University of Saskatchewan

Department of Pediatrics Research Report

March 2019

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On the Road with Dr. Seyera Shwetz and the TREKK Roadshow

Dr. Seyara Shwetz is a Postgraduate 3rd year resident in emergency medicine at the University of Saskatchewan. She is also the President of the Resident Doctors of Saskatchewan. In this month's newsletter, Dr. Shwetz kindly shared her first hand experiences with the national program TREKK (Translating Emergency Knowledge for Kids) which aims to improve emergency care for children across Canada.

TREKK is a national initiative that was created by Dr. Terry Klassen, pediatric researcher and pediatric emergentologist. This impetus was to address the reality that 85% of children needing emergency care are not seen in a pediatric emergency setting. Seeded by national grant funding, TREKK, aligning with Canadian Pediatric Statements, develops evidence-based, "Bottom Line

Recommendations" that can be used by practitioners to initiate management of children and youth who will either be discharged from the setting they presented, or proceed to a higher level of care. The tools also include treatment algorithms and 'Peds Pacs' to initiate management of more critically unwell children, while obtaining further input from pediatric colleagues regarding treatment, disposition and transport. There are also tools developed specifically for patients and their families! Through these tools, TREKK aims to ensure that practitioners have access to the most up to date treatment modalities for common pediatric presentations regardless of where they are practicing.

The Department of Emergency Medicine and Division of Pediatric Medicine were able to obtain generous funding from the Saskatchewan Medical Association (SMA). This funding will be used to continue the TREKK Road show. The TREKK Roadshow, is an innovative interdisciplinary program made up of emergency doctors, pediatric emergency doctors, pediatric emergency nurses, general emergency nurses, paramedics, simulation specialists, and both pediatric and emergency residents.

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TREKK Roadshow

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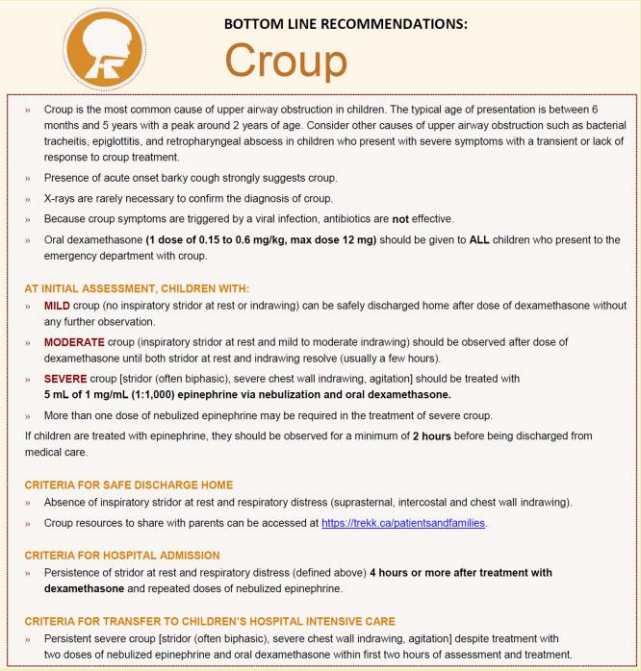
To date, the TREKK roadshow has hosted roadshows in Swift Current, Meadow Lake, and Moose Jaw. This hands-on, interactive day-of- learning using simulation, procedure rounds, and didactic lectures offers rural physicians and nurses the chance to enhance their approach to the most common pediatric emergency presentations.

The TREKK roadshow team has developed lectures and simulations based on the Bottom Line Recommendations--for a variety of medical issues. This includes common presentations (like asthma, croup, and gastroenteritis), as well as more "high acuity, low occurrence" HALO presentations (like pediatric sepsis, status epilepticus, multi-system trauma).

Because of Saskatchewan's geographical vastness the TREKK roadshow is immensely valuable for rural healthcare practitioners who are given tools to manage common pediatric emergencies as well as to initiate care of more unwell children. The TREKK roadshow is also unique, in that it brings together healthcare practitioners from different backgrounds. This allows physicians and other allied health care providers to learn the content together and then practice using it during SIM. Feedback from the three Roadshows have emphasized how important the SIM is to helping reinforce the knowledge of and improve communication between the doctors and the nurses. In addition to reinforcing the day's knowledge by "practicing what was preached", the SIM cases give the healthcare practitioners a chance to focus on 'crew resource management' in a very safe environment. Dr. Shwetz says, "It's an excellent opportunity to reinforce the value of closed-loop communication and practice functioning as a team. Since such value was placed on the SIM cases during our first two roadshows, we modified our agenda for the third roadshow and added an extra SIM case!"

Dr. Shwetz's greatest personal success has been building content with a multi-disciplinary group of healthcare practitioners who provide unique perspectives. This diversity enhances the knowledge base and makes the delivered content even stronger.



