



Translating Emergency Knowledge for Kids

EMSC – EIIC Dissemination Workshop
20 August 2019

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TREKK Co-Director, Implementation

TREKK

DISCLOSURE

Partnerships with health care staff, organizations, researchers, patients and their families, strengthen our network. We are grateful for the following support:



UNIVERSITY
OF MANITOBA

Rady Faculty of Health Sciences



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INSTITUTE



UNIVERSITY OF
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women & children's
health research institute



Research
Manitoba



Government of Canada
Networks of Centres
of Excellence

Gouvernement du Canada
Réseaux de centres
d'excellence

TREKK STATISTICS

85%

Of Canadian children who need emergency care are treated in general EDs that are not part of a children's hospital.

40%

Do not get treatments for which clear evidence exists.

1in5

Get treatment which is of no benefit or even harmful.



VISION

That every child receives the highest standard of care, whether they are treated in a pediatric or general emergency department.

Three Phase Plan

1. Needs Assessment
2. Assemble current evidence
3. Develop & share knowledge and practical tools

Pediatric Emergency Research Canada (PERC) sites and affiliated TREKK emergency department sites

PERC Sites
TREKK Sites



TREKK — Needs Assessment

The **largest needs assessment** in Canada to identify the pediatric knowledge needs and preferences of **healthcare professionals** working in and **families** seeking care in general EDs.



N=1471

Healthcare professional surveys



N=897

Health consumer (families) surveys



N=58

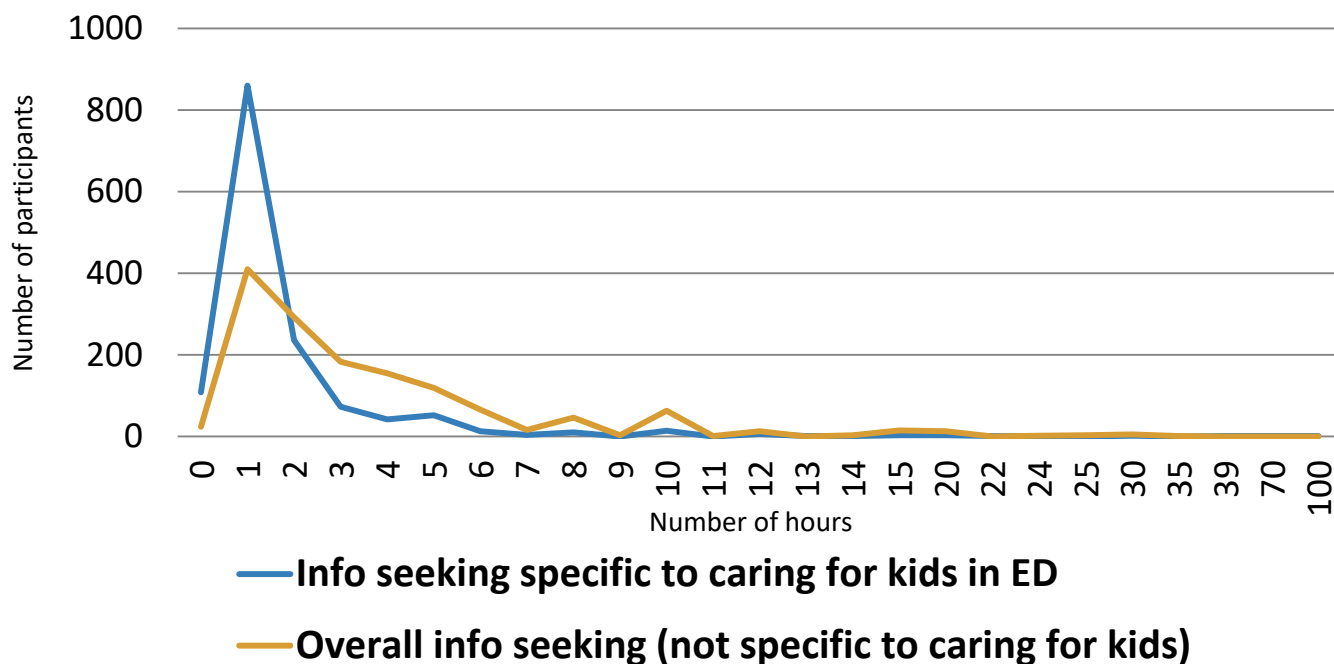
Healthcare professionals (7 focus groups)



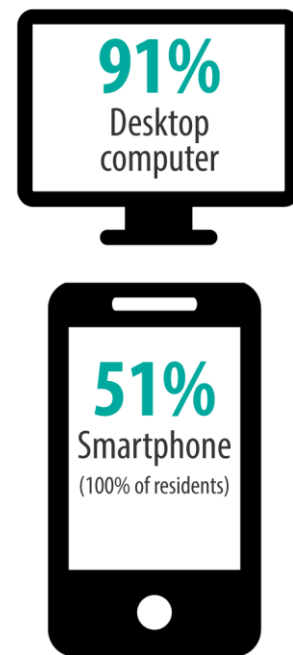
N=3 sources

Review of unperceived needs

How many hours a week do you spend reading and/or finding information?



HCPs' device use at work to find new information



Reference: Scott, S.D., Albrecht, L., Given, L.M., Hartling, L., Johnson, D.W., Jabbour, M., Klassen, T.P. (2017). *Pediatric information seeking behaviour, information needs, and information preferences of health care professionals in general emergency departments: Results from the Translating Emergency Knowledge for Kids (TREKK) Needs Assessment*. Edmonton, AB: Translating Emergency Kids (TREKK) Mobilization Centre.

What healthcare professionals need

Legend:

20-39%

40-59%

60-80%

Research Needed

- Protocols and treatments for common conditions
- Evidence-based info on new diagnoses & treatments

Clinical Conditions

- Multi-system trauma
- Severe head injury
- Meningitis
- CHD
- Sepsis
- Status Epilepticus
- Diabetic ketoacidosis
- Croup
- etc.

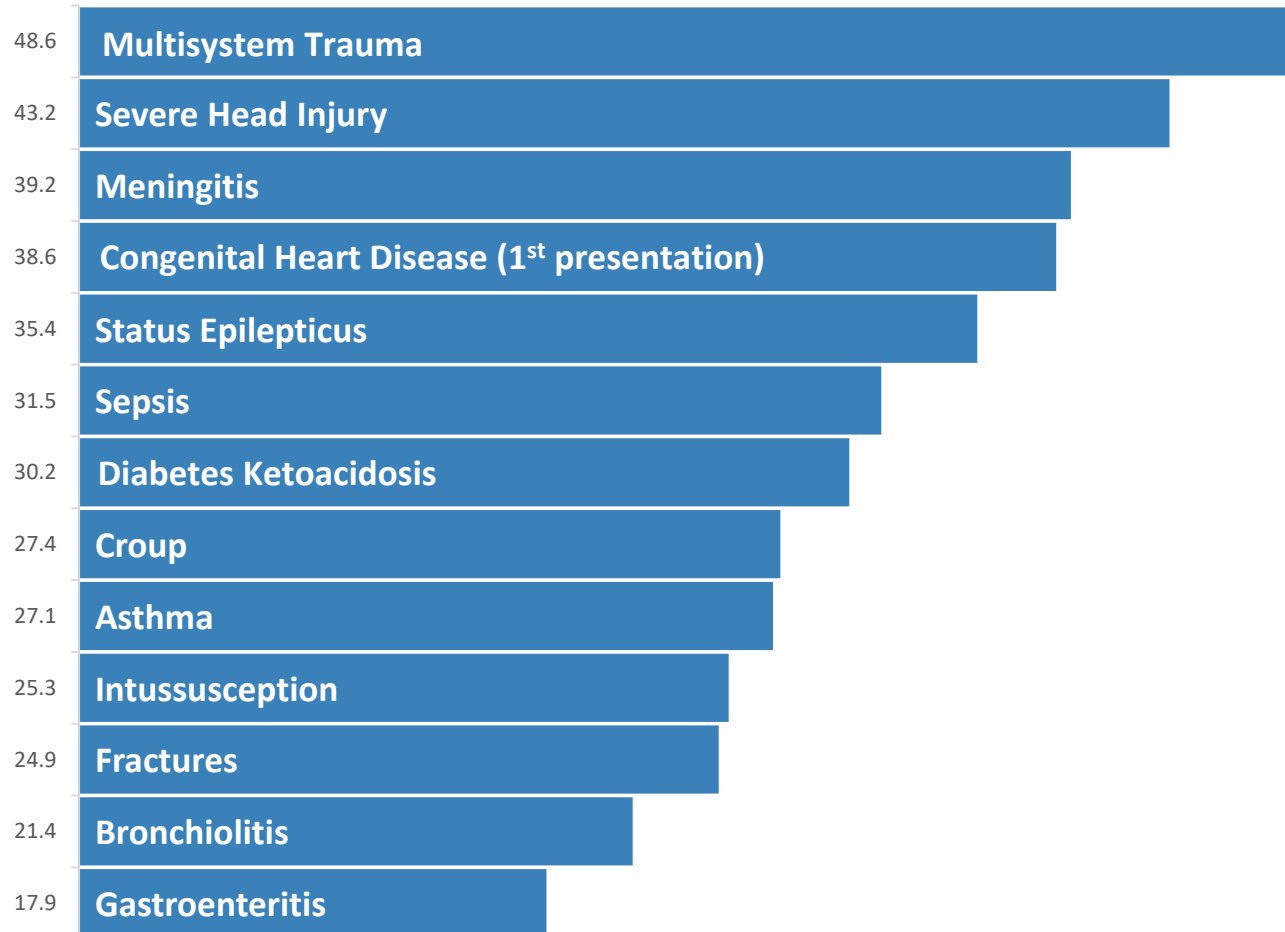
Preferred sources

- Professional development opportunities
- Printed summaries

Inputs from the needs assessment

Inputs led to the identification of 14 priority conditions

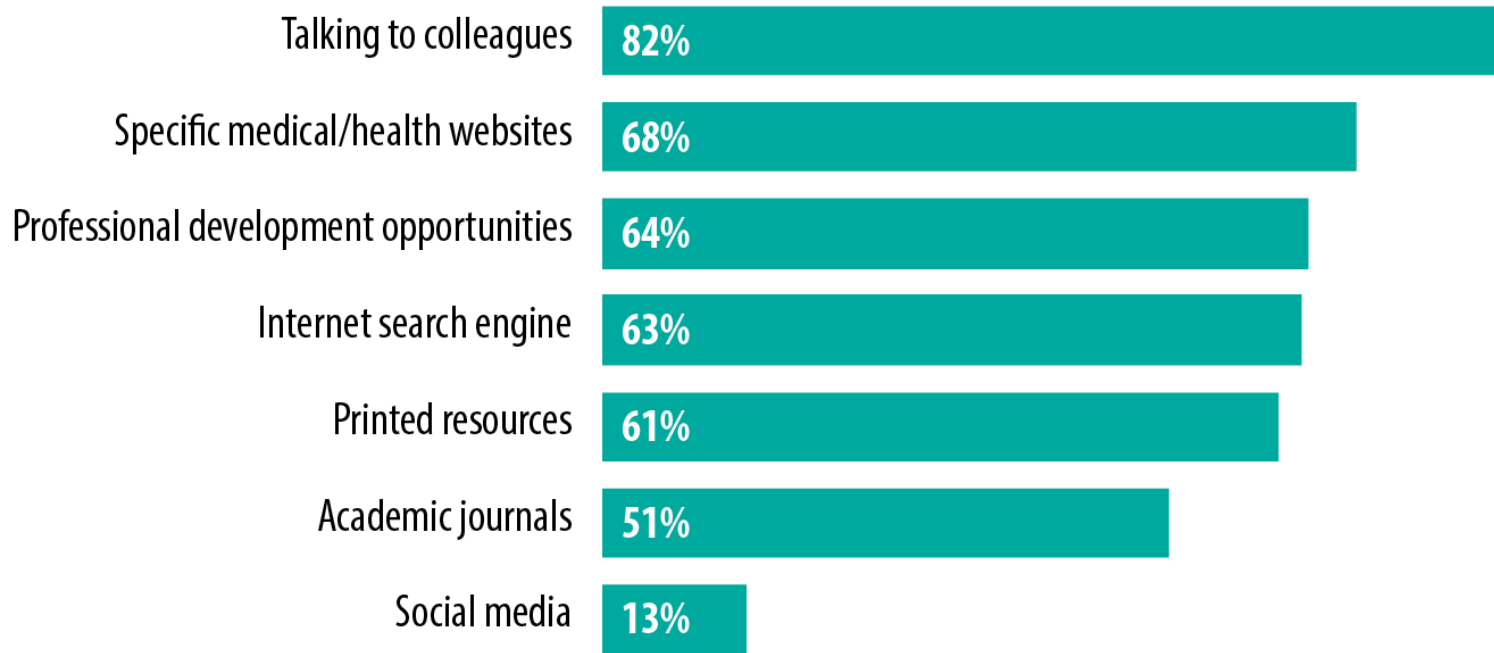
(% of healthcare professionals surveyed who wanted clinical information on each condition)



Procedural Sedation (focus group and network meeting input)

Reference: Scott, S.D., Albrecht, L., Given, L.M., Hartling, L., Johnson, D.W., Jabbour, M., Klassen, T.P. (2017). *Pediatric information seeking behaviour, information needs, and information preferences of health care professionals in general emergency departments: Results from the Translating Emergency Knowledge for Kids (TREKK) Needs Assessment.* Edmonton, AB: Translating Emergency Kids (TREKK) Mobilization Centre.

