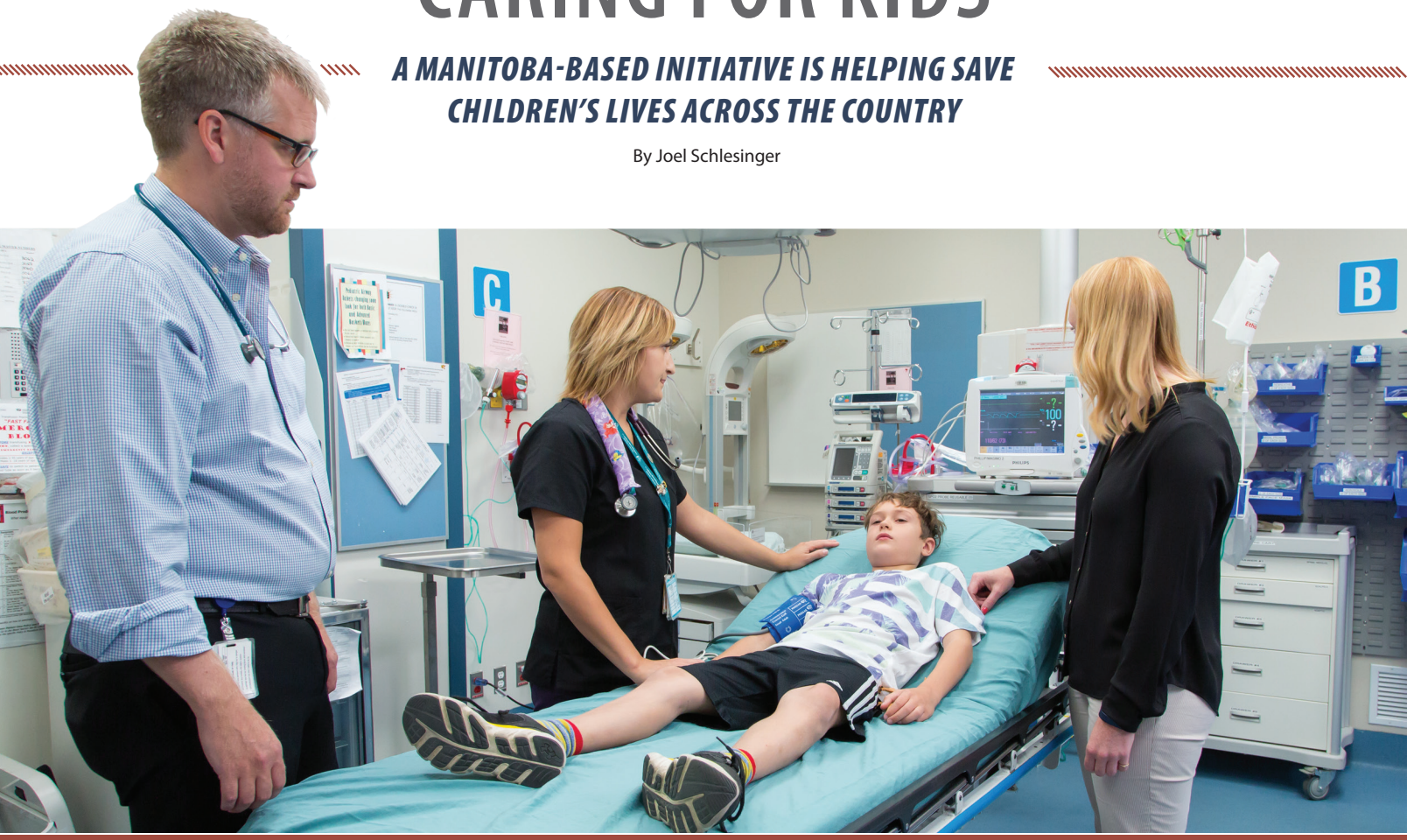
CARING FOR KIDS

A MANITOBA-BASED INITIATIVE IS HELPING SAVE CHILDREN'S LIVES ACROSS THE COUNTRY

By Joel Schlesinger



Most children who need emergency care in Canada are treated in general emergency departments that aren't part of a children's hospital.

As the only hospital serving the Northwest Territories and western Nunavut, the Stanton Territorial Hospital in Yellowknife is often a very busy place.

Over the course of a year, it will take in as many as 18,000 sick or injured patients – from the very young to the very old and everyone in between.

