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To cite this article: Carl L. von Baeyer, Bonnie J. Stevens, Kenneth D. Craig, G. Allen Finley, C. Celeste Johnston, Ruth V.E. Grunau, Christine T. Chambers, Rebecca R. Pillai Riddell, Jennifer N. Stinson & Patrick J. McGrath (2019): Pain in Child Health from 2002 to 2015: The Early Years of an International Research Training Initiative, *Canadian Journal of Pain*, DOI: [10.1080/24740527.2018.1562844](https://doi.org/10.1080/24740527.2018.1562844)

To link to this article: <https://doi.org/10.1080/24740527.2018.1562844>



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Accepted author version posted online: 02 Jan 2019.



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Journal: *Canadian Journal of Pain*

DOI: 10.1080/24740527.2018.1562844

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Carl L. von Baeyer^{id a*}, Bonnie J. Stevens^{id b}, Kenneth D. Craig^{id c},

G. Allen Finley^{id d}, C. Celeste Johnston^{id e}, Ruth V.E. Grunau^{id c},

Christine T. Chambers^{id d}, Rebecca R. Pillai Riddell^{id f},

Jennifer N. Stinson^{id b}, Patrick J. McGrath^{id d},

^aUniversity of Saskatchewan, Saskatoon, SK, Canada; ^bUniversity of Toronto, Toronto, ON,

Canada; ^cUniversity of British Columbia, Vancouver, BC, Canada; ^dDalhousie University, Halifax,

NS, Canada; ^eMcGill University, Montreal, QC, Canada; ^fYork University, Toronto, ON, Canada.

*Corresponding author.

Mailing address (not for publication): 60 – 200 Arlington St, Winnipeg MB R3G 0W6.

Email: carl.vonbaeyer@gmail.com

ORCID links (in order listed above)

Carl L von Baeyer https://orcid.org/0000-0002-6308-1966	Ruth V.E. Grunau https://orcid.org/0000-0002-5428-9212
Bonnie J. Stevens https://orcid.org/0000-0001-5387-2302	Christine T. Chambers https://orcid.org/0000-0002-7138-916X
Kenneth D. Craig https://orcid.org/0000-0001-8063-2662	Rebecca R. Pillai Riddell https://orcid.org/0000-0003-3990-3680
G. Allen Finley https://orcid.org/0000-0003-4579-7749	Jennifer N. Stinson https://orcid.org/0000-0002-9969-8052

C. Celeste Johnston

<https://orcid.org/0000-0003-1167-3887>

Patrick J. McGrath

<https://orcid.org/0000-0002-9568-2571>

Accepted Manuscript

Pain in Child Health from 2002 to 2015:

The Early Years of an International Research Training Initiative

Keywords: research methods, education, children, pediatric pain, developmental

The 2018 Global Year for Excellence in Pain Education, an initiative of the International Association for the Study of Pain, brought worldwide attention to the need for increased education in pain, particularly education that crosses narrow disciplinary boundaries, that addresses up-to-date research methods and findings, and that encourages teamwork among trainees and mentors at different levels of training and with different perspectives¹.

Grounded in this perspective, our commentary describes Pain in Child Health (PICH), an interdisciplinary training program for researchers in pediatric pain at the undergraduate, graduate, and post-doctoral levels of training. We outline its inception and organization and the first 12 years of its development into a well-known international program. It could serve as a possible model for training and mentorship in other specialized health research domains within and outside the study of pain.

Inception

PICH was conceived on a Saturday morning in early 2001 at the Farmers Market in Halifax, by Patrick McGrath and Allen Finley, at one of their weekly visits for coffee. They had seen a call for strategic research training initiatives from the Canadian Institutes of Health Research (CIHR) and wondered what they could do in the field of pediatric pain. At the time, pain researchers focusing on childhood often felt marginalized within their departments, across all disciplines. Research on adults' pain was much more visible.

Based on a preliminary proposal, CIHR provided a small grant to get a group of coinvestigators together. McGrath and Finley invited researchers from across Canada who specialized in pediatric pain and had advanced research trainees. The founding group of co-principal investigators (co-PIs), and the PICH Management Committee from 2002 through 2009, were as follows (Table 1).

