by advancing the science of knowledge mobilization, maximizing results for Canadians” with the goal that “in 10 years ... research evidence will be integrated seamlessly with Canadian health policy and practice.”<sup>20</sup>

There are many challenges to overcoming this gap between research-generated knowledge and evidence-informed clinical practice, particularly for generalist, wide-scope practitioners such as FPs. One solution is to use expert synthesis of the best evidence from research into systematic reviews, eg, the Cochrane Database of Systematic Reviews.<sup>21</sup> The GRADE (Grading of Recommendations Assessment, Development and Evaluation) framework rates the quality of evidence and strength of recommendations for clinical practice guidelines (CPGs).<sup>22</sup> The AGREE (Appraisal of Guidelines for Research and Evaluation) instrument evaluates the process of guideline development and quality of evidence reporting.<sup>23</sup>

Despite the intended purposes of systematic reviews and CPGs, they have often had limited application in primary care.<sup>24</sup> Some reasons include the following:

- Many CPGs are based on research evidence without adequate attention paid to the implementation science of involving the end user to maximize their impact.<sup>25,26</sup> A literature search found only 23 implementation science articles in the past 10 years pertaining to development, implementation (eg, barriers), or review of primary care CPGs (personal communication from Ms Nan Bai, Clinical Information Specialist, CMA Joule [May 12, 2021]).
- Context is crucial in primary care, and yet family doctors compose only 17% of the contributors to primary care guidelines.<sup>27,28</sup> Furthermore, half of all guideline recommendations are based mainly on expert (most often non-family medicine) consensus.<sup>28-30</sup>
- Many studies have limited generalizability to primary care populations, which often differ substantially from study populations with respect to demographic characteristics, health complexity, and life experiences and preferences. One review found that nearly two-thirds of publications cited to support primary care recommendations were of uncertain relevance to patients in primary care.<sup>31</sup>
- Many CPGs are not updated to keep current with new evidence.
- Developing recommendations for pediatric patient care is especially difficult because of the challenges in conducting research with children as participants, particularly in randomized controlled trials.
- Finally, time constraints are a substantial barrier to applying CPGs in clinical practice. Accessing, reviewing, and applying relevant CPGs takes time far exceeding that available for patient care.<sup>28</sup> The dream that integrated decision support facilitated by electronic medical records might make this task easier has not yet replaced the reality (and nightmare) of working with electronic medical records. Perhaps artificial intelligence tools will have a better outcome.<sup>32,33</sup>

On a positive note, FPs have indicated they are more likely to use recommendations where the research evidence applies to primary care, and less likely if it is based on a secondary care population. They want

clearer signposting of recommendations that are particularly relevant for primary care patients.<sup>34</sup>

Frameworks have been developed to adapt guidelines to specific contexts.<sup>35</sup> The CFPC published its expectations regarding CPGs and the process and criteria for endorsement in 2021.<sup>36</sup>

Driven by FPs and other primary HCPs, the RBR strives to mobilize research that is most relevant for their clinical settings into a valuable tool. Revisions in specific content with the rationale and our step-by-step methodology are described in recent publications and on the RBR website<sup>4,37</sup> and will be further refined in the 2024 RBR.

## Next steps

In 2019 an additional pediatrician (Dr Anne Rowan-Legg) and 2 FPs (Drs Imaan Bayoumi and Bruce Kwok) were added to the RBR core team, and a clinical advisory group of RBR users (FPs, a nurse practitioner, and a family medicine trainee) was formed.

The RBR has been modified for unique locales including Nunavut, the Northwest Territories, and other communities (<https://www.rourkebabyrecord.ca/links>).

We are looking to further broaden input, participation, and collaboration with HCPs and programs in different clinical settings and, most importantly, with parents, families, and caregivers, especially in socioeconomically and culturally diverse communities.

A criterion validity study on the RBR was published in 2009.<sup>38</sup> Current research is needed on RBR usage, usefulness, reliability, norming data, and outcomes, particularly in different settings and with vulnerable children, families, and communities. An exciting 2-year CIHR-funded research project is currently under way to measure and compare use, child outcomes, inequities, and practice-based innovations before and during the COVID-19 era for preventive care of children younger than 6 years of age. This project will provide more information on some of these knowledge gaps.

## Lessons learned

Despite substantial changes in medical care during the past 40 years, the RBR has evolved to withstand the test of time as an effective, efficient, evidence-based tool for preventive care of young children by primary HCPs. The process of writing this article has encouraged us to reflect more broadly about KM for primary care. 

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## Competing interests

Financial support for the 2020 Rourke Baby Record comes from the Government of Ontario and is administered through McMaster University in Hamilton, Ont. No royalties are received for the Rourke Baby Record and there are no honoraria from commercial interests. In-kind support comes from Memorial University of Newfoundland and the 3 endorsing organizations: the Canadian Paediatric Society, the College of Family Physicians of Canada, and Dietitians of Canada.

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Cet article se trouve aussi en français à la **page 729**.