The broad mandate to provide care to all, no matter what age, can pose some challenges for the hospital, especially when it comes to treating children, says Dr. David Pontin, Clinical Director of the Emergency Department at Stanton.

Unlike larger centres in the south, Yellowknife doesn't have a children's hospital staffed with health-care providers trained in pediatric care. That means general emergency department staff at Stanton must provide care to children as well as adults. And therein lies the problem: it can be hard for general emergency staff members to stay up-to-speed on the vast amount of available information and techniques for treating sick kids.

That was especially true when Pontin started working in the emergency department at Stanton about a decade ago. "What struck me about coming to Yellowknife is that even though it's a general emergency department, you're immediately dealing with a population that has a lot of sick kids, unlike the south where you can be working in general emergency departments where you're mostly dealing with adults and the elderly," he says.

"The problem when treating these little babies and younger

kids is that a lot of the emergency physicians aren't necessarily trained well to deal with them, and there was a huge variability in how we were managing their care," he says.

The situation was exacerbated by the fact that so many babies were so sick.

"For a while, we had rates of something like eight in 10 children under the age of one requiring hospitalization for pneumonia or bronchiolitis within the first year of life," he says.

"When I first got here, we were running three or four respiratory arrests on children per winter from these illnesses," he says, in reference to situations where a child stops breathing. "We were seeing kids who needed to be intubated and sent to Edmonton; some were even dying."

And Stanton was not unique. It has been estimated that as many as 85 per cent of acutely ill and injured children in Canada are managed within emergency departments that are not part of a children's hospital.

Needless to say, everyone knew back then that things had to change. More than anything else, the emergency staff at Stanton realized they required more professional development in pediatric care. But that was challenging. Physicians and nurses were already busy tending to patients in a busy emergency department, so the idea of sorting through the latest research or new best-in-care practices for children with a variety of illnesses and injuries seemed overwhelming.

Then one day in 2011, a group of Canadian health-care providers, led by Dr. Terry Klassen, came up with a potential solution to the problem. What if it were possible to collect the latest information on pediatric care and make it available to general emergency department staff?

"We came to a realization that there is this high quality research being produced – important stuff that's improving the way we care for kids," says Klassen, who is also a professor and Head of the Department of Pediatrics and Child Health at the Max Rady College of Medicine at the University of Manitoba. The challenge was to make it more readily available.

The question posed by Klassen and his colleagues led to more discussions with dozens of other child health experts across the country and eventually laid the foundation for a new initiative called Translating Emergency Knowledge for Kids – or TREKK, for short.

Officially launched five years ago with support from the federal government's Networks of Centres of Excellence and Research Manitoba, TREKK is a network of clinicians, parents researchers and national organizations. It has a staff of five people in Winnipeg and about 25 content advisors developing resources across the country. It also has a clear mandate: to create a "knowledge mobilization" program to identify the latest information and treatment protocols on a wide range of children's issues and make them available via the Internet to health-care providers working in emergency departments across the country.

"Simply put, (knowledge mobilization) is about getting the right information into the hands of the right people so they can put it into action for the betterment of society," says Klassen.

"For TREKK, we wanted to improve how knowledge is shared between health professionals in the general emergency departments and the specialists and researchers within children's hospitals and academic institutions," he says.

The creation and development of TREKK represents a significant milestone in the evolution of pediatric research and how it is used to improve care for children.

As Klassen explains, research in pediatric emergency medicine only started to come into its own as a distinct discipline about 30 years ago. "Until then, people didn't think working in (pediatric) emergency was a long-term career," he says. Because it was an overlooked area, Klassen says he and his colleagues quickly saw a need to develop a strong research base.

"For a while, we had rates of something like eight in 10 children under the age of one requiring hospitalization for pneumonia or bronchiolitis…"

This led to the development of Pediatric Emergency Research Canada in the mid-1990s, an initiative that paved the way for greater collaboration among clinical researchers on studies that resulted in better diagnosis and treatment of common causes of emergency visits like head injuries and croup.

At the time, Klassen and others in the field knew more would have to be done to ensure all emergency departments across Canada were in a position to provide children with the best care possible. But it wasn't until he took a job in Winnipeg in 2010 as the head of the Children's Hospital Research Institute of Manitoba (CHRIM) that the idea for TREKK started to take shape.

