QIC was then created to stimulate the implementation of new strategies, through information sharing between PEDs. In 2015, the TRAPPED 2 cross sectional survey was administered. Its focus was to evaluate the improvement in the accessibility of specific strategies reported by each centre, after participating in this QIC, and working to implement change within their own PEDs. **Results:** All 15/15 Canadian PEDs responded to the TRAPPED 1 survey in 2013 and 11 agreed to participate in the national pain QIC. In-person, phone meetings, follow up surveys and email communications were employed for information sharing. Strategies identified by the QIC to be newly introduced in individual centres were educational initiatives, distraction options, nurse-initiated protocols and intranasal (IN) medications. All 15 PEDs completed the TRAPPED 2 survey. Compared to 2013, an increased number of PEDs used face-based pain scales (14/15 vs 6/15) and behavioural scales (5/15 vs 1/15) for pain assessment in 2015. Use of reminder posters on pain management at triage increased from 4/15 to 6/15 PEDs. Availability of tablets for distraction increased from 4/15 to 10/15 PEDs. Nurse-initiated protocols for topical anesthetic and oral sucrose (for needle procedures) increased from 10/15 to 12/15 sites and from 12/15 to 14/15 sites respectively. Availability of IN medications increased; fentanyl from 9/15 to 14/15 sites and midazolam from 8/15 to 10/15 sites. Ten of the 11 PEDs involved in the QIC strategy reported the implementation of at least one of their own identified strategies. **Conclusion:** This study suggests that the use of a QIC may improve the introduction of new strategies to reduce pain and anxiety in EDs. QICs may also be helpful to other centres when introducing new strategies.

Keywords: pain management, quality improvement, pediatric emergency department collaboration

MP006

Review of clinical presentation and trajectory of patients with a diagnosis of primary brain tumour in a pediatric tertiary centre

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Introduction: Recognition of life-threatening conditions, such as brain tumours, remains a challenge among pediatric patients. Few studies have described the implication of initial presentation, clinical evolution and healthcare system factors in diagnosis delay of brain tumours in children. We aimed to determine the clinical presentation patterns and health care trajectory of children with a diagnosis of primary brain tumour. **Methods:** A retrospective chart review in a pediatric university-affiliated hospital was conducted. Participants were all patients less than 18 years of age diagnosed with a brain tumour by neuroimaging between Jan 2003 and Dec 2014. Data were extracted from an institutional tumour registry and medical records. **Results:** From the registry, 288 patients were identified. The mean age at time of diagnosis was 7.44 $\pm$ 0.29 years. Most tumours were infra-tentorial (55%) and had astrocytic origin (29%). The majority (35%) had consulted only once prior to diagnosis, while 14% had consulted at least 4 times prior to diagnosis. The mean time between the onset of symptoms and diagnosis was 147 $\pm$ 19 days. The mean time between symptoms onset and first consultation was 84 $\pm$ 14 days. The most frequent symptoms and signs at onset and diagnosis were respectively: headache (44% vs 59%, $p < 0.01$), nausea and vomiting (31% vs 58%, $p < 0.01$) and abnormalities of gait (10% vs 32%, $p < 0.01$). 129 patients (45%) were diagnosed in an Emergency Department (ED). Symptoms and signs that differed significantly for those diagnosed in an ED were: headache (71% vs 42%, $p < 0.01$), nausea and vomiting (73 % vs 32%, $p < 0.01$), lethargy (26% vs 9%, $p < 0.01$), weight loss (15% vs 3%, $p < 0.01$), irritability (9% vs 0%, $p < 0.01$) and endocrine abnormality (2% vs 8%, $p = 0.02$). Clinical presentations of infants up to one year of age (14%) differed from other age groups. They presented mostly with growth abnormality (46%), macrocephaly (40%), irritability (40%), development abnormalities (18%) and sun-setting eyes sign (10%). **Conclusion:** In this large comprehensive cohort, we have found that the diagnosis of primary brain tumours is most frequently made in the ED. Different clinical presentations have been identified and varied between different settings of diagnosis and different age groups.

