Background
Critical care services for newborns and children are regionalized across the province of Ontario. Bilious vomiting is considered a surgical emergency to rule out small bowel necrosis and possibly death. Plain abdominal x-rays and physical exam are neither sensitive nor specific to rule out surgical pathology. An upper GI contrast study is considered the gold standard; necessitating the transfer of such patients to a pediatric tertiary level hospital with surgical services.

The imaging requirement to rule out such diagnoses is extremely time sensitive. As such, all cases referred are triaged for transport at the highest priority level.

Objectives
The primary objective of this quality improvement study is to determine the proportion of confirmed surgical diagnoses in infants <1 month of age, referred to and transported by the Children’s Hospital of Eastern Ontario Neonatal Transport Team from 2014-2017 for the evaluation of bilious vomiting.

Secondary objectives include a review of the time sensitive metrics including; referral, transport response, surgical assessment, radiological examinations and final diagnosis. Length of hospital stay will be reviewed, qualified as discharge to home or a repatriation requirement.

Results
Pending at time of abstract submission.

Conclusion
Both the imaging and transport requirements for this cohort of infants is resource intensive. The results of this study will be used to guide further quality improvement and education initiatives for health care providers within the community, transport team and tertiary level services

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Project Title: Therapeutic Hypothermia on Transport: The Quest for Efficiency

Presenter: Dr. Stephanie Redpath, Medical Lead, Neonatal Transport Team, CHEO

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Objective: Hypoxic-ischemic encephalopathy (HIE) from perinatal asphyxia/birth depression occurs in 1 to 2 per 1000 live births. Therapeutic Hypothermia (TH) is the standard of care for newborns experiencing HIE. An evaluation of our TH on transport process in 2015 identified important delays in both the initiation and achievement of target temperature in patients referred. We committed to improve the efficacy of our TH on transport guidelines, passive cooling measures and treatment efficiency overall through a number of transport team (TT) practice changes and education initiatives. Our aim was to increase the number of outborn infants referred for TH reaching target temperature, within the recommended 6 hour window, safely and efficiently.

Design/Methods: Retrospective study of all patients referred and transported to the Children’s Hospital of Eastern Ontario (CHEO) for TH between October 2009 and December 2017, comparing two cohorts of patients’ pre and post clinical practice initiatives (September 2015).

Results: 117 infants (mean gestational age 39.1 weeks, birth weight 3.3 kg, arterial cord pH 6.9, Apgar scores 3 and 5 at 5 and 10 minutes) were included: 82 infants pre and 35 infants post-practice change. Post practice change data revealed an increase in: the number of infants within target temperature range by 6 hours of life (69% post vs. 49% pre), the number recommended for passive cooling at the referral centre (74% post vs. 59% pre) and of those passively cooled at the referral centre (16% post vs. 9% pre) were within target temperature range on arrival of the transport team, with 2 patients overcooled (temperatures 31 and 32.6). The time from birth to TT referral remained unchanged (median 92 vs 95 mins pre/post).

Conclusions: Targeted transport team TH practice changes have been successful in increasing the number of patients recommended for initiation of TH at referral centers and meeting the desired time target for TH. The time sensitivity of patient recognition to TT referral demands further focus on community outreach education.
Project Title: Rate of Diagnosis Discordance and Neonatal Transport – A Single Centre Retrospective Chart Review

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Introduction: In Canada, over 4000 critically ill newborns per year require transfer to a higher level of care.1 Transports are initially managed based on a clinical impression formed from referral clinical details. The objectives of this study were to identify the frequency of diagnostic discordance between the referring facility, transport team and tertiary care center in our outborn neonatal population and verify the association between discordance events, prolonged transport stabilization times and potential risk factors in order to further inform and facilitate the development of future outreach education initiatives.

Methods: Retrospective chart review, whereby we identified and categorized discordance events (DE) for patients transported by our service in a 1-year period. Associations between DE, transport stabilization times and patient variables were studied using univariate and multivariable approaches.

Results: 233 patients met criteria, 10.9% of patients had referring to discharge DE. No significant association was identified between stabilization time and DE. Birth weight and presence of a neurological diagnosis were associated with DE.

Conclusions: Diagnostic Discordance was identified in 1 of every 10 neonates transported. It was associated in patients with a higher birth weight and neurologic diagnoses. Outreach initiatives will be developed and adapted accordingly with a focus on this population.

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Critical care services for newborns are regionalized across Canada. When at-risk infants are delivered in centers without the expertise and resources, appropriate identification and neonatal stabilization are essential while arranging for transport to a higher level of care. Timely clinical advice and support provided by the Transport teams are fundamental to ensure that this process is seamless. It is crucial that the Transport Teams acknowledge the resource and experience limitations experienced by the communities when providing advice.

The Children’s Hospital of Eastern Ontario’s (CHEO) Neonatology Division and Neonatal Transport Team provide a clinical support and retrieval service for a large geographical area including Eastern Ontario, Western Quebec, the Southeast and Northern Ontario (440,000 km2). Over 500 infants are transported annually with many more stabilized and remaining with their families following telephone advice and appropriate clinical support.

This study is the first phase of a project seeking to tailor outreach education and resources in order to support the unique needs of our community health care providers.

Objectives: To identify current clinical and educational resources available to healthcare providers involved in newborn care in each of the facilities served by CHEO’s transport team, and to consider provider opinion regarding further learning needs

Methods: An electronic survey was sent to all 26 clinical facilities served by CHEO’s Neonatal Transport Team. Investigators were blinded to the facility identification. Descriptive statistics were used to summarize data.

Outcomes: Results demonstrated an 85% response rate, with 22 of the 26 stakeholder responding. Of those who responded 4 (19%) of facilities had a birth rate lower than 100.

Conclusion: Our results will serve to:

- Facilitate more appropriate and timely clinical stabilization advice with facility resources in mind
- Tailor further outreach education development
- Facilitate our goal to optimize both resuscitation and stabilization processes, mitigating the need for transport of the newborn thereby maintaining the mother baby dyad.

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