[Table 1]

They met in Halifax for a grant writing weekend. The application, following much polishing, was submitted and was successful, supporting the founding of “*Pain in Child Health – A Strategic Training Initiative of the Canadian Institutes of Health Research*” with a six-year grant of nearly \$2 million to run from 2002 through 2008.

At an early meeting of the co-PIs in Winnipeg in 2002, an ambitious program of activities was laid out (Table 2). Most of these programs were offered starting in the first years of PICH, and additional programs including extensive international collaboration were added to this preliminary list.

[Table 2]

The administrative structure of the program as of 2002 is shown as an organizational chart in Figure 1.

[Figure 1]

Additions were later made to the group of co-principal investigators as follows (Table 3).

[Table 3]

In 2015, Bonnie Stevens took over from Patrick McGrath as Nominated Principal Investigator and chair of the PICH Management Committee, and the headquarters of PICH was moved to the SickKids Centre for Pain Management, Research and Education ([Pain Centre](#)) in Toronto.

The two major grants from CIHR (2002-2009 and 2009-2018) provided funds for Canadian PICH trainees' stipends and travel to training institutes and lab visits as well as for PICH administration to support training activities. The participating universities contributed to funding of their own trainees' PICH activities. In addition, an unrestricted educational grant was received from Janssen-Ortho Pharmaceuticals, and funding was also received from the Nova Scotia Health Research Foundation. The Mayday Fund, a private charitable foundation based in New York and dedicated to the alleviation of pain, provided generous financial support for trainees who were not based at Canadian universities. With the invaluable support of the Mayday Fund and its Executive Director, Christina Spellman, by 2013 trainees and faculty from 14 countries were participating in PICH: see the infographic below (Figure 2).

[*Figure 2*]

Trainees

Starting immediately with the award of the first CIHR grant in 2002, trainees were recruited with their supervisors' support. Most trainees came from the disciplines of psychology and nursing, with fewer from other health care disciplines such as medicine, pharmacy, physical therapy, and neuroscience. The first groups of trainees in 2002 were Canadian; from 2003 onward international trainees were accepted. All of the first intake of international trainees (2003-2005; $n = 11$), and almost all of the Canadian trainees, remained active in pediatric pain work after their PICH years. By 2009, over 200 trainees had joined PICH, and by 2018, over 300.

Activities and Impact

While trainees and mentors met periodically at conferences and in monthly webinars, the core of PICH activities was training workshops (institutes), generally around 2 days in length, which were held once or twice a year across Canada. From 2002 through 2015, 18 such workshops were held. A

list of the training institutes with their locations and topics is shown in Table 4. Every second year these were held in conjunction with the International Forum on Pediatric Pain in Nova Scotia. Other workshops were held in conjunction with national and international pain conferences, including the World Congress on Pain and the International Symposium on Pediatric Pain, to leverage the benefits of trainee travel. All trainees attending these institutes were expected and supported to stay for the conference and strongly encouraged to present posters. In 2014, a workshop emphasizing neuroscience was held with another CIHR Strategic Initiative on Health Research, Molecules to Community (PainM2C). PICH activities are further documented in *PICH Pulse*, a newsletter which has been published regularly from 2002 through the present (www.sickkids.ca/PICH/key-info/PICH-pulse)

[Table 4]

A previous study of the impact of PICH used quantitative and qualitative methods to document how it has helped to create a global community of researchers in pediatric pain up to 2013.² Many international collaborations have been fostered through lab visits and conferences. The impact of PICH is seen partly in trainees' publications: by 2014, over 700 unique articles had been published by PICH trainees.² Publications led by PICH trainees have appeared in journals of pain, pediatrics, anesthesiology and other medical disciplines, nursing, neuroscience, psychology, physiotherapy, computer science, and medical anthropology, published in North and South America, Europe, Australia, and Asia. Moreover, according to a bibliometric study, nearly 9% of all identified articles on pediatric pain published between 2003 and 2010 were by a first or senior author affiliated with PICH.³

In 2012, under the direction of the Canadian Minister of Industry, the Council of Canadian Academies released a report entitled *The State of Science and Technology in Canada*.⁴ Pediatric pain was identified as first in research productivity in a list of the top 10 Canadian highly

specialized research clusters. Canada's share of world publications on pediatric pain, at 15.5%, was greater than Canada's proportionate share of world research on the environment, fisheries, geology, oil, gold and other major Canadian investigative themes. It is likely that the success of PICH over the previous decade contributed to this accomplishment.