Keywords: brain tumours, pediatric

MP007

Constats de décès à distance et disponibilité des services préhospitalier d'urgence

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Introduction: L'Unité de coordination clinique des services préhospitaliers d'urgence (UCCSPU) est un plateau clinique rattaché au CSSS Alphonse-Desjardins (CHAU Hôtel-Dieu de Lévis) qui permet un soutien médical à distance des patients transportés par ambulance dans la région de Chaudières-Appalaches (CA). En 2011, un projet novateur, devenu programme par la suite, a été instauré afin de réaliser des constats de décès à distance (CDD). Le but du programme est de réduire le nombre de transport de patients décédés vers les hôpitaux afin de remettre rapidement en service l'équipe ambulancière. Le but de l'étude est de décrire et comparer le taux de CDD et le gain de temps sur la remise en service de l'équipe ambulancière avant et après l'implantation du programme de CDD dans deux différentes régions géographiques (Chaudières-Appalaches et Saguenay-Lac-St-Jean (SLSJ)). Par la suite, déterminer s'il existe une distance minimale à partir de laquelle ce gain de temps est nul pour chaque région. **Methods:** Il s'agit d'une étude rétrospective portant sur 204 personnes réparties en 4 groupes : 2 groupes témoins [CA pré-CDD (50) et SLSJ pré-CDD (50)] et 2 groupes d'étude [CA post-CDD (52) et SLSJ post-CDD (52)] pour les deux régions. Le pourcentage de CDD réussi (taux de réalisation) par région et les gains de temps entre chaque groupe (intra- et inter-région) en fonction de la distance avec le centre hospitalier (CH) ont été calculés. **Results:** Pour un même nombre de patients, le taux de réalisation de CDD est similaire entre les deux régions [CA = 80% (6 mois) et SLSJ = 76% (4 mois)]. Le temps de remise en service des ambulances est différent ($p < 0.05$) inter-région se caractérisant par des gains de temps moyens de 62 min (CA) et 28 min (SLSJ). Enfin, la distance minimale où le gain de temps est nul est de moins de 5 km pour chaque région. **Conclusion:** L'implantation du programme de CDD permet un gain de temps favorisant un retour plus rapide des services pré-hospitalier d'urgence si la distance entre le lieu du CDD et du CH est supérieure à 5 km. De plus, le gain en temps est proportionnel avec la distance entre le lieu du CCD et le CH.

Keywords: emergency medical services (EMS), ambulance services, prehospital

MP008

Quick to be seen; quick to come back: does first visit CTAS-category predict admission for unplanned returns?

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Introduction: The percentage of unplanned return visits (URV) to the Emergency Department (ED) within 48 or 72 hours of discharge that result in an admission to hospital has been recommended as the top

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Canadian ED patient safety quality indicator. International data exists although inconsistences exist in the way URV are defined and measured. To our knowledge there are no published Canadian data on the percentage of ED URV admissions. This study examines our own URV data and in particular the correlation between URV admission rates and first visit Canadian Triage Acuity Scale (CTAS) category. **Methods:** A retrospective analysis of 12-month's data (January - December 2015) was completed for URV to the ED of a 445 bed regional tertiary care adult and pediatric teaching hospital with 57,000 annual attendances. URV was defined as any patient registering within 72 hours of an earlier visit that had resulted in a discharge from ED. Planned return visits were excluded. The data was analysed for an overall URV percentage, UV percentage by first visit CTAS category, overall percentage of URV admitted and URV admission percentage by first visit CTAS category. Pearson R correlation and Fishers Exact Test were used to test the relationship. **Results:** During the 12-month period there were 57,025 registrations of which 46,793 patients were discharged. There were 3566 URV (7.62% of those discharged); the number of URV admitted was 532 (1.14 % of those discharged). The return rate/admission rates by CTAS category were: CTAS 1: 6.74%/1.55%; CTAS 2: 7.86%/1.92%; CTAS 3: 8.54%/1.35%; CTAS 4: 5.99%/0.40%; CTAS 5: 5.55%/0.27%. The RR of admission on return for discharged CTAS groups 1 and 2, compared with CTAS 3, 4 and 5 was 1.90 (95 CI 1.57 to 2.30; $p < 0.0001$). Rate of admission on return was negatively correlated with initial CTAS level (Pearson r = -0.89 (95 CI -0.99 to -0.03); $R^2 = 0.79$; $F = 11.25$; $p = 0.04$). **Conclusion:** We have demonstrated a relationship between first visit CTAS category and the unplanned return admission rate. If admission is taken as a marker of illness severity, then the likelihood of an inappropriate discharge is inversely proportional to first visit CTAS score. While this makes sense intuitively, our data confirms this relationship in a Canadian tertiary care hospital and supports the reporting of ED URV admission data by first visit triage category as an important quality indicator.
Keywords: CTAS, unplanned return visits, admission rate