BOTTOM LINE RECOMMENDATIONS:

Croup

- Croup is the most common cause of upper airway obstruction in children. The typical age of presentation is between 6 months and 5 years with a peak around 2 years of age. Consider other causes of upper airway obstruction such as bacterial tracheitis, epiglottitis, and retropharyngeal abscess in children who present with severe symptoms with a transient or lack of response to croup treatment.
- Presence of acute onset barky cough strongly suggests croup.
- X-rays are rarely necessary to confirm the diagnosis of croup.
- Because croup symptoms are triggered by a viral infection, antibiotics are **not** effective.
- Oral dexamethasone **(1 dose of 0.15 to 0.6 mg/kg, max dose 12 mg)** should be given to **ALL** children who present to the emergency department with croup.

AT INITIAL ASSESSMENT, CHILDREN WITH:

- **MILD** croup (no inspiratory stridor at rest or indrawing) can be safely discharged home after dose of dexamethasone without any further observation.
- **MODERATE** croup (inspiratory stridor at rest and mild to moderate indrawing) should be observed after dose of dexamethasone until both stridor at rest and indrawing resolve (usually a few hours).
- **SEVERE** croup [stridor (often biphasic), severe chest wall indrawing, agitation] should be treated with **5 mL of 1 mg/mL (1:1,000) epinephrine via nebulization and oral dexamethasone.**
- More than one dose of nebulized epinephrine may be required in the treatment of severe croup.

If children are treated with epinephrine, they should be observed for a minimum of **2 hours** before being discharged from medical care.

CRITERIA FOR SAFE DISCHARGE HOME

- Absence of inspiratory stridor at rest and respiratory distress (suprasternal, intercostal and chest wall indrawing).
- Croup resources to share with parents can be accessed at https://trekk.ca/patientsandfamilies.

CRITERIA FOR HOSPITAL ADMISSION

- Persistence of stridor at rest and respiratory distress (defined above) **4 hours or more after treatment with dexamethasone** and repeated doses of nebulized epinephrine.

CRITERIA FOR TRANSFER TO CHILDREN'S HOSPITAL INTENSIVE CARE

- Persistent severe croup [stridor (often biphasic), severe chest wall indrawing, agitation] despite treatment with two doses of nebulized epinephrine and oral dexamethasone within first two hours of assessment and treatment.

Snapshot of Bottom Line Recommendations: Croup February 2019, version 3.0 TREKK; for review 2021.

She is also appreciative of the opportunity to meet, work, and "talk shop" alongside the doctors and nurses across Saskatchewan. Often practitioners in the tertiary care setting have only met their rural colleagues through telephone consults.

The TREKK Roadshow feedback has been very positive. There is continued funding for six more events with the next one to be held on May 4th in Yorkton. The future is bright for TREKK and Saskatchewan is fortunate to have the ongoing support to continue this innovative program.

For more information about TREKK please visit

https://trekk.ca/

Special thanks to the contributors of this article:
Dr. Seyera Shwetz, 3rd year resident Emergency Medicine
Dr. Vicki Cattell, Div Head Pediatric Emergency Medicine
Dr. James Stempien, Dept Head of Emergency Medicine

Recent Publications

Rao WW, Zhang JW, Zong QQ, An FR, Ungvari GS, **Balbuena L**, Yang FY, Xiang YT. Prevalence of depressive symptoms in overweight and obese children and adolescents in mainland China: A meta-analysis of comparative studies and epidemiological surveys. J Affect Disord. 2019 Feb 20;250:26-34.

Olakunde BO, **Adeyinka DA**, Olakunde OA, Ozigbu CE, Ndukwe CD, Oladele T, Wakdok S, Udemezue S, Ezeanolue EE. Correlates of antiretroviral coverage for prevention of mother-to-child transmission of HIV in sub-Saharan Africa. AIDS Care. 2019 Mar 4:1-6.

Eng SWM, Aeschlimann FA, van Veenendaal M, Berard RA, **Rosenberg AM**, **Morris Q**, Yeung RSM ReACCh-Out Research Consortium. Patterns of joint involvement in juvenile idiopathic arthritis and prediction of disease course: A prospective study with multilayer non-negative matrix factorization. PLoS Med. 2019 Feb 26;16(2)

Emil S, Langer JC, Blair G, **Miller G**, Aspirot A, Brisseau G, Hancock BJ. The Canadian pediatric surgery workforce: A 5-year prospective study. J Pediatr Surg. 2019 Feb 5.

Flood K, **Nour M, Holt T, Cattell V, Krochak C, Inman M**. Implementation and Evaluation of a Diabetic Ketoacidosis Order Set in Pediatric Type 1 Diabetes at a Tertiary Care Hospital: A Quality-Improvement Initiative. Can J Diabetes. 2018 Dec 26

Rumsey DG, Guzman J, **Rosenberg AM,** Huber AM, Scuccimarri R, Shiff NJ, Bruns A, Feldman BM, Eurich DT; Children with Enthesitis Have Worse Quality of Life, Function, and Pain, Irrespective of their Juvenile Arthritis Category. Research in Arthritis in Canadian Children Emphasizing Outcomes Investigators. Arthritis Care Res (Hoboken). 2019 Feb 11.