The first phase of TREKK began with consultations: 1,500 health-care professionals at 32 emergency departments, as well as more than 800 parents and caregivers across Canada.

"That was the start because we didn't want to assume we knew what they needed," says Lisa Knisley, Network Manager for TREKK and the person in charge of helping bring together the information and get it into the hands of emergency health-care providers.

The consultations helped researchers understand the knowledge needs of emergency staff with regard to treating pediatric patients, and how they would prefer to get that knowledge.

"These are diverse and varied environments, so we needed to fully understand them," Klassen says. "For the parents, it was the same thing – we wanted to know what they felt they needed and how they preferred to get the knowledge."

Initial research also involved focus groups with health-care providers across the country to provide more precise information about the most critical needs.

And then the TREKK team engaged in a review of medical databases to help identify conditions often resulting in adverse outcomes like sepsis, head injuries and respiratory infections.

But the key piece was feedback from consultations, which pointed to a need for knowledge that was up-to-date and could be quickly accessed and used. That helped guide the TREKK team in developing resources, including its information hub – www.trekk.ca.

The website serves as a repository for the latest evidence-based information on a number of common children's health issues, ranging from asthma to severe head injuries, as well as research papers, videos, podcasts and other resources. In addition to accessing the latest research papers or podcasts on a range of subjects, emergency department staff can also tap into "bottom-line recommendations" for treating various children's health issues.

As it turns out, the "bottom-line recommendations" are among the most popular offerings on the website. "That stems from what we heard from our emergency docs who didn't want 20 pages of information," Klassen says. "They want a one- or two-pager where they have a child with a certain condition, telling them how best to manage it."

To date, TREKK has created 13 bottom-line recommendations on children's emergency topics, five of which were created in 2015-16 alone. These recommendations were downloaded an average of 300 times a month in 2015-16, an increase of about 33 per cent from the year previous.

While pediatric hospitals and research centres help direct TREKK's content, the resources have been shaped by the needs of staff working in general emergency departments across Canada.

Among those consulted from the start were the staff at Stanton Territorial Hospital.

"We've been involved with their initial needs assessment and we've reaped the benefits as it has matured into a fully fledged clinical support," says Pontin. "There was a real need on our part to up our game in how we manage these sick children and to begin to really standardize how we're dealing with them."

Stanton's use of TREKK information on bronchiolitis illustrates the point.

A respiratory arrest in a child occurs when the lungs fill up with mucus. "The lungs become so filled with inflammatory fluids, and injury to the lung cells means that they can't get oxygen into the bloodstream, and that leads to a whole cascade of events," says Pontin. The most concerning issue is that the heart cannot get an adequate supply of oxygen and it eventually tires out.

"Kids die because they stop breathing," he says. And once children are in respiratory arrest, they're very difficult to revive, he adds.

Treatment recommendations for asthma are just one of the many resources available at www.trekk.ca.

BY THE NUMBERS

20

Number of children's emergency topics currently on Trekk's website.

13

Number of two-page bottom-line recommendations on children's health topics.

300

Average number of downloads per month of TREKK's bottom-line recommendations on children's health issues in 2015-16.

25

Number of content advisors developing resources for TREKK.

4

Number of pediatric podcasts created in 2015-16 through a collaboration with Dr. Anton Helman at Emergency Medicine Cases.

14

Number of emergency departments that have been visited by TREKK in 2015-16.

283

Number of health-care providers at various emergency departments who have benefitted from on-site TREKK visits in 2015-16.

Source: TREKK

DID YOU KNOW?

Translating Emergency Knowledge for Kids – or TREKK, for short – receives support from a number of organizations. Major supporters include Research Manitoba, Networks of Centres of Excellence (Knowledge Mobilization Initiative), University of Manitoba, the Children's Hospital of Eastern Ontario Research Institute, Children's Hospital Foundation of Manitoba, Children's Hospital Research Institute of Manitoba, Pediatric Emergency Research Canada, Stollery Children's Hospital Foundation, University of Alberta and the Women and Children's Health Research Institute.

TREKK has created partnerships with 37 general emergency departments across Canada (urban, rural and remote), spanning nine provinces and one territory. Known as TREKK sites, each of these 37 institutions has partnered with its closest Pediatric Emergency Research Canada (PERC) site, which is based within teaching or pediatric hospitals (12 in total). As such, each individual PERC site collaborates with two to five TREKK sites. A physician representative and TREKK co-ordinator at each pediatric site work with their TREKK sites to share the latest evidence in emergency care for children.