MP009

Reliability and interchangeability of measures of two tissue oximeters in healthy volunteers

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Introduction: Near-infrared spectroscopy (NIRS) is a non-invasive, continuous and painless method of monitoring oxygen saturation of hemoglobin in any given superficial tissue. Given that hemodynamic instability can affect the oxygen saturation, NIRS could prove to be an interesting tool in quantifying tissue oxygenation, consequently guiding clinical management. The aim of this study was to compare the reliability of two commonly used tissue oximeters, the INVOS 5100c from Covidien and the Equanox 7600 from Nonin. We postulated the Equanox (a more recent tissue oximeter) would have a better reliability than the INVOS. As a secondary outcome, we evaluated whether the measures given by the two oximeters were comparable. **Methods:** The study population was composed of healthy adult volunteers. Three measurements were taken at six different sites on both sides of the body in a randomized order. Two different sensors were used for each measure. From these measures, two intra-class correlations (ICC) - one inter-sensor and the other intra-sensor - were calculated for each device and compared using the Fisher's r-to-z transformation method. An additional inter-device ICC was also calculated. We considered ICCs over 0.75 as an indicator of good reliability, while ICCs under 0.40 were considered to represent poor reliability. The sample size was calculated based on the calculation of a unidirectional confidence interval for a parametric ICC. Expecting a 0.75 ICC value, we concluded that 53 participants needed to be recruited in order to attain 80% power and a range of 0.1 towards the low values. **Results:** Fifty-three healthy volunteers (27 men and 26 women) with a mean age of 31 years (standard deviation 10) were recruited. We found no differences between the repeatability of the INVOS and the Equanox for both inter and intra-sensor reliability (ICC = 0.94 (95% confidence interval (CI) 0.86-0.97) versus ICC = 0.92 (95%CI 0.86-0.95), $p = 0.42$ and ICC = 0.94 (95%CI 0.89-0.96) versus ICC = 0.96 (95%CI 0.93-0.98), $p = 0.21$, respectively). However, when compared directly, we found that the readings produced by the two oximeters varied considerably (ICC 0.18 (95%CI -0.10 to 0.43). **Conclusion:** When taken individually, both tissue oximeters displayed good inter and intra-sensor reliability. However, they oximeters displayed poor inter-devices agreement, their readings varying considerably amongst each other.
Keywords: reliability, near-infrared spectroscopy, tissue oximetry

MP010

Wraparound care for youth injured by violence: a randomized control trial

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Introduction: Youth injured by violence is a major public health concern in Canada. It is the fourth leading cause of death in youth and the foremost reason youth visit an emergency department (ED). In Winnipeg, 20% of youth who visit an ED with an injury due to violence will have an ED visit for a subsequent violent injury within one year. Youth injured by violence are in a reflective and receptive state of mind, rendering the ED setting appropriate for intervention. **Methods:** We completed a randomized control trial in November 2015 comparing wraparound care for youth age 14 - 24 who were injured by violence to standard ED care. Youth were excluded if their injury was due to child maltreatment, sexual assault or self-harm. An adapted pre-consent randomization methodology was used. The intervention was developed using a community based participatory research approach. Wraparound care was delivered by a support worker with lived experience with violence. Support workers were on call 24/7 in order to start the intervention in the ED and take advantage of the "teachable moment." Care continued in the community for approximately one year. **Results:** A total of 133 youth were randomized (68 intervention, 65 control) in one year. There was no difference in age, gender, or severity of injury between the two groups. Patients randomized to the intervention spent a median of 30 minutes less in the ED than those receiving standard care ($p = 0.22$). Youth are safely housed, have enrolled in education opportunities, and are engaged in addictions care. Results of a chart review examining repeat visits to the ED for violent injury, substance use and mental health will be completed in Spring 2016 and will be presented. **Conclusion:** There were no differences between standard care and intervention groups on baseline characteristics reflecting effective randomization. The introduction of an intervention at bedside in the ED did not have a negative impact on patient length of stay.
Keywords: youth violence, intervention, randomized control trial

MP011

Using GRADE-based recommendations for analgesia and antiemetics in electronic order sets to influence physician behaviour towards best practice and cost-savings

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