Healthcare professionals information sources



Reference: Scott, S.D., Albrecht, L., Given, L.M., Hartling, L., Johnson, D.W., Jabbour, M., Klassen, T.P. (2017). *Pediatric information seeking behaviour, information needs, and information preferences of health care professionals in general emergency departments: Results from the Translating Emergency Knowledge for Kids (TREKK) Needs Assessment*. Edmonton, AB: Translating Emergency Kids (TREKK) Mobilization Centre.

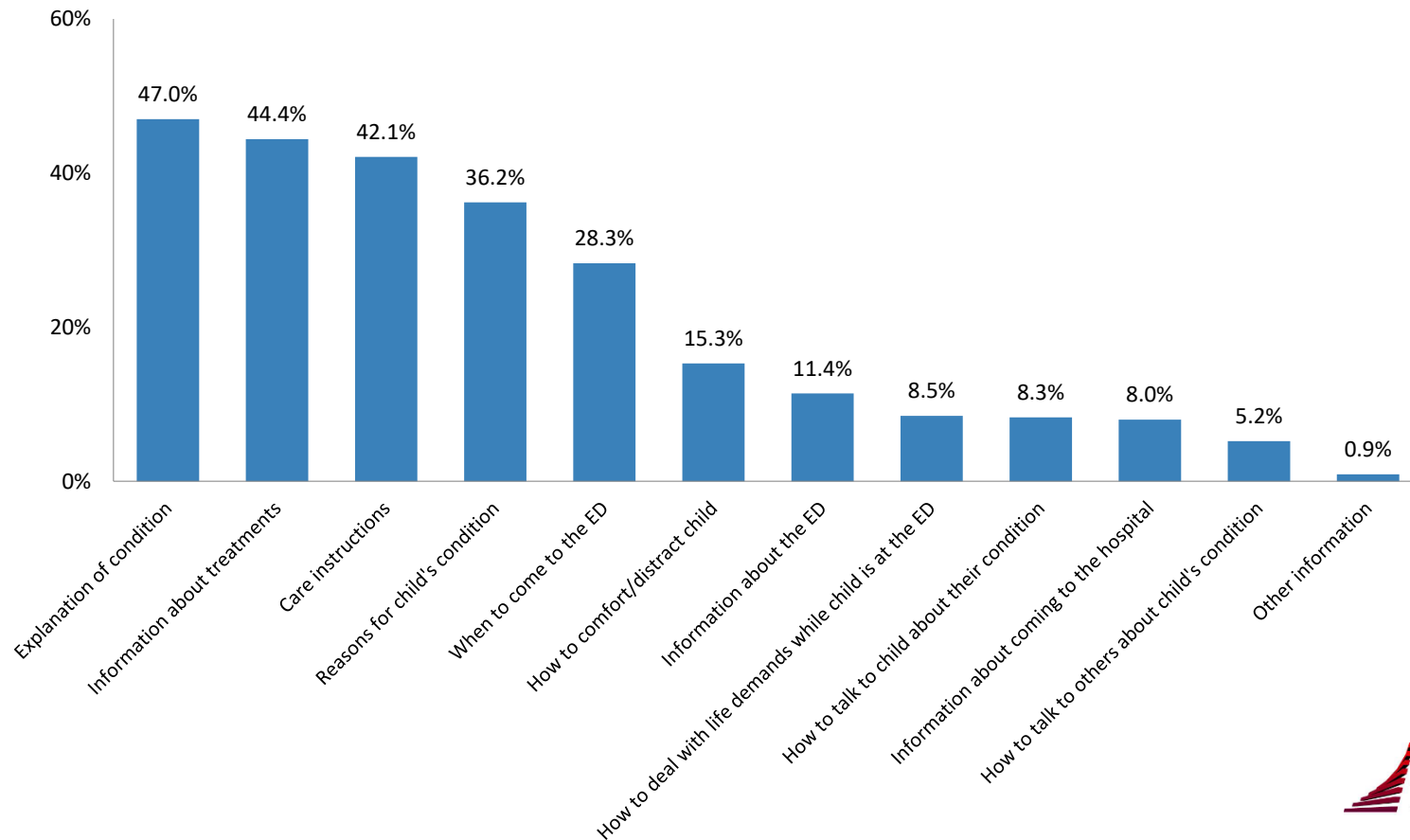
Network Spread

Social Network Analysis

Pairing SNA & qualitative methods allowed us to:

- Determine patterns of knowledge sharing & connectivity
- Richer understanding of network impact
- Identify successes
- Identify gaps and opportunities

Information parents & families said they needed but didn't have



Reference: Scott, S.D., Albrecht, L., Given, L.M., Hartling, L., Johnson, D.W., Jabbour, M., Klassen, T.P. (2017). *Pediatric information seeking behaviour, information needs, and information preferences of health care professionals in general emergency departments: Results from the Translating Emergency Knowledge for Kids (TREKK) Needs Assessment*. Edmonton, AB: Translating Emergency Kids (TREKK) Mobilization Centre.

How do you normally find health information to care for your child?



From a trusted professional

69%



Internet search engine

53%



From family & friends

50%



Smartphone app

9%



From a specific agency

8%



From a newspaper/magazine

7%



Social media

4%



At the library

3%



Other method

2%



Iconset: www.visualpharm.com

Participants were able to select multiple responses

Storytelling for knowledge translation

Hartling et al. *BMC Pediatrics* 2010, **10**:64
<http://www.biomedcentral.com/1471-2431/10/64>



RESEARCH ARTICLE

Open Access

Storytelling as a communication tool for health consumers: development of an intervention for parents of children with croup. Stories to communicate health information

Lisa Hartling^{1*}, Shannon Scott², Rena Pandya³, David Johnson⁴, Ted Bishop⁵, Terry P Klassen¹

Arts & Health

Vol. 4, No. 2, June 2012, 162–173



Stories – a novel approach to transfer complex health information to parents: A qualitative study

Shannon D. Scott^a, Lisa Hartling^b, Kathy A. O’Leary^{a*}, Mandy Archibald^a and Terry P. Klassen^c

OPEN ACCESS Freely available online



A Randomized Controlled Trial of Storytelling as a Communication Tool

Lisa Hartling^{1*}, Shannon D. Scott², David W. Johnson³, Ted Bishop⁴, Terry P. Klassen⁵

¹ Alberta Research Centre for Health Evidence, Department of Pediatrics, University of Alberta, Edmonton, Alberta, Canada, ² Faculty of Nursing, University of Alberta, Edmonton, Alberta, Canada, ³ Departments of Pediatrics and Physiology & Pharmacology, University of Calgary, Calgary, Alberta, Canada, ⁴ Department of English and Film Studies, University of Alberta, Edmonton, Alberta, Canada, ⁵ Manitoba Institute for Child Health, Winnipeg, Manitoba, Canada

KNOWLEDGE



MOBILIZATION

Knowledge Mobilization

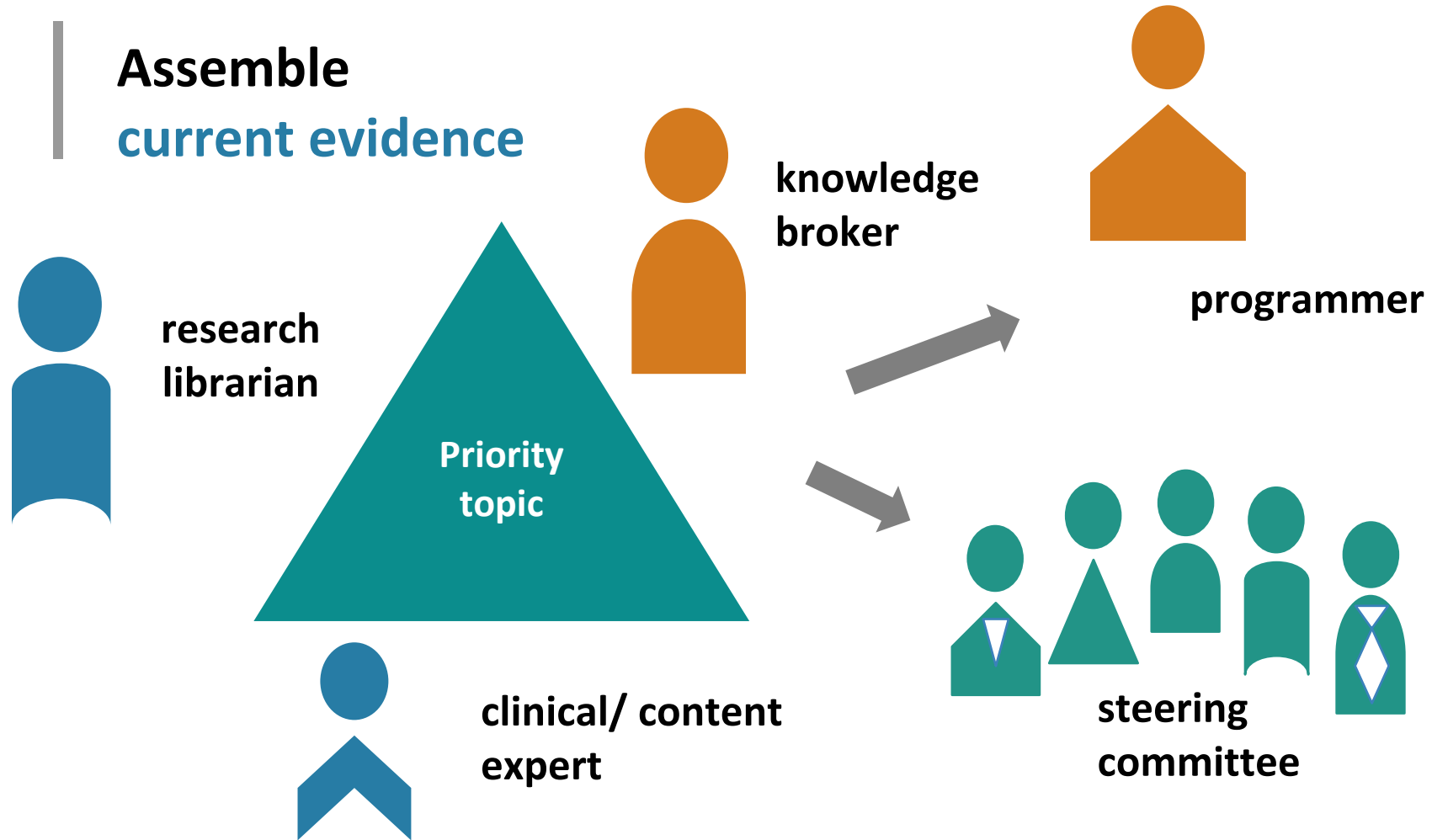
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synthesis