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"The trouble is you have to identify early what's happening with a child, which can be quite hard because often they can't talk to you," he says. "Their vital signs might look really normal for a long period of time until they tire out and turn the corner into arrest."

Pontin says that diagnosing the problem can be a lot like searching for a needle in a haystack if you don't know what you are looking for. But with proper training, general emergency physicians can identify the problem early and provide the care that helps children breathe easier, such as medication and/or intubation, in which a tube is inserted into the trachea to keep the airway open.

"The emphasis is on early recognition and reversal of the problem, and TREKK has been very good at helping us with that," he says. "What it's done is made our care of sick children with bronchiolitis much better, and we've seen a huge improvement in outcomes to the point where I can't remember the last time we ran a respiratory arrest on a child with bronchiolitis."

In addition to detailed evidence-based information and bottom-line recommendations, TREKK is also starting to create digital information packages, known as "PedsPacs," and on-site training programs provided by pediatric experts.

"PedsPacs focus on critical situations where care providers will need more than just recommendations," Klassen says.

While they are often supplemented by training sessions presented by experts, they are also meant for practitioners to use on their own. Each package is broken down into modules.

"The first part is pre-event, which is a video that will demonstrate a resuscitation scenario, for example, and is enriched by expert commentary," he says.

The next section focuses on how a provider should deal with the scenario, providing a step-by-step guide to help an emergency team through the situation.

Here, Klassen says, they can find out what to do and when to do it, including choosing the right medication with the proper dosages. The packages also provide key observations – red flags to look for that could indicate more serious problems.

Finally, every package offers guidance on what to do afterward – a reflective process of learning how they could perform better in the future.

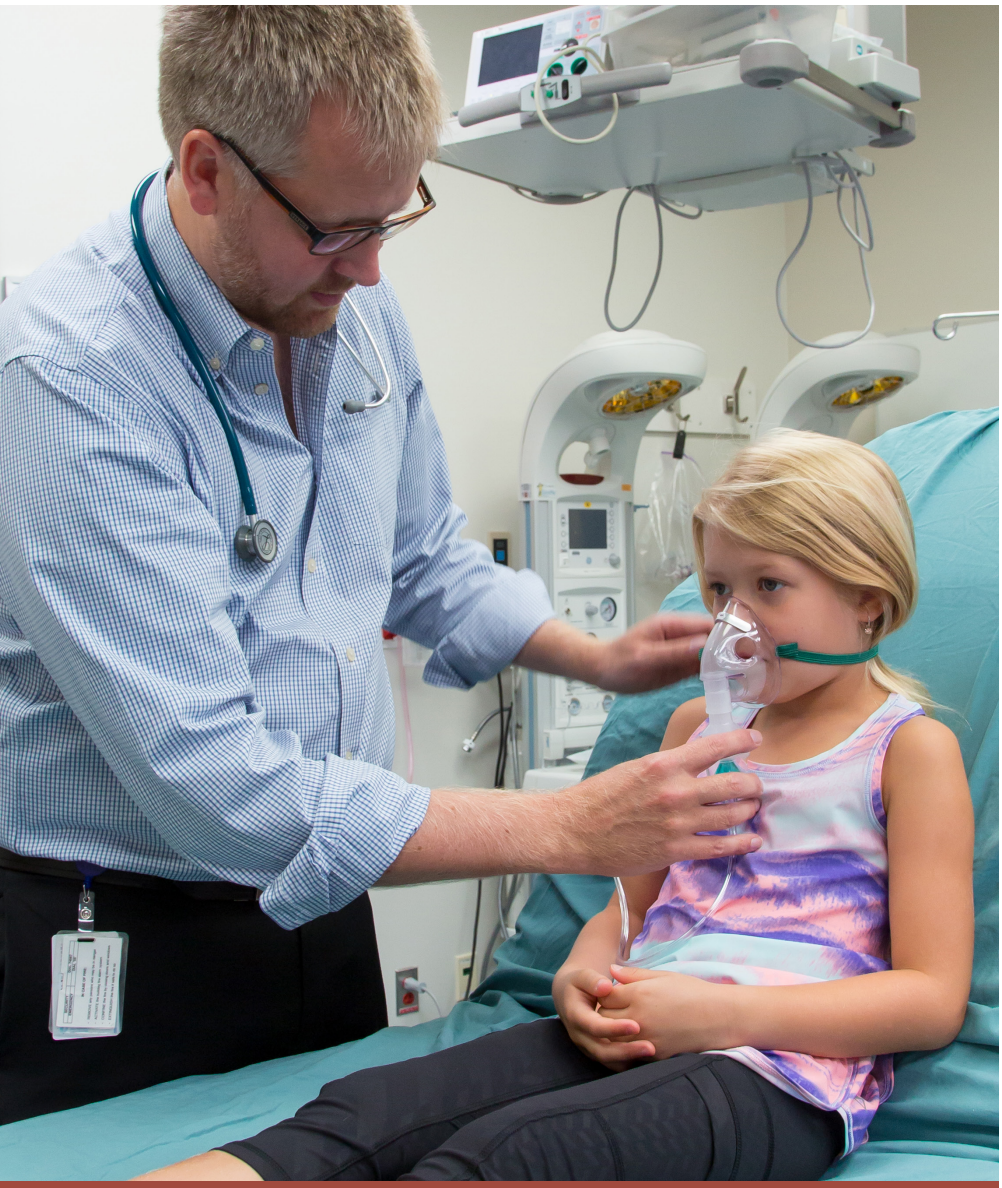
TREKK recently created a PedsPac for sepsis – a life-threatening condition caused by an infection that spreads throughout the body – and more are on the way.