Present and future opportunities

The strong foundational years of PICH have resulted in a global network of interdisciplinary pediatric pain researchers that has contributed significantly to enhancing research capacity. The current Canadian leaders of PICH are broadening this network to include scholars from other countries and clinical disciplines, as well as basic and knowledge translation scientists, patients, clinicians and educators. PICH has disseminated new knowledge of pediatric pain broadly, and is continuing to grow with the help of knowledge translation strategies newly being adopted in science, including social media. Online pediatric pain curricula and networking opportunities in local and regional meetings in different continents bolster the existing monthly PICH webinars, lab exchanges and mentoring opportunities.

As well as securing funding, which required continuous effort, PICH leaders have worked hard to engage trainees and faculty from disciplines outside of psychology and nursing. Many other disciplines such as medicine, pharmacology, neurobiology, kinesiology, education, medical anthropology, computer science, and physical and occupational therapy were represented by only a few participants. This represents an opportunity for growth of the PICH community in Canada and worldwide. PICH continues to bring together trainees and researchers in Canada and many other countries. With the initial co-principal investigators having transitioned into advisory roles, many lead roles are occupied by a new generation of PICH scholars. They actively seek external partnerships to support foundational activities such as the monthly webinars as well as new formats for meetings and other new activities that innovatively strengthen PICH impacts across the

spectrum of stakeholders. PICH members have access to many other resources through the SickKids Pain Centre. Current developments include a web-based, free, internationally accessible set of 10 online training modules (Online Pediatric Pain Curriculum) and a new model for training workshops (PICH2GO). These new developments include outreach to patients and families and greater involvement of clinicians. Current and future plans are shown on the PICH website, www.sickkids.ca/PICH.

Acknowledgements

Appreciation is extended for the support of the sponsors listed in the article, and the work of the capable PICH managers over the years: Barb Brown, Justine Dol, Rachel Gough, Suzanne McGovern, and others. The many collaborating faculty in Canada and internationally, and the trainee members of PICH, have also contributed tremendously to the history described in this commentary.

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Table Captions

Table 1. Co-principal investigators for the first PICH grant, 2002-2009

Table 2. May 2002 brainstorm list of activities planned for PICH, with notes on later implementation

Table 3. Additional co-principal investigators for second CIHR grant, 2009-2015 (extended to 2018)

Table 4. PICH Training Workshops (Institutes)

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Figure Captions

Figure 1. Organizational chart for PICH as of October, 2002. Faculty mentioned as ‘associates’ were Co-investigators on the CIHR grant

Figure 2. Infographic from 2014 summarizing PICH activities in its first 12 years.

Note: The 2018 version, adapted for the new location and funding sources at SickKids, is at www.sickkids.ca/PICH/key-info

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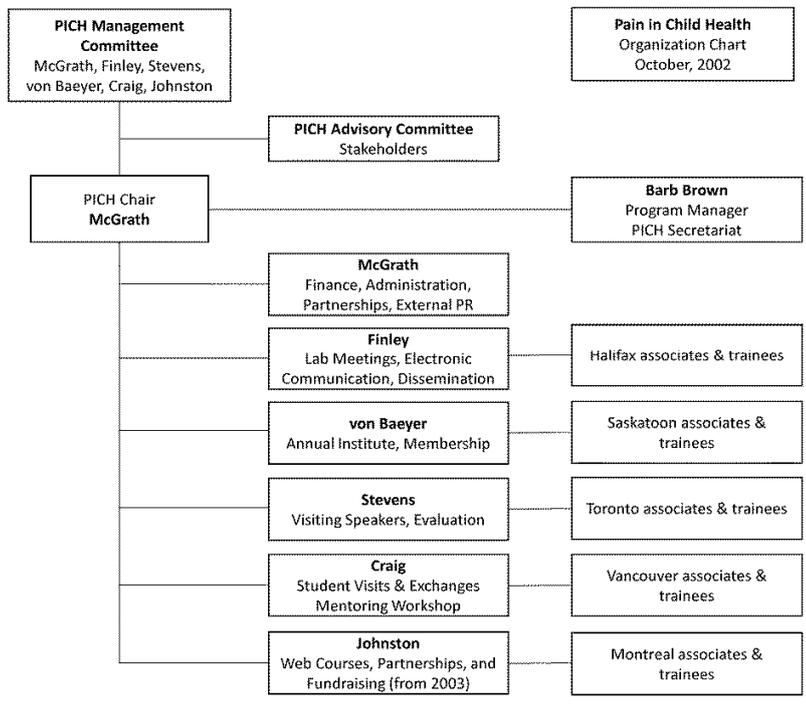