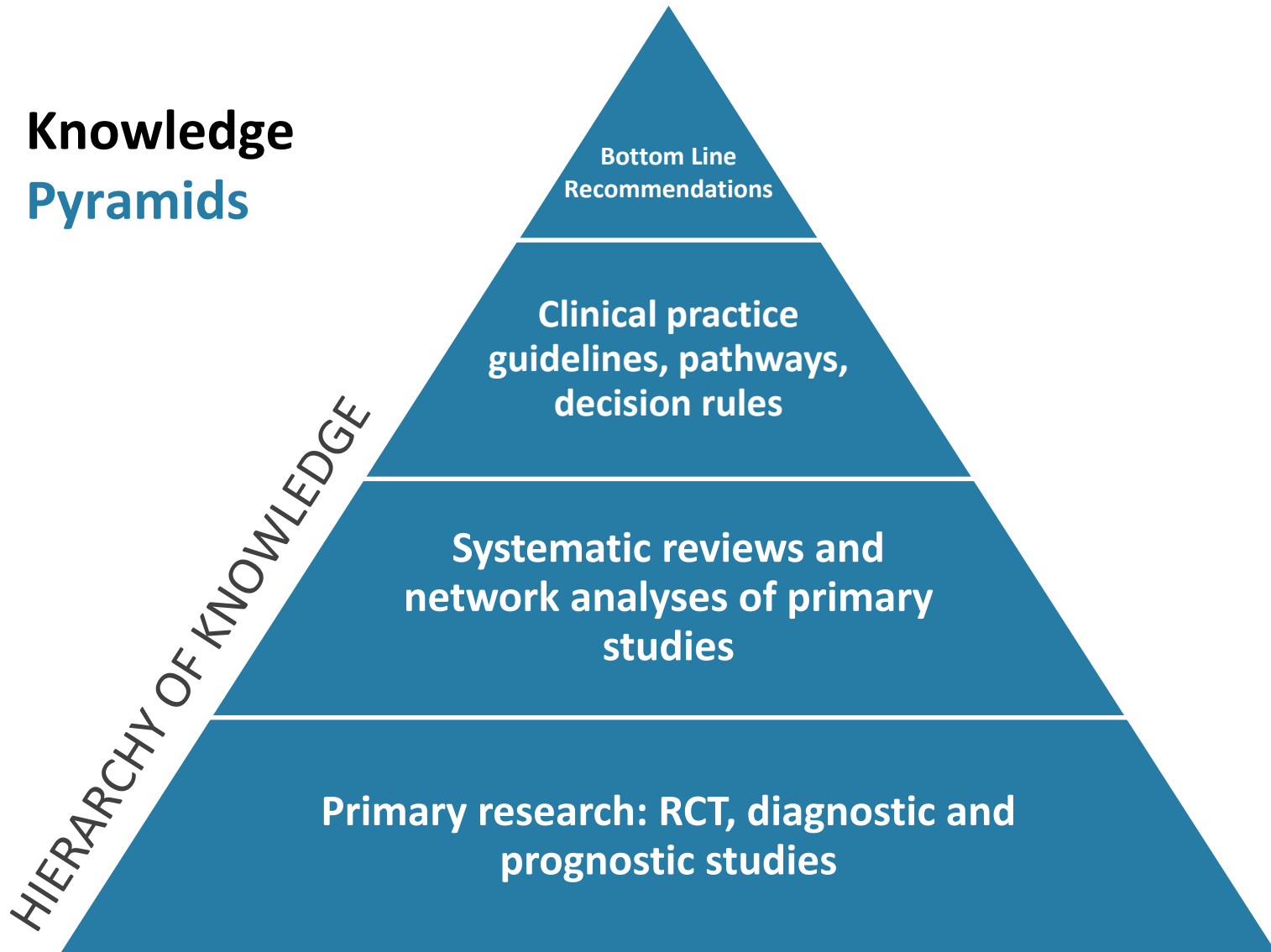
exchange

application

dissemination



Knowledge Pyramids



BOTTOM LINE



RECOMMENDATIONS



TREKK Bottom Line Recommendations

Quick summaries to guide effective, evidence-based management of acutely ill or injured children.

Currently available:

- Acute otitis media
- Anaphylaxis
- Asthma
- Bronchiolitis
- Caring for Children with Developmental and Intellectual Disabilities
- Concussion
- Constipation
- Croup
- Diabetic ketoacidosis
- Fractures
- Gastroenteritis
- Intussusception
- Multiple Trauma
- Pain Treatment
- Procedural Pain
- Procedural Sedation
- Sepsis
- Severe Head Injury
- Suspected Physical Maltreatment
- Urinary Tract Infection

Summaries

Bottom Line Recommendations



RECOMMANDATIONS DE BASE

Suspicion de maltraitance physique d'un enfant

La maltraitance physique d'un enfant comprend tout acte de la part de quelqu'un qui s'occupe d'un enfant qui cause, ou qui comporte un risque significatif de causer, du mal physique à l'enfant. **Les nourrissons et les tout-petits sont les plus à risque de mortalité due à la maltraitance.** De nombreux enfants décédés de maltraitance avaient déjà été évalués précédemment pour des blessures mineures (ex. ecchymoses) qui n'avaient pas été reconnues pour de la maltraitance. Les professionnels de la santé sont tenus de signaler toute suspicion de maltraitance à la Direction de la protection de la jeunesse (DPJ).

QUAND SOUPÇONNER LA MALTRAITEMENT PHYSIQUE

- » Dans un cas de maltraitance, les raisons invoquées pour la situation sont souvent mal décrites, pas partagées, ou pas connues des personnes qui s'occupent de l'enfant. On soupçonne la maltraitance en présence de certains signaux d'alerte dans l'anamnèse (voir ci-dessous).
- » Même si aucune blessure particulière n'est pathognomonique de la maltraitance, certaines blessures ou combinaisons de blessures doivent toujours soulever des soupçons.
- » En plus des blessures ci-dessous, on soupçonne la maltraitance en présence d'hémorragies sous-conjonctivales inexpliquées, de saignement nasal ou buccal, et/ou de blessures du frein de la lèvre ou de la langue, surtout chez le nourrisson.
- » On ne retrouve que rarement des lésions abdominales, thoraciques, et de la colonne vertébrale dans le contexte de la maltraitance, quoiqu'elles peuvent être présentes.

SIGNAUX D'ALERTE DANS L'ANAMNÈSE

- » Situation inexpliquée, vague, ou changeante.
- » Blessures qui ne concordent pas avec la situation décrite, ou situation qui ne concorde pas avec les habiletés développementales de l'enfant.
- » Retard inexpliqué dans la recherche de soins médicaux.
- » Antécédents de blessures importantes ou inexpliquées chez l'enfant.
- » Situation sociale à risque, y compris des antécédents avec la Direction de la protection de la jeunesse (DPJ).

BLEUS – ECCHYMOSES

- » **Les ecchymoses sont la manifestation la plus courante de l'enfant maltraité.** On ne peut les dater ni par la couleur ni par la grosseur.
- » **Les ecchymoses d'intérêt sont celles sans explication convaincante :** à des endroits inusités ou relativement protégés (ex. torse, oreilles, cou, frein, zone auriculaire, joues, paupières, hémorragie sclérale, angles de la mâchoire, ventre, dos, fesses, parties génitales); ecchymoses multiples ou ayant une forme bien définie (ex. empreinte de la main, boucles, lignes droites, morsures); et **tout ecchymose chez un nourrisson ou un enfant qui ne se déplace pas seul.**
- » La plupart des ecchymoses qui surviennent pendant l'activité normale, chez un enfant ambulateur, se situent sur les prominences osseuses (ex. tibia, genoux, front) et sur le devant du corps.

FRACTURES (VOIR RECOMMANDATIONS TREKK SUR LES FRACTURES)

- » Les fractures attribuables à la maltraitance se retrouvent chez les enfants de tout âge, mais particulièrement chez le bébé de moins de 18 mois.
- » Chez un enfant, la fracture est provoquée par une force majeure. L'enfant ayant subi une fracture présente une anamnèse claire de la situation. L'exception notable se retrouve chez le bébé, soit une fracture spirale incomplète de la partie inférieure du tibia. Cette fracture se produit souvent dans le cadre de l'activité normale sans traumatisme particulier.
- » Un enfant ambulateur et plus âgé peut présenter une fracture oblique/spirale du fémur suite à une chute avec entorse, sans que ce soit signe de maltraitance.
- » **Les fractures inexpliquées qui sont inquiétantes dans le cadre de la maltraitance incluent :** toute fracture chez un enfant qui ne marche pas; fractures du fémur chez un bébé d'âge < 12 mois; fractures de l'humérus chez un bébé d'âge < 18 mois; fractures des côtes; lésions métaphysaires classiques (avulsion et déplacement éphyso-métaphysaire); fractures multiples; fractures complexes du crâne.¹

TRAUMATISMES À LA TÊTE (VOIR RECOMMANDATIONS TREKK SUR LES TRAUMATISMES CRÂNIENS GRAVES)

- » Le traumatisme crânien est la principale cause de décès dans le cadre de la maltraitance physique infantile.
- » Dans ~30 % des cas, le traumatisme crânien associé à la maltraitance n'est pas identifié par le médecin à la première visite.²
- » Les signes et symptômes d'une lésion intracrânienne chez le jeune enfant sont : soit apparents (ex. convulsions, apnée, altération de l'état mental), soit subtiles et non spécifiques (ex. somnolence, vomissements inexpliqués, irritabilité, macrocéphalie), soit absents (« lésion silencieuse »).
- » Dans le cadre du traumatisme crânien chez l'enfant maltraité, on retrouve souvent un hématome sous-dural.

Toute lésion encéphalique chez un enfant sans histoire claire de traumatisme accidentel important ou sans explication médicale doit soulever des soupçons de maltraitance.

BRÛLURES

- » **Les brûlures sans explication claire ou celles dont l'explication ne correspond pas à la blessure sont inquiétantes dans le cadre de la maltraitance. Les signes suspects d'une brûlure infligée incluent :** brûlures d'immersion/ enfant ébouillanté (ex. distribution de bas et/ou de gants, brûlures symétriques sur les fesses et/ou parties génitales); brûlures de contact ayant une forme bien définie (ressemblant à un objet chaud, ex. brûlures de cigarettes, fer, briquet, séchoir à cheveux, article de cuisine).



BOTTOM LINE RECOMMENDATIONS:

Caring for Children with Developmental and Intellectual Disabilities in the ED

Children with developmental delays or disorders (DD) are ten times more likely to use emergency department (ED) services compared to their peers. This can include children with conditions such as autism spectrum disorder (ASD), fetal alcohol spectrum disorder (FASD) and other conditions. This document will provide recommendations for the medical approach to these children.

CHALLENGES

Individuals with DD have different abilities across domains, including their ability to communicate and understand.² Children with DD may exhibit behaviours that are considered unusual for their chronological age, but are normal in the context of their developmental age. These can include non-compliance, aggression, hyperactivity, self-injury, sensory sensitivities, and self-stimulating behaviours.

ASSESSMENT APPROACHES IN THE ED

Most children with DD present to the ED for an acute behavioural change. This can result from a variety of medical, behavioural, and environmental factors.³

1. **Identify.** It is important to identify children with developmental/intellectual disabilities. **Note:** See Environmental Interventions below for immediate actions that can be taken at triage.
2. **Communication:** Determine how the child communicates and their ability to comprehend. Are they non-verbal? Do they communicate with pictures/technology? Determine who to communicate with (child or caregiver) and who makes decisions for the child.
3. **Role of the caregiver.** Caregivers serve as important interpreters of a child's behaviour and can help ED staff effectively interact with the patient to deliver appropriate medical care.
4. **High-yield assessment questions.** The following questions can identify strategies for caring for children with DD.

TARGETED QUESTIONS

CAREGIVER & PATIENT PREFERENCES

- Who is/are the primary caregiver(s)?
- Who should communication be directed to (patient or caregiver)? Should caregiver remain in the room for discussions and necessary procedures, or should they leave the room (either by patient or caregiver preference)?
- When the child has been to the ED or doctor's office in the past, what problems did they face? What problems do they think might arise today?
- How can we help the child have a more positive experience?

MEDICAL ISSUES

- What symptoms brought the family in today?
- Does the child have a history of: epilepsy, gastrointestinal disorders, dental infections, acute otitis media or psychiatric conditions (anxiety, obsessive compulsive disorder, attention deficit hyperactivity disorder, depression, etc.)?
- Has there been a recent change in behaviour and if so, what was it?
- Is the child sleeping normally (for them) or has there been a change in sleep?
- How is dental hygiene (are teeth brushed daily)?
- How does the child communicate discomfort and pain?

MANAGEMENT APPROACHES IN THE ED

Once the above information about the child is ascertained, various environmental, behavioural, and/or pharmacological interventions can be applied.

ENVIRONMENTAL INTERVENTIONS

- Limit time in the waiting room to reduce agitation and anxiety.⁴
- Place family in designated room or quiet room that can be "stripped down" to minimize sensory stimuli.
- Have play materials of various textures and colours to soothe and offer distraction.⁵

BEHAVIOURAL AND COMMUNICATION INTERVENTIONS

- Speak to the patient at their developmental level.⁶
- Physical examination, vital sign taking, and procedures may need to be avoided unless medically necessary.⁶
- Use communication strategies that work for the child in consultation with the parent or caregiver (e.g. FACES Pain Scale).



Summaries

Bottom Line Recommendations

BOTTOM LINE RECOMMENDATIONS

**DRAFT – New Template
for review**

Gastroenteritis

Gastroenteritis is a common disease, usually of viral origin, that inflames both the stomach and small intestine. It is characterized by diarrhea and vomiting, +/- fever. Dehydration assessment is the cornerstone of management. The degree of dehydration is described as a percentage decrease in total body water/body weight. If a recent (i.e. < 48 hours) weight is available, that should serve as your gold-standard to calculate % weight loss. Practitioners with limited experience assessing dehydration in children should consider employing a clinical dehydration scale such as the Gorelick Score¹ or Clinical Dehydration Scale Score² to rule out dehydration (they have high sensitivity but low specificity).

Signs of dehydration

No dehydration

- » First signs of dehydration might not be evident until **3% dehydration**. Usually no signs of dehydration are present and urine output, while dark, is only slightly reduced.

Some (mild – moderate) dehydration

- » More numerous clinical signs are evident at **5% dehydration**. These may include less frequent urination, mild tachycardia and tachypnea, sunken eyes, dry oral mucosa and decreased activity.

Severe dehydration

- » Signs not evident until fluid loss reaches **9% dehydration**. These include oliguria/anuria and more significant lethargy, sunken eyes, tachypnea, tachycardia and dry oral mucosa.

Treatment depends on hydration status:

No/minimal dehydration – can be managed at home

- » Encourage child to drink their preferred fluids & continue an age-appropriate diet as tolerated.
- » Allow child to consume their preferred fluids to replace ongoing losses (vomiting and/or diarrhea).