Nemetchek BR, Liang LD, Kissoon N, Ansermino JM, Kabakyenga J, Lavoie PM, **Fowler-Kerry S**, Wiens MO. Predictor variables for post-discharge mortality modelling in infants: a protocol development project. Afr Health Sci. 2018 Dec;18(4)

Hansen G, Hochman J, Garner M, Dmytrowich J, Holt T.Pediatric Early Warning Scores and Declining Ward Patients on High Flow Therapy. Pediatr Int. 2019 Jan 15.

Caudron M, Holt T, Cuvelier G, Dmytrowich J, Hansen G. Pulmonary Thromboses in Pediatric Acute Respiratory Distress Syndrome. Respir Care. 2019 Feb;64(2):209-216.

Khamis MM, **Adamko DJ**, **Purves RW, El-Aneed A**. Quantitative determination of potential urine biomarkers of respiratory illnesses using new targeted metabolomic approach. Anal Chim Acta. 2019 Jan 24;1047:81-92.

James Huntsman R, Tang-Wai R, Acton B, Alcorn J, William Lyon A, David Mousseau D, Seifert B, Laprairie R, Prosser-Loose E, Ondrej Hanuš L. Cannabis for the treatment of paediatric epilepsy? An update for Canadian paediatricians. Paediatr Child Health. 2018 Sep;23(6):368-373.

Be sure to check out the new Recent Publications Showcase page of recent scholarly articles published by the College of Medicine researchers

News from SASKPAIN

The following are exciting updates from The Saskatchewan Pain Society who have recently incorporated as a non-profit organization. SaskPain is a grass-roots group of patient/family advocates, multidisciplinary clinicians, educators, researchers, and healthcare administrators.

In the recent SaskPain newsletter, findings from 2018 Dean's Summer research projects were summarized. Two of the three highlighted were from the Department of Pediatrics, supervised by Dr. Baerg. Student, Alex Senger examined pediatric pain in departments at the Royal University Hospital. Of the 84 patients who were interviewed and underwent chart audits, it was concluded that more evidence-based simple strategies should be utilized to prevent pediatric pain. Student, Madeline Parker examined the effectiveness of the practice aid for phlebotomists at Saskatoon's Royal University Hospital, which aims to improve pain management for pediatric patients through use of positions of comfort, distraction and numbing cream. Of the 65 patients/ caregivers and 26 phlebotomists who participated, results support existing research indicating both children benefit from improved pain control. In addition, phlebotomists reported improved job satisfaction after implementation of the procedural protocol.

For those interested in Pediatric-Pain please *join the mailing list by contacting info@saskpain.ca*.

Resident Research

What is the big question you're trying to answer here?

In our case report, we described a pediatric patient who presented with diffuse alveolar hemorrhage (DAH), which is a life-threatening complication of a number of diagnoses. This patient was found to have post-infectious glomerulonephritis (PIGN) as the cause of DAH which has only been reported in one other pediatric patient. We aimed to describe this rare presentation and our method of treatment as the patient had an excellent outcome. We also hypothesized that continuous renal replacement therapy (CRRT) was the key to her rapid recovery.

Dr. Ali Markland was supervised by Dr. Darryl Adamko, Dept of Pediatrics

What impact will this research potentially have on child health?

Describing rare cases is important to help other practitioners recognize and thereby appropriately treat these conditions. In very uncommon disease states, it is difficult to get an adequate sample size to perform randomized trials to compare treatments, so sometimes doctors need to rely on case reports like this to aid in their clinical judgement.

What is new or unique about this research?

PIGN has only been described as the culprit for DAH in 5 cases we found, only one of which was pediatric like this one.

How have you benefited from this research (in your learning and personally)?

Cases like this remind me to keep a broad differential when approaching a patient with an undifferentiated presenting symptoms or complaint. It also serves as a reminder that new cases and new clinical phenomenon are constantly being described, so when in doubt reviewing the literature can always be helpful!

Our Partners:
The Jim Pattison Children's Hospital has historically provided strong support for child health research in Saskatchewan. The recent $50 million donation from Jim Pattison allows for a steady stream of revenue to help meet research and programming needs for generations to come. Groundbreaking opportunities for pediatric researchers in Saskatchewan are on the horizon!

JIM PATTISON CHILDREN'S HOSPITAL FOUNDATION

The Children's Health Research Trust Fund (CHRTF) was established in 1983 to help raise funds to support child health research at the University of Saskatchewan. As all donated funds are endowed, the CHRTF has continued to grow to become an important part in helping advance research in the Department of Pediatrics. For further information about the CHRTF and to donate: https://donate.usask.ca/online/chrtf.php

Children's Health Research TRUST FUND

Congratulations

Dr. Gloria Yoo for being awarded **Vice-Dean's Prize for Excellence in Resident Research in Pediatrics** from the College of Medicine! This award recognizes Dr. Yoo's outstanding dedication to research during her residency program.

Register Today

The Department of Pediatrics presents,
Child Health Research Trainee Day
Thursday April 18, 2019
12-6 pm Louis Loft

- Lunch and appetizers included
- Contact tova.dybvig@usask.ca for abstract submission form and to RSVP

Contact us
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