Fig 1

Pain in Child Health

Changing the way we care for children in pain.

The Pain in Child Health program is a community of researchers focused on cultivating new talent and promoting new discoveries in the field of child pain. Our goal is to make a lasting international impact on children's pain, benefiting children's health, and their futures.

paininchildhealth.dal.ca

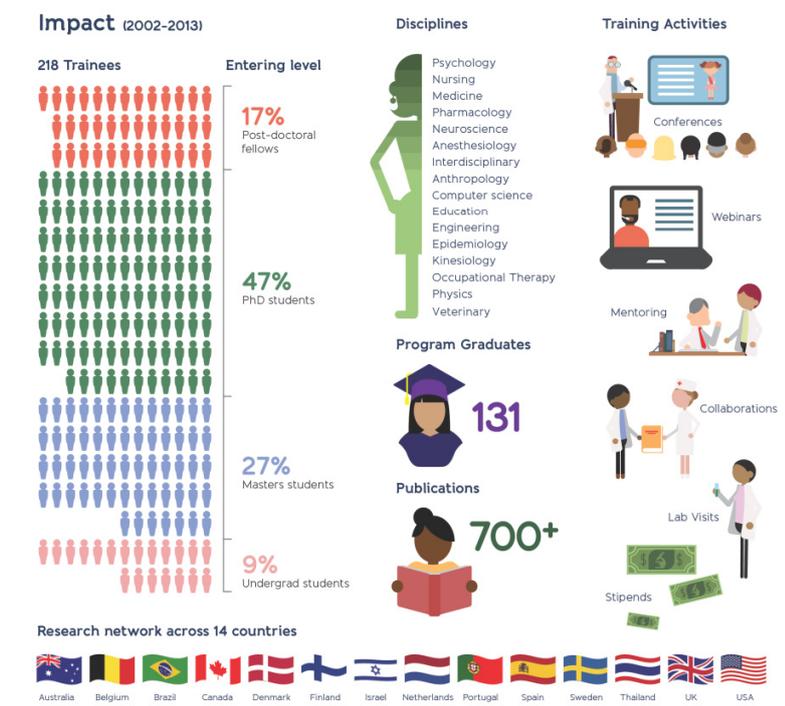


Fig 2

Table 1. Co-Principal Investigators for First PICH Grant, 2002-2009

Patrick McGrath	Psychology	Dalhousie University and IWK Health Centre
Allen Finley	Anaesthesia	Dalhousie University and IWK Health Centre
Kenneth Craig	Psychology	University of British Columbia
Bonnie Stevens	Nursing	University of Toronto and Hospital for Sick Children
Carl von Baeyer	Psychology	University of Saskatchewan and Royal University Hospital
Celeste Johnston	Nursing	McGill University and Montreal Children's Hospital

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Table 2. May 2002 Brainstorm List of Activities Planned for PICH, with notes on Later Implementation

Concept or plan (2002)	Notes on later implementation (2018)
Annual, week-long summer/fall institute with a concentrated curriculum on research methods	Training institutes (workshops) were 1-3 days and usually associated with another conference, see Appendix
Biweekly, national, research teleconference with data display capabilities	These became monthly international webinars
Sophisticated electronic communication system across the research centres	Email listserv and resources shared on website
Web-based, education modules/courses for trainees	One course was developed for PICH, on measurement and assessment of pain
Visits by trainees and faculty to other research centres to learn techniques, develop new methodologies, and to collaborate on grant applications and research in progress.	As planned
Trans-disciplinary and cross-centre supervision of research trainees	As planned