"Identifying sepsis early and getting treatment started as soon as possible are critical.," says Knisley, who has a background in nursing.

The sepsis PedsPac can be included in on-site training sessions provided by the TREKK team.

"When not possible, PedsPac sessions could occur in other settings like emergency medicine conferences," she says.

One of the sepsis on-site training sessions took place at Stanton. Staff met with a leading expert on the subject, who helped guide them through a step-by-step process from diagnosis to treatment to post-care.



Minimizing procedure-related pain should be a routine part of emergency department care for children. Recommendations for minimizing procedural pain can be found at www.trekk.ca.

It was well-received, says Pontin. "In a place like Yellowknife, you can really feel like you're out of the loop and disconnected from what's happening in academic centres in the country," he says. "They're distant from us, not just by geography, but also by network because we don't have a lot of connections with the big pediatric centres or the academic world."

More PedsPacs on different topics, such as asthma and head injuries, are in the works.

"These will be incorporated into teaching sessions where possible," Knisley says. "However, general emergency departments will be able to access the tools via our website for self-guided learning."

In addition to being a great online resource for health-care providers, TREKK is also seeking to become a

Members of the TREKK team, from left: Leah Crockett, Kathy Chmelnytzki, Carly Leggett, Lisa Knisley, Erin Hill, and Dr. Terry Klassen.

main source of children's health information for parents.

To date, it has created an educational resource for parents on croup in a "storybook format" that presents the latest research on the subject in a compelling narrative format.

"We know that some people really like and can retain information through stories versus an information sheet, for example," says Knisley. "Our goal is to find ways that are engaging for parents to learn, not only about conditions or how to treat them, but also to be comforted that these are experiences shared by other people so they feel like they're not alone," she says.

Looking ahead, Klassen says he is hoping to make TREKK available to more hospitals and clinics across the country.

While a few dozen general hospital emergency departments are using TREKK, there are about 1,400 in total that could benefit from the resource. "We're working with provinces and health authorities about how best to leverage our network to help them across the board," Klassen says. "That's definitely the next phase – making sure that TREKK touches every emergency department."

Klassen also wants to encourage more emergency physicians to feed into the TREKK network to help guide its growth and development. Already, physicians in emergency departments are highlighting areas where they could use more resources.

"One area we got feedback on recently is the recognition of child maltreatment, or child abuse," he says. "It's one of those tough things to recognize, so based on the feedback we started to develop and put together information on that subject. So it really is a situation that's much richer than going to a website."

Of course, none of this would be happening without support from TREKK's various supporters, including Research Manitoba. "There are many reasons why TREKK has been successful, but one reason is that Research Manitoba has been an important partner right from the beginning, and it continues to be," says Klassen.

Certainly TREKK's value isn't lost on emergency departments like the one in Stanton.

"Kids coming here are doing a lot better, and I think TREKK has a lot to do with that," says Pontin. "And it's a comforting thing to know that what we're doing would be the standard of care by a colleague in a pediatric centre."

Joel Schlesinger is a Winnipeg writer.