Some (mild – moderate) dehydration – treated in the emergency department

- » Rapidly replace fluid deficit by giving 50 – 100 mL of oral rehydration solution (ORS)/kg body weight by mouth within 2 - 4 hours of presentation to the ED. » Aim to administer "1-2-3 ounces" method as follows:
 - 6 mths – 5 yrs: 30 sips per 10 mins
 - >5-10 yrs: 60 sips per 10 mins
 - >10 yrs: 90 sips per 10 mins
- » Offer alternative fluid options based on taste preference if child refuses ORS.
- » Administer additional fluids to replace ongoing losses (vomiting and/or diarrhea).
- » Administer small amounts of fluid frequently if the child is vomiting.
- » Intravenous hydration is rarely needed.

Severe dehydration

- » Requires immediate intravenous (or intraosseous) rehydration with an isotonic solution (**0.9% normal saline**) administered as rapidly as possible to restore hemodynamic stability (**often requires >60 mL/kg over the first hour**).
- » Monitor glucose and electrolytes.

Gastroenteritis

**DRAFT – New Template
for review**

Patients who fail oral rehydration and IV access unobtainable

- » Administer nasogastric rehydration with ORS 50 mL/kg divided over 3 hours.

Ondansetron

- » Single oral dose administration is extremely safe and cost-effective.
- » Weight-based dosing regimen:
 - 8 - 15 kg: 2 mg PO once
 - >15 - 30 kg: 4 mg PO once
 - >30 kg: 8 mg PO once
- » Enhances the success of oral rehydration in children with "some" dehydration.
- » No evidence to support use of multiple doses or in children without evidence of dehydration (e.g. following discharge).
- » Clinical trial evidence does not support the use of dimenhydrinate.

Additional considerations

- » Glucose: If lethargy present, especially in children < 2 years of age, perform point-of-care glucose assessment. If glucose < 2.6 mmol/L, treat with 5 mL/kg D10W IV push and recheck glucose in 5-10 minutes.
- » Maintenance Fluids: Once child is hemodynamically stable, oral fluids should be reintroduced and IV discontinued. If unable to adequately perform oral rehydration therapy, isotonic maintenance fluids including adequate amounts of glucose and potassium (based on baseline electrolytes) are required. For children with significant hypo/hyponatremia, consultation with Pediatric Referral Centre is recommended.
- » Parent resources related to gastroenteritis can be accessed at <https://trekk.ca/patientsandfamilies>.

Criteria for hospital admission

- » Caregivers cannot provide adequate care at home.
- » "Some" dehydration and intractable vomiting, ORS refusal, or inadequate ORS intake.
- » Concern exists for other possible illnesses complicating the clinical course.
- » Worsening diarrhea or dehydration despite adequate volumes of fluids.
- » Severe dehydration.
- » Social or logistical concerns exist that might prevent return to emergency department if needed.
- » Young age, unusual irritability or drowsiness, progressive symptoms.

The purpose of this document is to provide health care professionals with key facts and recommendations for the diagnosis and treatment of gastroenteritis in children. This summary was produced by the Pediatric Emergency Research Canada (PERC) Gastroenteritis Study Group, led by Dr. Stephen Freedman of the Alberta Children's Hospital Research Institute, at the request of the TREKK Network; it uses the best available knowledge at the time of publication. However, health care professionals should continue to use their own judgment and take into consideration context, resources and other relevant factors. The TREKK & PERC Networks are not liable for any damages, claims, liabilities, costs or obligations arising from the use of this document including loss or damages arising from any claims made by a third party. The TREKK & PERC Networks also assume no responsibility or liability for changes made to this document without its consent. This summary is based on:

1. Gorelick MH, Shaw KN, Murphy KD. Validity and reliability of clinical signs in the diagnosis of dehydration in children. *Pediatr*. 1997;99:66.
2. Freedman SB, Vandermeer B, Milne A, Hartling L; Pediatric Emergency Research Canada Gastroenteritis Study Group. Diagnosing clinically significant dehydration in children with acute gastroenteritis using noninvasive methods: A meta-analysis. *Pediatr*. 2015 Apr;166(4):908-16. Epub 2015 Jan 29.
3. Freedman SB, Ali S, Cieszczyk M, Gouin S, Hartling L. Treatment of acute gastroenteritis in children: An overview of systematic reviews of interventions commonly used in developed countries. *Evidence-based Child Health: A Cochrane Review Journal*. 8(4): 1129-1137 (2013).
4. King CK, Glass R, Bresee JS, Duggan C. Centers for Disease Control and Prevention. Managing acute gastroenteritis among children: Oral rehydration, maintenance and nutritional therapy. *MMWR Recomm Rep*. 52 (RR-16): 1-16 (2003).

PEDIATRIC



PACKS (*PedsPacs*)



TREKK PedsPacs

Packaged tools to guide effective, evidence-based management of acutely ill or injured children at the *point-of-care*.

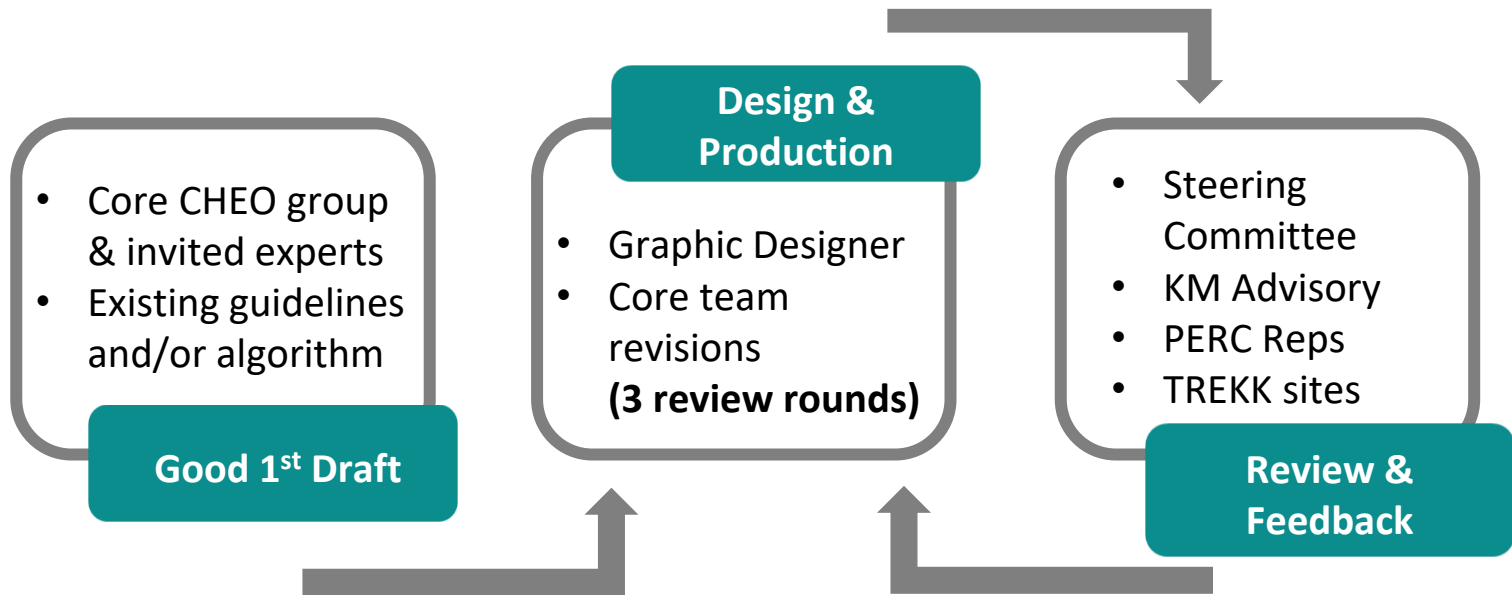
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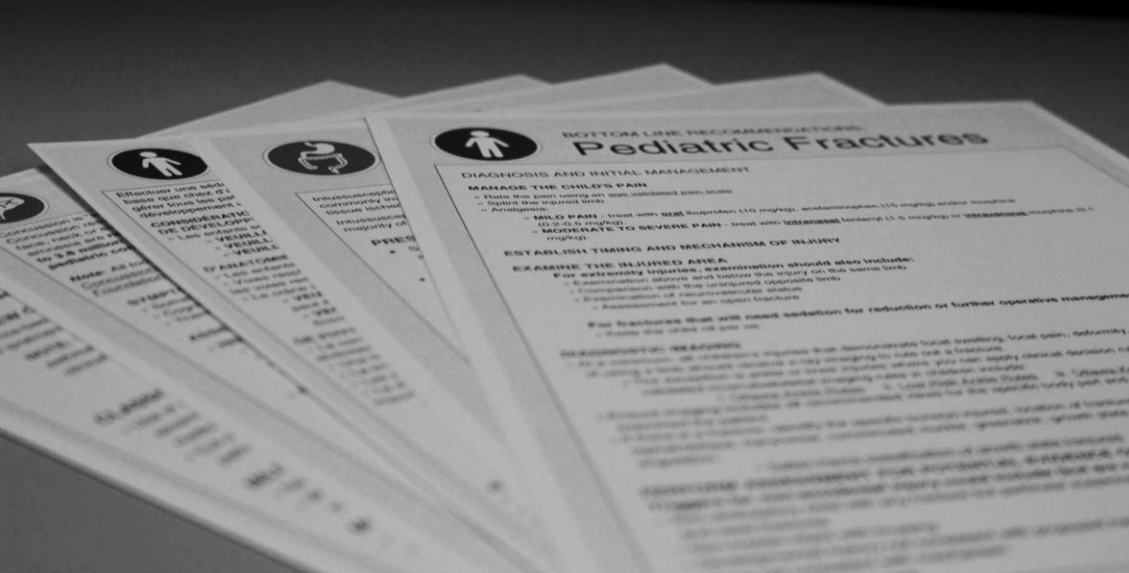
- Sepsis
- Status epilepticus
- Diabetic ketoacidosis
- Anaphylaxis
- Critically ill neonate*
- Severe asthma
- Multisystem Trauma

Cognitive Aids

- Triage Poster: Recognition
- Assessment/management algorithm
- Pocket cards
- Drug Dosing Binder: age/weight based
- Pre-printed order set
- Transport checklist
- Instructional videos

PedsPac development





TREKK RESOURCES

We now have more than **1400** evidence-based resources for children's emergency care on trekk.ca.

Pediatric Severe Asthma Algorithm

For children age ≥ 12 months

Recognition of Severe Asthma (age ≥ 12 months)

Severe Respiratory Difficulty

- Pediatric Resp Assessment Measure (PRAM) Score ≥ 8
- Increased work of breathing (WOB), wheeze or silent chest, cough

Impending Respiratory Failure

- Lethargy, cyanosis, decreasing respiratory effort and/or rising PCO₂

May not have Asthma diagnosis or previous wheeze

PRAM Scoring Table

SIGNS	0	1	2	3
Suprasternal retractions	Absent		Present	
Scalene retractions	Absent		Present	
Wheezing	Absent	Expiratory only	Inspiratory & expiratory	Audible wheeze / silent chest / minimal air entry
Air entry	Normal	Decreased at bases	Widespread decrease	Absent / minimal
O ₂ Saturation (R/a)	$\geq 94\%$	92 – 94%	$\geq 92\%$	

Initial Management

- Continuous cardiopulmonary monitoring
- Administer oxygen to maintain SpO₂ $\geq 92\%$
- Administer salbutamol + ipratropium q20 min x 3 consecutive treatments, via nebulizer or metered dose inhaler (MDI) as per table below:

Weight	Salbutamol	Ipratropium
Less than 20 kg	MDI: 5 puffs OR Nebule: 2.5 mg	MDI: 4 puffs OR Nebule: 250 mcg
Greater than or equal to 20 kg	MDI: 10 puffs OR Nebule: 5 mg	MDI: 4 puffs OR Nebule: 250 mcg

- Administer oral steroid as soon as possible
- Dexamethasone 0.6 mg/kg (MAX 17 mg)
- Assess perfusion, consider IV access and fluids
- If impending respiratory failure administer:
- Magnesium sulfate 50 mg/kg IV (MAX 2 g) over 20 min; check BP q5 min during infusion, then q30 min

Reassess vitals and SpO₂, WOB, perfusion and PRAM score

PRAM Score 4 – 7 (Improved)

- Continue salbutamol q30-60 min PRN
- Monitor closely for any clinical deterioration
- Assess need for admission/transfer at 4 hours post steroid administration and discuss with Pediatric Referral Site
- Ensure adequate hydration via PO/IV fluids

CAUTION!