Mentoring workshop for faculty and trainees	Held periodically at training institutes
Visiting speakers program of distinguished scientists	As planned, but rare
Partnerships with industry (pharmaceutical, communications), government (Health Canada, Provincial Departments of Health), universities, health centres, pediatric research foundations, other training consortia, funding agencies (CIHR, SSHRC, NSERC, CHSRF, Provincial agencies), professional associations, and pain related organizations, (CUREPAIN2, Canadian Pain Society)	As planned, but limited, see Figure 2 
Evaluation of the structure, process and outcome of our collaborative research program	Completed for PICH renewal, 2009
Dissemination program for pediatric pain research to clinicians, policymakers and the public	Extensive publications and international conference presentations identified as PICH products. Public engagement (e.g., with parents) increased in 2015 with PICH2GO.

Table 3. Additional co-principal investigators for second CIHR grant, 2009-2015 (extended to 2018)

2009 (as part of the successful application for a 6-year renewal of the CIHR grant)

Ruth Grunau	Psychology	University of British Columbia and BC Child and Family Research Institute
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2013 (as part of a succession plan for PICH leadership)

Jennifer Stinson	Nursing	University of Toronto and Hospital for Sick Children
Christine Chambers	Psychology	Dalhousie University and IWK Health Centre
Rebecca Pillai Riddell	Psychology	York University and Hospital for Sick Children

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Table 4. PICH Training Workshops (Institutes) from 2002 through 2015.

No.	Institute Date	Location	Main theme	Attendance (Canadian/ international trainees)
18 th	29 Sept - 1 Oct, 2015	White Point, Nova Scotia	Tools for your career as a pediatric pain researcher	25 / 19
17 th	23-25 May, 2014	Québec City, Québec	Leaders in Neuroscience of Chronic Pain: Going from Mission Impossible to Mission Possible	24 / 16
16 th	11-13 Oct, 2013	White Point, Nova Scotia	Pediatric Pain Pharmacology	27 / 18
15 th	3-6 Jan, 2013	Winnipeg, Manitoba	RCT Boot Camp: Design, Implementation and Interpretation of Randomized Controlled Trials	29 / 13
14 th	21-23 May, 2012	Whistler, British Columbia	Career Development. Translating Neuro- Developmental Research Into Clinical Application	29 / 11
13 th	11-13 Oct, 2011	White Point, Nova Scotia	The Future of Research for Pain in Children	30 / 14
12 th	26-29 Aug, 2010	Montréal, Québec	What's in your toolbox? Methods for pediatric pain research	23 / 15
11 th	15-17 Nov, 2009	Toronto, Ontario	Research Ethics	23 / 10
10 th	30 Sep - 2 Oct, 2008	White Point, Nova Scotia	Media Training	23 / 10
9 th	24-27 May, 2008	Victoria, British Columbia	Policy Research	26 / 10
8 th	14-17 May, 2007	Val-Morin, Québec	Knowledge Transfer	25 / 10
7 th	11-12 Oct, 2006	White Point, Nova Scotia	Walking the Tightrope: Balancing Success in Work & Home Life	21 / 5
6 th	21-24 June, 2006	Vancouver, British Columbia	Long term effects of pain and chronic pain	29 / 8
5 th	8-11 May, 2005	Oak Island, Nova Scotia	Mentoring and Ethics	25 / 4
4 th	13-14 Oct, 2004	White Point, Nova Scotia	Knowledge Dissemination	24 / 5
3 rd	2-5 May, 2004	Harrison Hot Springs, British Columbia	Early Research Career Skill Development	25 / 4
2 nd	19-21 May, 2003	Toronto, Ontario	Did it work? Evaluating Pain-Relieving Interventions	16 / 1
1 st	17-19 Sep, 2002	White Point, Nova Scotia	What's Special About Children?	19 / 0