- Avoid intubation
- Magnesium sulfate may cause severe hypotension
 - Decrease infusion rate and treat with bolus fluids
- Consider other diagnoses if clinical status deteriorates with fluid administration (myocarditis/cardiogenic shock)
- Consider pneumothorax in patients who deteriorate/fail to improve

Discuss with Pediatric Referral Centre

PRAM ≥ 8 or IMPENDING RESPIRATORY FAILURE

- Continuous nebulized salbutamol at above doses
- IV access x2; IO access if 2 failed IV attempts
- IV NS bolus 20 mL/kg over 15 min
- Administer (if not already given):
- IV steroid: Hydrocortisone 8 mg/kg IV (MAX 400 mg)
- Magnesium sulfate 50 mg/kg IV (MAX 2 g) over 20 min; check BP q5 min during infusion, then q30 min
- Consider IM epinephrine if allergy suspected
 - Dose: 0.01 mg/kg (1 mg/mL), MAX 0.5 mg
- Consider CXR

Alert Pediatric Referral Centre

Management of Respiratory Failure

STEPWISE STRATEGY:

1. Administer high flow O₂, if available
 2. CPAP MIN 5 cm H₂O (MAX 10 cm H₂O)
 3. Transition to BiPAP if needed, PEEP min 5 cm H₂O, keeping a minimum delta P of 5
- Assess for pneumothorax/barotrauma
 - Intubation is a high-risk procedure and is rarely required

Pediatric Referral Centre Discussion

CONSIDERATION OF:

- Airway management
- Difficult vascular access
- Persistent/severe resp distress/impending resp failure
- Concern for underlying cardiac problem
- Pneumothorax or other barotrauma

PedsPacs
Point-of-Care Tools by TREKK

trekk
Translating Emergency knowledge for kids

A PedsPacs resource from TREKK.
For more tools in the series, call 204-975-7744 or visit trekk.ca
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trekk.ca

Knowledge Mobilization

KM =

synthesis

exchange

application

dissemination

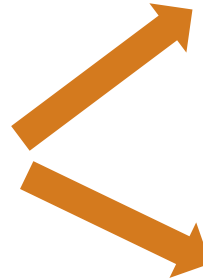
Ongoing engagement with end-users

synthesis

exchange

application

dissemination



Steering Committee

Content
Advisor

KM Advisory

PERC Reps

TREKK Reps

Parent Advisory

Translating Emergency Knowledge for Kids

TREKK is a growing network of



RESEARCHERS



CLINICIANS



TREKK PARTNERS



HEALTH CONSUMERS

who share the same goal - to improve emergency care for children across Canada.

What is TREKK?



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Summary of Clinical Practice Guideline: Diagnosis and management of croup (2008)



Latest News

TREKK Story: Maternal, Infant, Child & Youth Research Networ...



Events

TREKK Conference: Kids Rock - Janeway Emergency Pediatric Confere...

Browse Resources

Browse evidence-based tools and resources for pediatric emergency care.

BROWSE PEDIATRIC RESOURCES

b

Bronchiolitis

c

Concussion

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BRONCHIOLITIS

[Clinical Practice Guideline:
Diagnosis and management of
bronchiolitis \(2006\)](#)

CROUP

[Clinical Practice Guideline:
Diagnosis and management of](#)

BROWSE PEDIATRIC RESOURCES

Croup

All resource types

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All (17)

At a glance (0)

Clinical pathway or guideline (2)

Overview or summary of systematic review (3)

Systematic review (4)

Key study (8)

CLINICAL GUIDELINE

Summary of Clinical Practice Guideline: Diagnosis and management of...

INFO +

DOWNLOAD



Alberta Medical Association

Clinical Practice Guideline: Diagnosis and management of croup (2008)

INFO +

DOWNLOAD



Alberta Medical Association

SUMMARY OF SYSTEMATIC REVIEW

Cochrane Summary: Glucocorticoids for croup (2012)

INFO +

VISIT



Russell K, Liang Y, O'Gorman K, Johnson DW, Klassen TP

Cochrane Summary: Nebulized epinephrine for croup in children (2013)

INFO +

Bjornson C, Russell K, Vandermeer B, Klassen TP, Johnson DW

How we choose

Send us feedback

Suggest a resource

Where is the site I submitted?

Most Viewed

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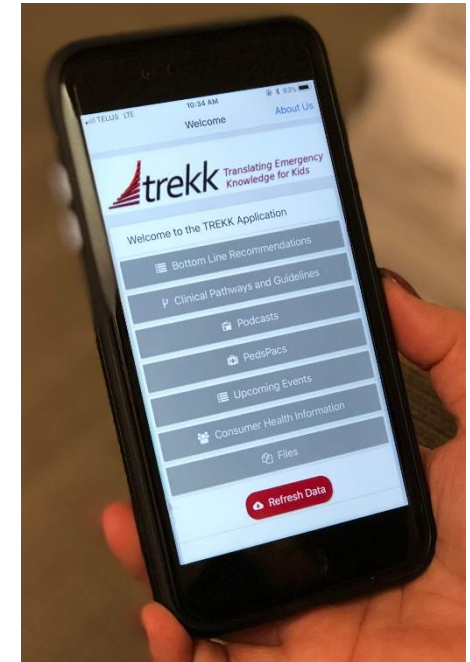
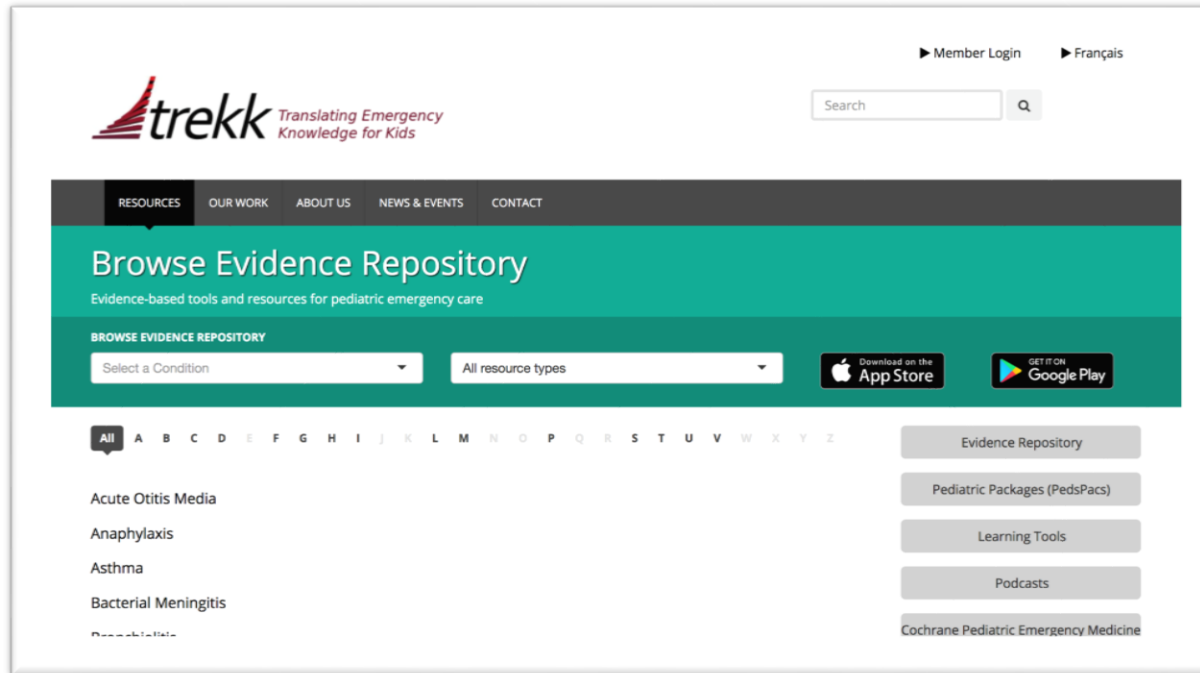
CROUP

Clinical Practice Guideline:
Diagnosis and management of
croup (2008)

CROUP

Summary of Clinical Practice
Guideline: Diagnosis and
management of croup (2008)

BEST EVIDENCE RESOURCES AT POINT-OF-CARE



Knowledge Mobilization

KM =

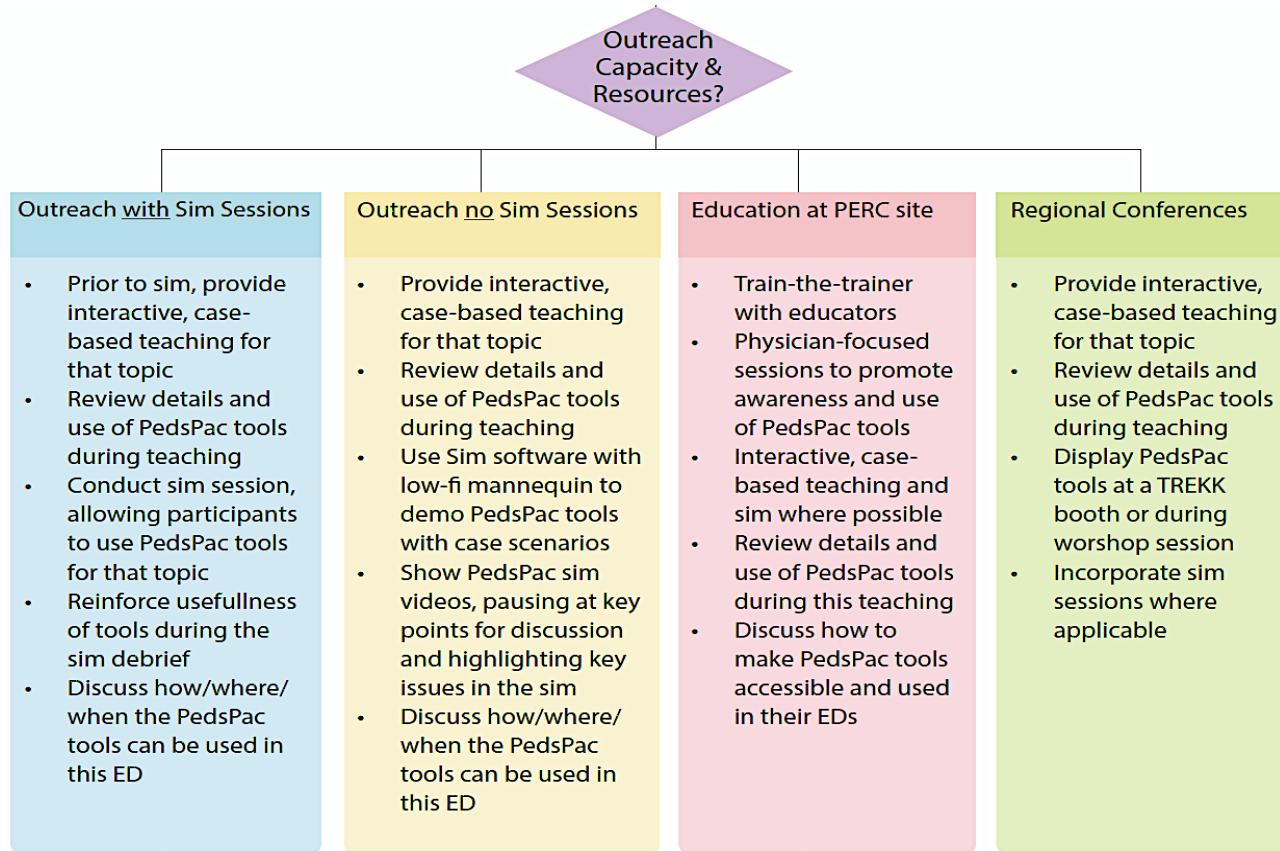
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Implementation Coaching



EDUCATION



SESSIONS

TREKK EDUCATION

Based on identified priority conditions:

- Face to face education sessions
- Simulation-based training sessions
- Webinars
- Podcasts

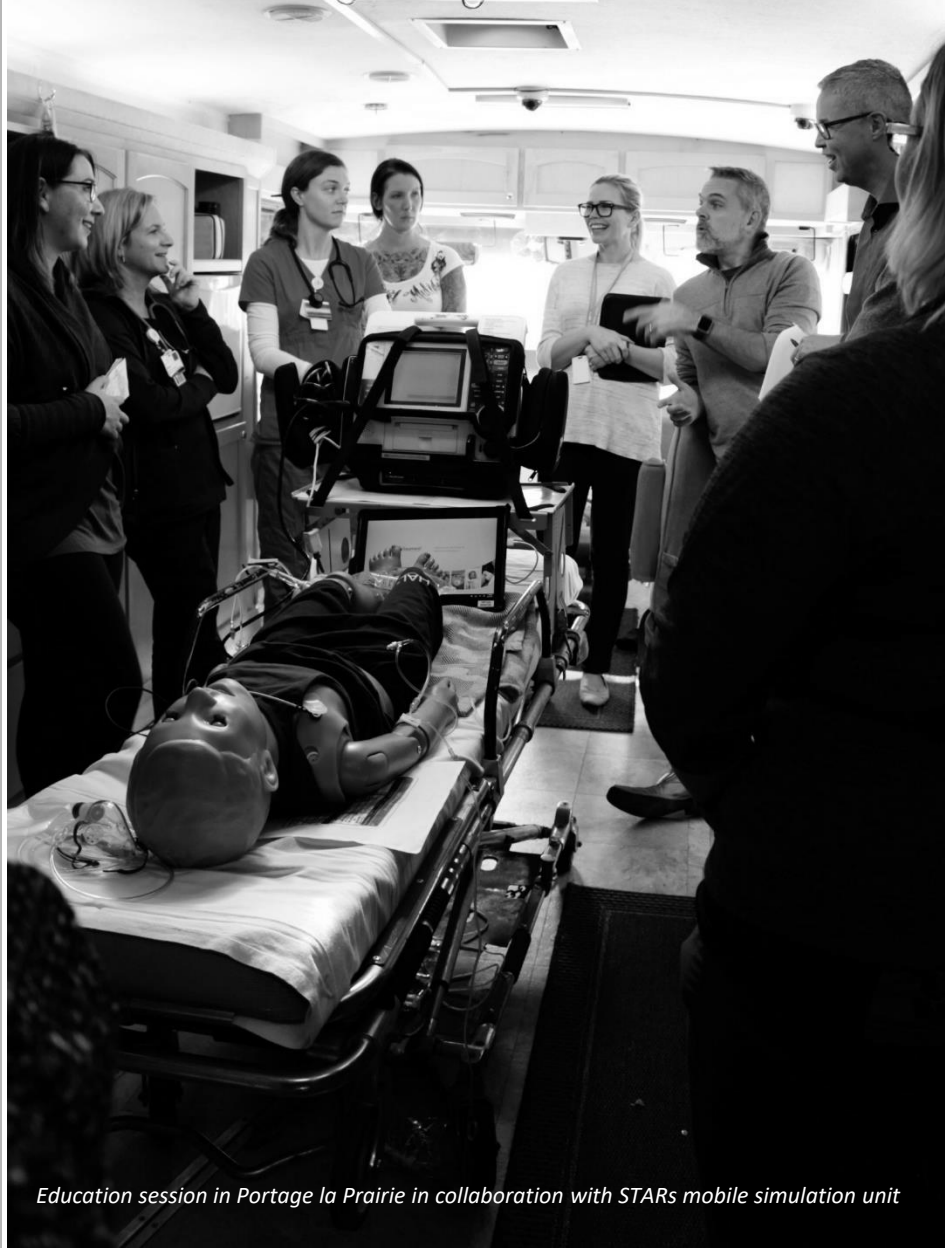


TREKK EDUCATION


“Collaborating with the STARS team has been fantastic... the biggest benefit has been the exposure for the learners, with STARS doing the simulation and TREKK doing the lectures, the learners are getting both aspects in one session.”

Dr. Darcy Beer

TREKK Lead for Manitoba



Education session in Portage la Prairie in collaboration with STARS mobile simulation unit



"WITHIN DAYS OF AN EDUCATION SESSION, ONE SITE
HAD A **SUPER SICK KID** COME IN AND THEY WERE
ABLE TO APPLY SOME OF THAT KNOWLEDGE AND IT
REALLY HELPED THE SITUATION. OVERALL, THE
FEEDBACK HAS BEEN **OVERWHELMINGLY POSITIVE."**

STARS Mobile Education Leader – Winnipeg Base

Knowledge Mobilization

KM =

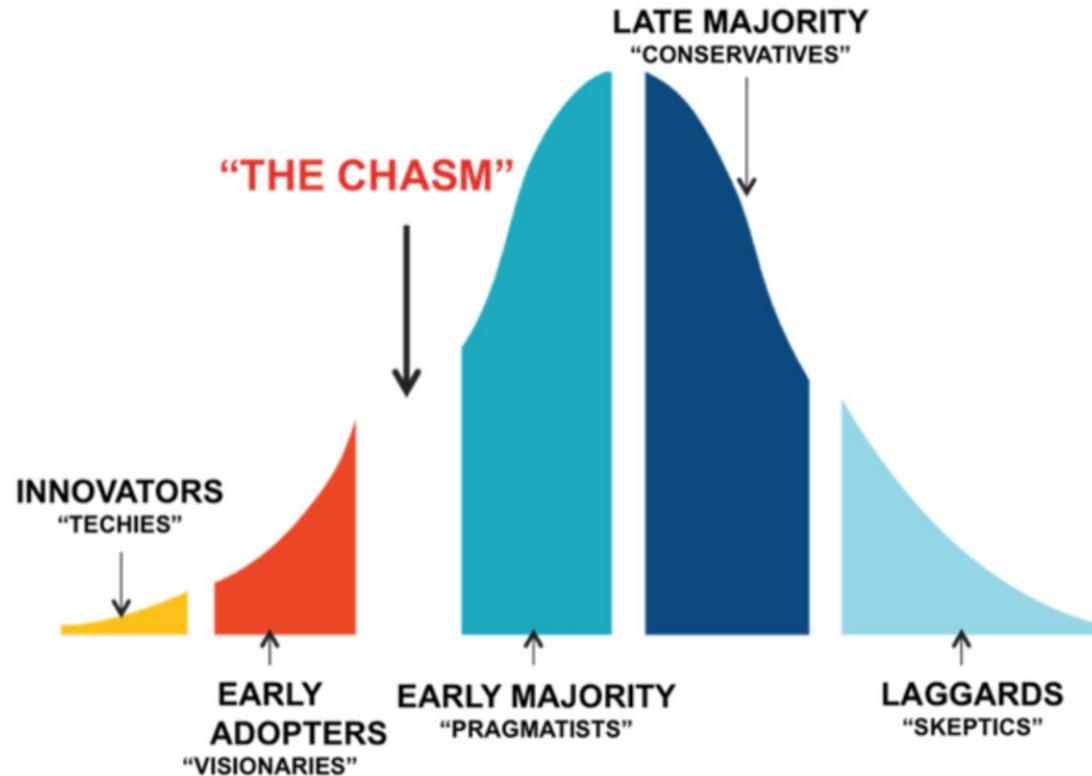
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Diffusion Model



Diffusion: getting things started



Knowledge Mobilization summary

Tools

- Needs-based
- Best evidence
- End User focused
- Clear and simple
- Flexibility and access

Approach

- Systems orientation
- Force functions
- Local champions

Thanks!



Any questions?

Visit us online or follow us on
social media to stay up to date:



@trekkca



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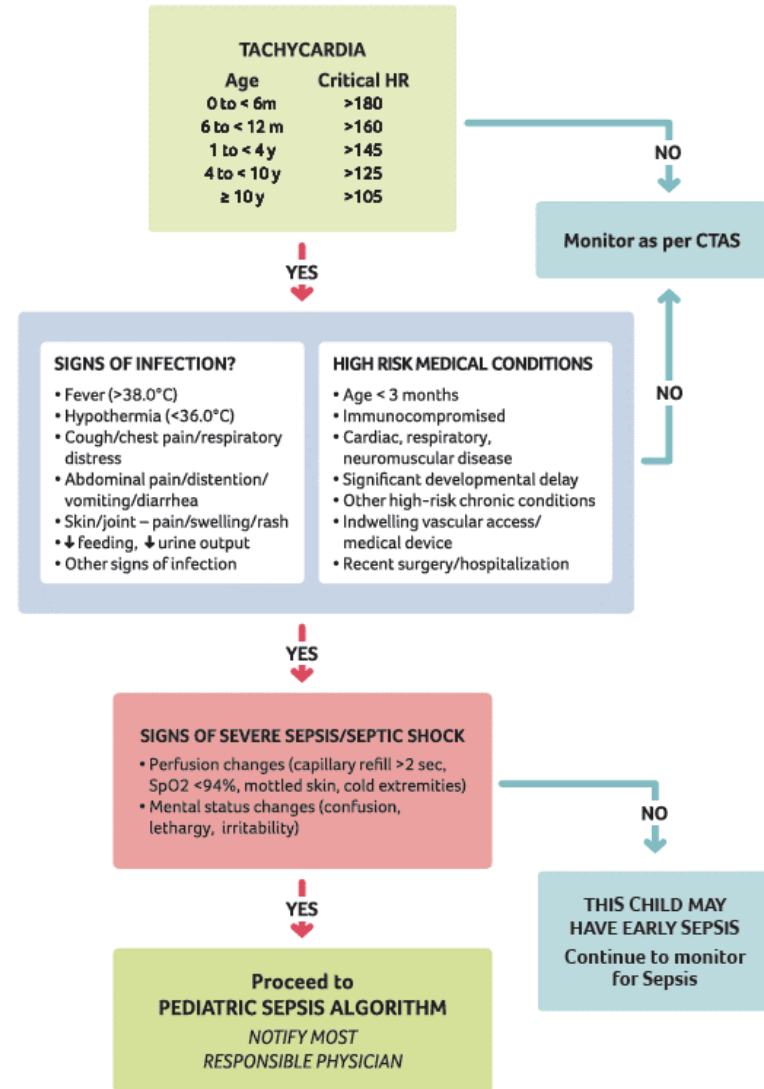
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@trekkca

Sepsis Triage Poster

Could this Pediatric Patient be Septic?



Sepsis Algorithm

Pediatric Severe Sepsis Algorithm

For children >28 days of age

Recognition of Severe Sepsis:

- Fever ($>38.0^{\circ}\text{C}$) or hypothermia ($<36.0^{\circ}\text{C}$)
- High Risk Conditions*
- Signs of infection*
- And signs of impaired perfusion:
 - Tachycardia, cap refill >2 sec, cold extremities, (\downarrow urine output, $\text{SpO}_2 <94\%$, mottled skin)
 - Mental status changes (confusion, lethargy, inconsolability)
- * See Sepsis Screener in Drug Dosing Binder

Initial Management:

- Assess ABCs, cardiorespiratory monitoring
- O_2 10–15 L non-rebreather mask
- IV access x2; IO access if 2 failed IV attempts
- May use IO for blood tests, fluids & medications in lieu of IV
- Investigations:
 - Bedside glucose
 - CBC, blood C&S, electrolytes, venous gas, glucose, urea, creatine, lactate, PT/PTT, ALT, blood type & screen
 - CXR
 - Urinalysis and C&S (consider indwelling urinary catheter)
- Alert Pediatric Referral Centre

10 min

1st Bolus - NS 20 mL/kg rapid IV push over 5 – 10 min
Give Antibiotics

- Ceftriaxone (100 mg/kg/dose, MAX 2g/dose) IV q24h
- Vancomycin if suspect meningitis (15 mg/kg/dose, MAX 1 g/dose) IV q6h

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

20 min

2nd Bolus - NS 20 mL/kg rapid IV push over 5 – 10 min
• Alert Pediatric Referral Centre, if not already done

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

30 min

3rd Bolus - NS 20 mL/kg rapid IV push over 5 – 10 min
• Prepare inotrope infusion
• Alert Pediatric Referral Centre, if not already done

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

40 min

IF "Cold Shock"
(\downarrow perfusion, \downarrow peripheral pulses)
Epinephrine 0.05 mcg/kg/min IV,
titrate up by 0.02 mcg/kg/min to effect

IF "Warm Shock"
(\uparrow pulse pressure, bounding pulses)
Norepinephrine 0.05 mcg/kg/min IV,
titrate up by 0.02 mcg/kg/min to effect

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

Ongoing Care

Repeat boluses of NS 20 mL/kg until adequate perfusion

CAUTION!

- Assess for fluid overload after each bolus (palpate for hepatomegaly, auscultate for crackles)
- Consider cardiogenic shock if deterioration after fluid boluses

Pediatric Referral Centre Discussion

CONSIDERATION OF:

- Intubation
 - Be prepared for clinical deterioration
 - Ensure adequate fluid resuscitation
- Addition of 2nd inotrope
- Steroid (catecholamine resistant shock)
- PRBC transfusion

Anaphylaxis Algorithm

Pediatric Severe Sepsis Algorithm

For children >28 days of age

Recognition of Severe Sepsis:

- Fever ($>38.0^{\circ}\text{C}$) or hypothermia ($<36.0^{\circ}\text{C}$)
- High Risk Conditions*
- Signs of infection*
- And signs of impaired perfusion:
 - Tachycardia, cap refill >2 sec, cold extremities, (\downarrow urine output, $\text{SpO}_2 <94\%$, mottled skin)
 - Mental status changes (confusion, lethargy, inconsolability)
- * See Sepsis Screener in Drug Dosing Binder

Initial Management:

- Assess ABCs, cardiorespiratory monitoring
- O_2 , 10-15 L non-rebreather mask
- IV access x2; IO access if 2 failed IV attempts
- May use IO for blood tests, fluids & medications in lieu of IV
- Investigations:
 - Bedside glucose
 - CBC, blood C&S, electrolytes, venous gas, glucose, urea, creatine, lactate, PT/PTT, ALT, blood type & screen
 - CXR
 - Urinalysis and C&S (consider indwelling urinary catheter)

Alert Pediatric Referral Centre

10 min

1st Bolus - NS 20 mL/kg rapid IV push over 5 – 10 min
Give Antibiotics

- Ceftriaxone (100 mg/kg/dose, MAX 2g/dose) IV q24h
- Vancomycin if suspect meningitis (15 mg/kg/dose, MAX 1 g/dose) IV q6h

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

20 min

2nd Bolus - NS 20 mL/kg rapid IV push over 5 – 10 min
• Alert Pediatric Referral Centre, if not already done

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

30 min

3rd Bolus - NS 20 mL/kg rapid IV push over 5 – 10 min
• Prepare inotrope infusion
• Alert Pediatric Referral Centre, if not already done

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

40 min

IF "Cold Shock"
(\downarrow perfusion, \downarrow peripheral pulses)
Epinephrine 0.05 mcg/kg/min IV,
titrate up by 0.02 mcg/kg/min to effect

! Reassess HR, RR, BP, Perfusion, SpO_2
If remain abnormal:

Ongoing
Care

Repeat boluses of NS 20 mL/kg
until adequate perfusion

CAUTION!

- Assess for fluid overload after each bolus (palpate for hepatomegaly, auscultate for crackles)
- Consider cardiogenic shock if deterioration after fluid boluses

IF "Warm Shock"

(\uparrow pulse pressure, bounding pulses)
Norepinephrine 0.05 mcg/kg/min IV,
titrate up by 0.02 mcg/kg/min to effect

Pediatric Referral Centre Discussion

CONSIDERATION OF:

- Intubation
- Be prepared for clinical deterioration
- Ensure adequate fluid resuscitation
- Addition of 2nd inotrope
- Steroid (catecholamine resistant shock)
- PRBC transfusion

Severe Asthma Algorithm

Pediatric Severe Asthma Algorithm

For children ≥ 12 months

Recognition of Severe Asthma

(age >12 months)

Severe Respiratory Difficulty

- Pediatric Resp Assessment Measure (PRAM) Score ≥8
- Increased work of breathing (WOB), wheeze or silent chest, cough

Impending Respiratory Failure

- Lethargy, cyanosis, decreasing respiratory effort and/or rising PCO₂
- *May not have asthma diagnosis or previous wheeze*

PRAM Scoring Table

SIGNS	0	1	2	3
Suprasternal indrawing	Absent		Present	
Scalene retractions	Absent		Present	
Wheezing	Absent	Expiratory only	Inspiratory +/- expiratory	Audible wheeze / silent chest / minimal air entry
Air entry	Normal	Decreased at bases	Widespread decrease	Absent / minimal
O ₂ Saturation (RA)	>94%	92 – 94%	<92%	

Initial Management

- Continuous cardiopulmonary monitoring
- Administer oxygen to maintain SpO₂ >92%
- Administer salbutamol + ipratropium q20 min x 3 consecutive treatments, via nebulizer or metered dose inhaler (MDI) as per table below:

Weight	Salbutamol	Ipratropium
Less than 20 kg	MDI: 5 puffs OR Nebule: 2.5 mg	MDI: 4 puffs OR Nebule: 250 mcg
Greater than or equal to 20 kg	MDI: 10 puffs OR Nebule: 5 mg	MDI: 4 puffs OR Nebule: 250 mcg

- Administer oral steroid as soon as possible
 - Dexamethasone 0.6 mg/kg (MAX 12 mg)
- Assess perfusion, consider IV access and fluids
- If impending respiratory failure administer:
 - Magnesium sulfate 50 mg/kg IV (MAX 2 g) over 20 min; check BP q5 min during infusion, then q30 min

Reassess vitals and SpO₂, WOB, perfusion and PRAM score

PRAM Score 4 – 7 (Improved)

- Continue salbutamol q30–60 min PRN
- Monitor closely for any clinical deterioration
- Assess need for admission/transfer at 4 hours post steroid administration and discuss with Pediatric Referral Site
- Ensure adequate hydration via PO/IV fluids

CAUTION!

- Avoid intubation
- Magnesium sulfate may cause severe hypotension
 - Decrease infusion rate and treat with bolus fluids
- Consider other diagnoses if clinical status deteriorates with fluid administration (myocarditis/cardiogenic shock)
- Consider pneumothorax in patients who deteriorate/fail to improve

Discuss with Pediatric Referral Centre

PRAM ≥8 or IMPENDING RESPIRATORY FAILURE

- Continuous nebulized salbutamol at above doses
- IV access x 2; IO access if 2 failed IV attempts
 - IV NS bolus 20 mL/kg over 15 min
- Administer (if not already given):
 - IV steroid: Hydrocortisone 8 mg/kg IV (MAX 400 mg)
 - Magnesium sulfate 50 mg/kg IV (MAX 2 g) over 20 min; check BP q5 min during infusion, then q30 min
- Consider IM epinephrine if allergy suspected
 - Dose: 0.01 mg/kg (1 mg/mL), MAX 0.5 mg
- Consider CXR

Alert Pediatric Referral Centre

Management of Respiratory Failure

STEPWISE STRATEGY:

1. Administer high flow O₂ if available
 2. CPAP MIN 5 cm H₂O (MAX 10 cm H₂O)
 3. Transition to BiPAP if needed, PEEP min 5 cm H₂O, keeping a minimum delta P of 5
- Assess for pneumothorax/barotrauma
 - Intubation is a high-risk procedure and is rarely required

Pediatric Referral Centre Discussion

CONSIDERATION OF:

- Airway management
- Difficult vascular access
- Persistent/severe resp distress/impending resp failure
- Concern for underlying cardiac problem
- Pneumothorax or other barotrauma

DKA Algorithm

Pediatric Diabetic KetoAcidosis (DKA) Algorithm

Recognition of DKA

DKA can occur in existing or new onset type 1 or type 2 diabetes
Diagnostic criteria: Diabetes (random blood glucose ≥ 11.1 mmol/L) + Ketonuria + Acidosis
Clinical features: Polyuria, polydipsia, weight loss, dehydration, Kussmaul breathing, headache, decreased level of consciousness, abdominal pain, vomiting

Alert Pediatric Referral Centre

Initial Management

- Assess ABCs, vital signs (including BP) + neurovitals (GCS, pupils)
- Rapid bedside glucose
- O₂ 10-15 Lpm non-rebreather mask (if signs of shock)
- IV Access x 2 lines (consider intraosseous if unsuccessful)
- Serum glucose, electrolytes, venous gas, urea, creatinine, serum osmolality
- Urinalysis for glucose, ketones; bladder catheterization if needed
- Consider other investigations:
 - Obtain cultures (e.g. blood, urine, throat) if clinical evidence of infection
 - ECG for baseline assessment of K⁺ status (if delay in obtaining serum K⁺)

DKA Severity

	Mild	Moderate	Severe
pH	7.2 – 7.29	7.1 – 7.19	<7.1
HCO ₃ ⁻	10 – 14	5 – 9	<5

Hyperosmolar Hyperglycemic State (HHS)

- Consider if:
- Glucose ≥ 33 mmol/L; HCO₃⁻ ≥ 15
 - Minimal acidosis/ketosis; negative or trace urine ketones
 - Osmolality ≥ 330 mOsm/L

Discuss with Pediatric Referral Centre

CAUTION!

Intubation and ventilation are **high-risk procedures** for DKA patients, and should never be undertaken without consultation with your pediatric referral centre or transport team.

Cerebral Edema Management

- Call Pediatric Referral Centre
- Assess and manage ABCs
- Bed rest, elevate head of bed to 30°
- If hypoperfused (tachycardia, cap refill >2 sec, cool extremities), give 10 mL/kg NS bolus over 30 minutes; reassess after bolus and repeat x 1 if persistent hypoperfusion. Discuss further fluid management with Pediatric Referral Centre.
- Run IV fluids at 60% of rate outlined in Rehydration Table
- 3% NS (5 mL/kg IV over 15 min) OR Mannitol (0.5 – 1 g/kg IV over 20 min)
- Start insulin infusion 0.1 units/kg/hr IV after 1 hour of IV fluids
- Head CT not required prior to transport

Signs of CEREBRAL EDEMA?

- GCS <14 and/or irritability in younger children
- And/or Cushing's triad: \uparrow BP, \downarrow HR, \downarrow RR

Fluid Resuscitation (Based on recent evidence)

- Administer 10 mL/kg NS bolus over 30 minutes.
- Persistent tachycardia, or other signs of hypoperfusion (cap refill >2 sec or cool extremities)?

NO

YES

Rehydration Table: Total IV Fluids

Weight	mL/kg/hr
5 – <10 kg	6.5
10 – <20 kg	6
20 – <40 kg	5
≥ 40 kg	4 (MAX 250 mL/hr)

Repeat 10 mL/kg NS bolus over 30 min. Reassess after each bolus and repeat if persistent hypoperfusion. Discuss with Pediatric Referral Centre.

Pediatric Referral Centre Discussion

- CONSIDERATION OF:**
- Difficult vascular access
 - Additional treatment of cerebral edema
 - Airway management
 - Ongoing fluid management

IV Fluids and Insulin

- Rehydrate with IV NS until glucose <15 mmol/L or decreases by >5 mmol/L/hr once the glucose is <25 mmol/L. Then change to D10WNS.
- Add 40 mmol/L KCl into IV fluid (if K⁺ <5 mmol/L and patient has voided in ED)
- Start insulin infusion 0.1 units/kg/hr IV after 1 hour of IV fluids
- NEVER use IV insulin bolus
- NEVER administer sodium bicarbonate

See DKA instructions in Drug Dosing Binder

Ongoing Monitoring Until Transfer

- Q 1 hour: Blood glucose, Fluid ins and outs, Neurovitals (GCS, pupils), HR and BP
- Q 2-4 hours: Electrolytes and venous gas, Monitor ECG for T-wave changes

Dedicate one IV line to use as saline lock for serial bloodwork

Status Epilepticus Algorithm

Pediatric Status Epilepticus Algorithm

Recognition of Status Epilepticus

An unresponsive patient with either one of the following has convulsive status epilepticus:

- Seizure > 5 min
- ≥ 2 seizures without full recovery of consciousness between seizures

Initial Management

- Initiate ABCs, cardiorespiratory and BP monitoring
- O₂ 10-15 L/min non-rebreather mask
- Establish IV lines x 2 (NS)
- Rapid bedside glucose
 - If ≤ 2.6 mmol/L, give 5 mL/kg D10W IV push, then start D10W infusion @ 5 mL/kg/hr (MAX 250 mL/hr). Recheck glucose in 5 min.

- Monitor for resp depression, hypotension, arrhythmias
- Give acetaminophen 15 mg/kg/dose (MAX 650 mg) PR if febrile

Consider other investigations:

- Electrolytes, blood gas, calcium, CBC, serum glucose
- Other: anticonvulsant drug levels, liver function, septic workup

Pre-Hospital Care

- If one dose of benzodiazepine given, repeat dose x 1 and prepare 2nd line agent
- If multiple doses of benzodiazepines given, move directly to 2nd line agent

5 min

First Line Agents: Benzodiazepines

If IV access, give 1st dose of:

- Lorazepam 0.1 mg/kg (MAX 4 mg) IV over 2 min **OR**:
- Diazepam 0.2 mg/kg (MAX 10 mg) IV over 3 min

If no IV access, give 1st dose of:

- Midazolam IM 0.2 mg/kg (MAX 10 mg) (preferred) **OR** one of:
- Midazolam intranasal 0.2 mg/kg (MAX 5 mg/nostril)
- Midazolam buccal 0.5 mg/kg (MAX 10 mg)
- Diazepam PR 0.5 mg/kg (MAX 20 mg)

CAUTION!

Benzodiazepines and phenobarbital may cause respiratory depression. Phenytoin and fosphenytoin may cause arrhythmias and/or hypotension.

1 Reassess ABCs, monitor for resp. depression
If still seizing:

10 min

Repeat dose of First Line Agent (as above)

- Obtain intraosseous (IO) access if failed IV attempts x 2 and persistent seizure
- Prepare second line agent

1 Reassess ABCs, monitor for resp. depression
If still seizing:

15 min

Second Line Agents:

Give one of:

- Fosphenytoin (20 mg PE/kg in NS, MAX 1000 mg PE) IV/IO over 10 min **OR** one of:
- Phenytoin (20 mg/kg in NS, MAX 1000 mg) IV / IO over 20 min
- Phenobarbital (20 mg/kg in NS, MAX 1000 mg) IV / IO over 20 min

*PE = Phenytoin Equivalents

Alert Pediatric Referral Centre

1 Reassess ABCs, monitor for resp. depression
If still seizing:

30 min

If Fosphenytoin / Phenytoin was used, give Phenobarbital (20 mg/kg in NS, MAX 1000 mg) IV / IO over 20 min

If Phenobarbital was used, give Fosphenytoin (20 mg PE/kg in NS, MAX 1000 mg PE) IV over 10 min or Phenytoin (20 mg/kg in NS, MAX 1000 mg) IV / IO over 20 min

Pediatric Referral Centre Discussion

CONSIDERATION OF:

- Intubation
- Additional workup including full septic workup, use of antibiotics/antivirals
- Persistent altered LOC possibly related to non-convulsive status epilepticus or severe underlying brain disorder
- Other antiepileptics (eg. midazolam infusion, valproic acid, pyridoxine)

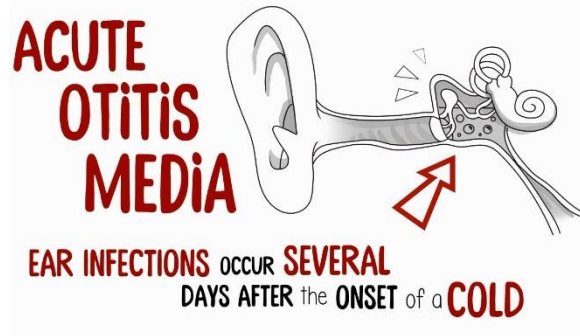
Transport Checklist

PREPARING PATIENT FOR TRANSPORT CHECKLIST

- ☐ Initiate process for transport to appropriate call centre
- ☐ Communicate to receiving centre (document receiving physician's name/license #)
 - ☐ Pt name, date of birth, and diagnosis
 - ☐ History of presenting illness (and pertinent past medical history)
 - ☐ Full set of **current** vital signs (Temp, HR, RR, BP, O₂ saturation), including POC glucose, temperature, GCS, and weight
 - ☐ Physical findings
 - ☐ Investigations done, with results:
 - ☐ Laboratory
 - ☐ Diagnostic imaging
 - ☐ Other
 - ☐ Treatment and responses to treatment, ongoing infusions and therapies
 - ☐ Allergies, current medications
 - ☐ Resuscitation status: DNR or advanced directives
- ☐ Make copies of **ALL** documentation – chart, blood work, diagnostic imaging (in form of CD/PACS, etc), consults
- ☐ Notify significant next of kin/guardians of transport plan
- ☐ As appropriate, secure the following devices and treatments, as required:
 - ☐ Airway supported and secured (with recent ABGs if available)
 - ☐ Intravenous access (2 large bore peripheral IV's if hypotensive, severe sepsis) – assure patency
 - ☐ Foley catheter
 - ☐ Gastric tube (NG/OG)
 - ☐ Blood products
 - ☐ Medications (prn or regular) administered prior to transport, and available as required for transport

LET THE RECEIVING FACILITY KNOW WHEN YOUR PATIENT HAS DEPARTED

PARENT TOOLS



<http://bit.ly/2TURvGM>

How to Help When Your Child
Needs to Get a Needle Poke



www.needlepain.trekk.ca

HOLDING TECHNIQUES FOR REDUCING STRESS:



'bear' hug

'kangaroo'
hold



<http://bit.ly/2T0yAdw>



TREKK Parent & Family tools

Creating innovative resources, with parents, that communicate pediatric health knowledge in an understandable way.

Currently available

- Fever (video + infographic)
- Needle pain (video + infographic)
- Croup (video + ebook)
- Ear infection (video + infographic)
- Gastroenteritis (ebook)

Tips for temperature taking

Select your child's age from the categories below to view instructions on taking temperature.



Do not use a glass thermometer. Glass can break, and the mercury inside can be toxic!



Fever strips and home thermometers that you sweep across the forehead are not accurate or reliable enough.



Do not use an oral thermometer to take a rectal temperature, or a rectal thermometer to take an oral temperature



Digital thermometers can take rectal, armpit, or oral readings. They are unbreakable, easy to read, and measure quickly.



SIGNS of DEHYDRATION



In hospitals needle pokes may be used for:



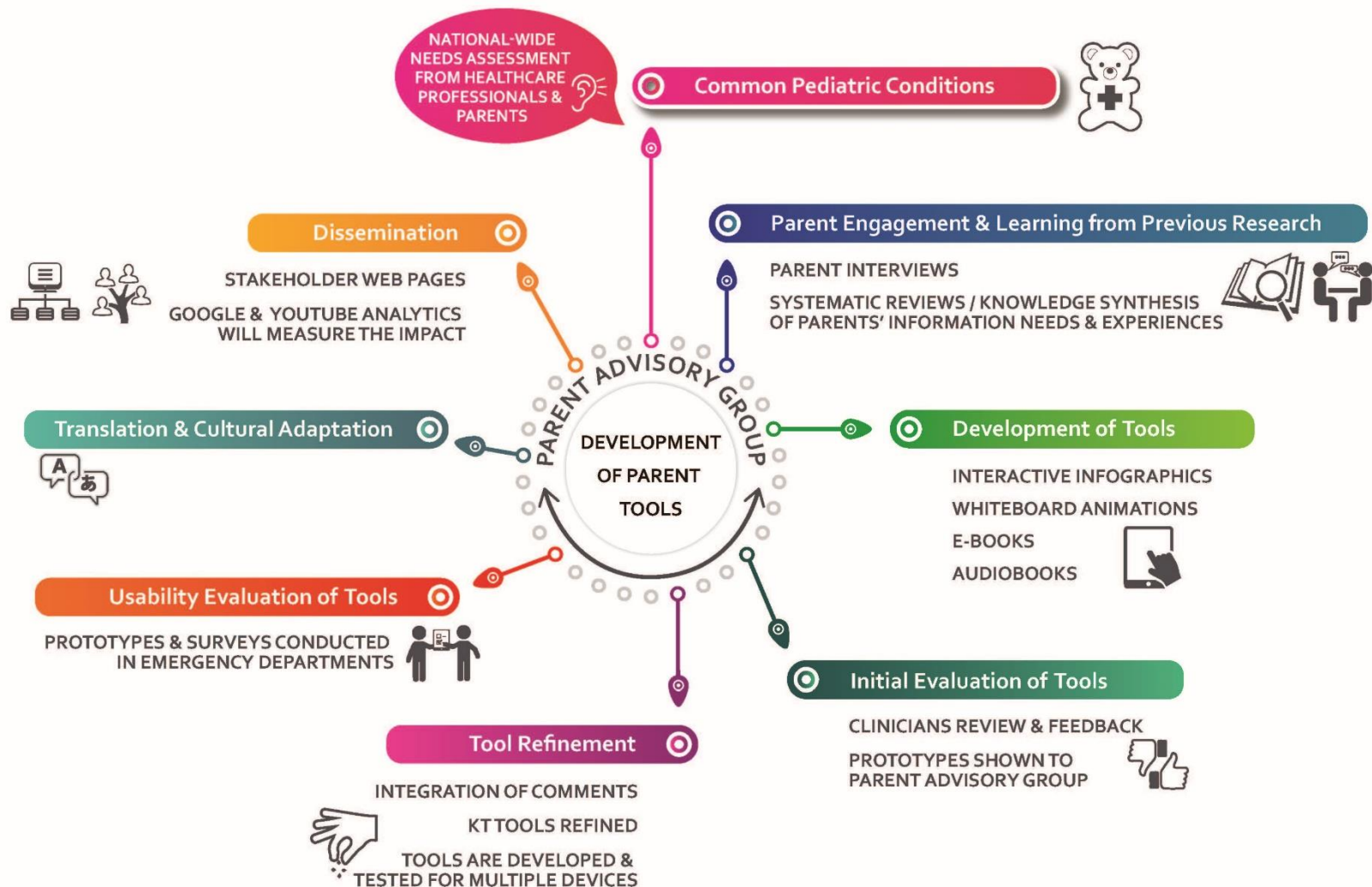
Bloodwork



IV Medications & Fluids



Numbing Injections for
Stitching



Adapted from Anne Le, Bruce R Dick, Jude Spiers, Kathy Reid & Shannon D. Scott (2019) Parents' experiences with pediatric chronic pain, *Canadian Journal of Pain*, 3:1, 20-32, DOI: 10.1080/24740527.2019.1577679

BEST EVIDENCE RESOURCES AT POINT-OF-CARE



RESOURCES OUR WORK ABOUT US NEWS & EVENTS CONTACT

Translating Emergency Knowledge for Kids

TREKK is a growing network of



RESEARCHERS



CLINICIANS



TREKK PARTNERS



PATIENTS AND
FAMILIES

who share the same goal - to improve emergency care for children across Canada.

BROWSE PEDIATRIC RESOURCES

Select a Condition

All resource types



Featured Video



Featured Resources

ASTHMA MORE

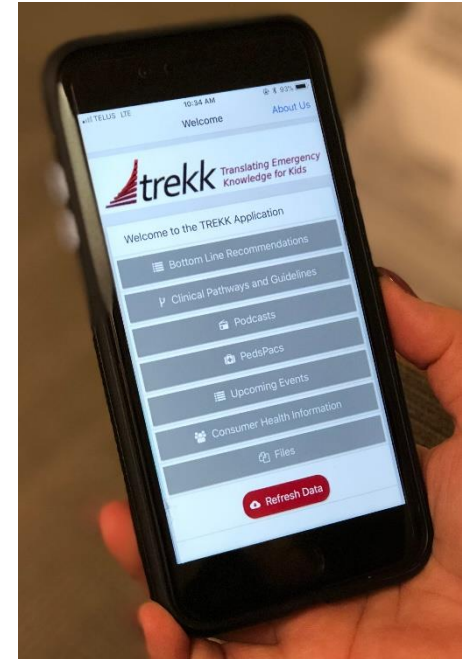
Asthma Algorithm

CRITICALLY ILL NEONATE MORE

Critically Ill Neonate Algorithm

CROUP MORE

TREKK Croup eBook



impact

Pediatric simulation days have been very valuable for us. Even in terms of mixing up the medications. Actually getting all the equipment out and drawing it up is very helpful.

– ED Nurse, team lead



gaps

It's just the time and resources. We have an educator here, but she doesn't necessarily do pediatrics... We don't even have a pediatrician on staff anymore at all. And we do see a lot of kids.

– ED Nurse



embed

So they're always brought to the regional table and reviewed and we see how we can incorporate them in our guidelines and care plans.

– ED Nurse Manager



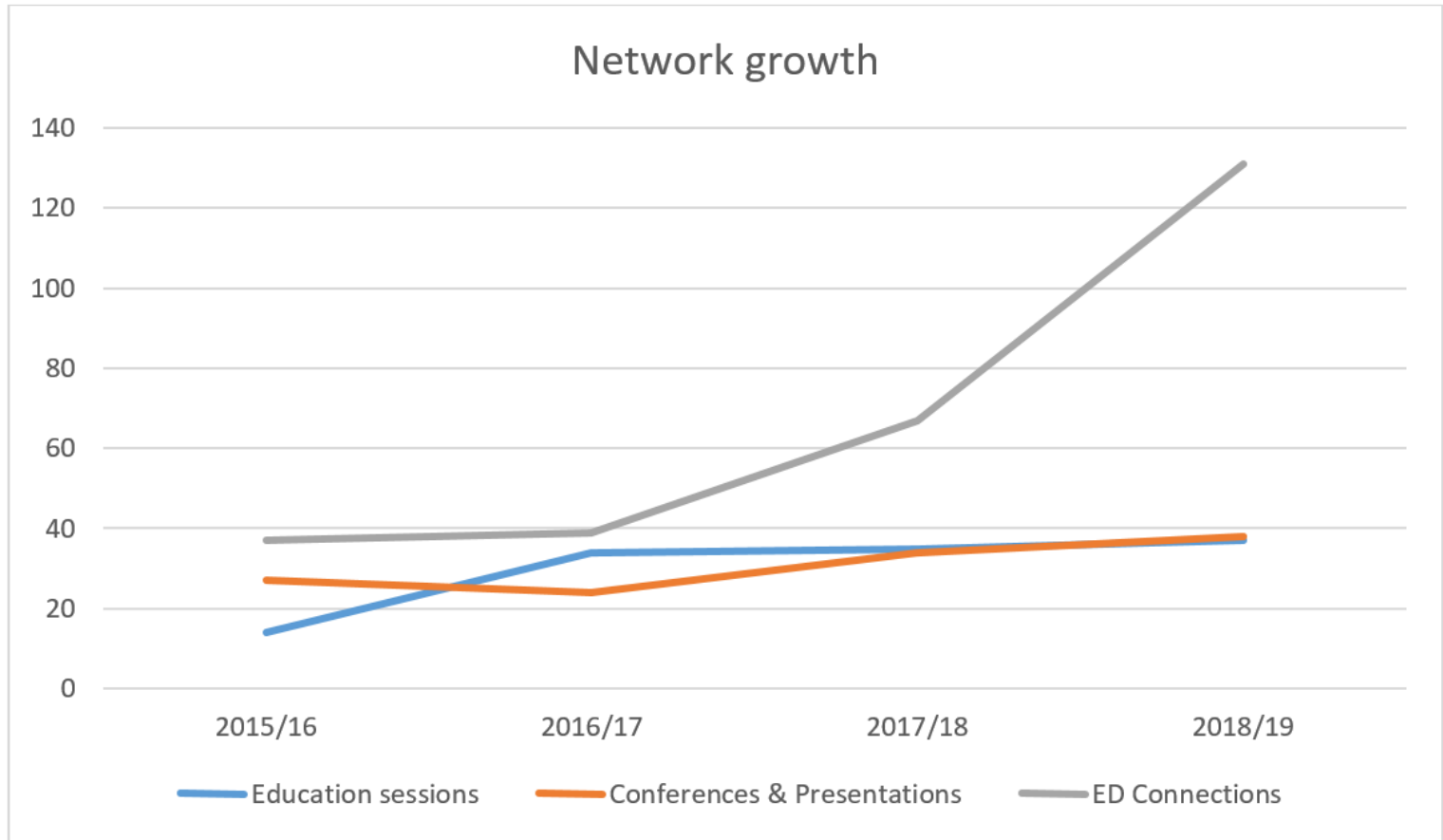
expand

Being a TREKK site, we are more aware of it, but I find that other people just aren't always aware. There's not enough knowledge and I think the only way to do that is to actually get on the ground there and promote it in these locations.

— *ED physician*



**We're still
growing!**



**We're still
growing!**

