

evaluate the impact of the curriculum changes. **Conclusion:** A collaborative, modular, longitudinal QIPS curriculum for UT FRCP emergency medicine residents that met CanMEDS requirements was created using multiple educational methods. The first resident cohort that completed the curriculum demonstrated an absolute increase in QI knowledge and its applicability (as measured by the QIKAT-R) by 19.6%. Two PDSA cycles were completed to improve the curriculum with the change ideas generated from resident feedback. Ongoing challenges include limited staff availability to teach and supervise resident QI projects. Future directions include incentivising staff participation and providing mentorship for residents with a career interest in QI beyond what is offered by the curriculum.

**Keywords:** quality improvement and patient safety, residency training, CanMEDS

#### MP26

##### **An emergency department team-based quality improvement initiative reduces narcotic and benzodiazepine ‘to-go’ medication administration**

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**Introduction:** The administration of “to-go” medications in the Kelowna General Hospital Emergency Department was identified as an issue. Frequently, multiple administrations of “to-go” medication pre-packs were administered to individual patients on a frequent basis. In addition, the variability in “to-go” medication was substantial between providers. Recognizing the patient issues (addiction, dependency and diversion) and system issues (costs, risk) a team-based quality improvement initiative was instituted, utilizing a variety of quality improvement techniques. The aim was to reduce the number of “to-go” medications by half, within a year. **Methods:** The project began January 2015, and is ongoing. Multiple stakeholders were engaged within the emergency department; these included leaders of the physician, nursing and pharmacy teams, including an executive sponsor. Using change theory, and traditional Plan-Do-Study-Act (PDSA) cycles, an iterative methodology was proposed. The outcome measure proposed was number of “to-go” medications administered; secondary measures included number of opioid “to-go” and benzodiazepine “to-go” prescriptions. Balancing measures were the number of narcotic prescriptions written. Physician prescribing practice and nursing practice were reviewed at meetings and huddles. Individualized reports were provided to physicians for self-review. Data was collated at baseline then reviewed quarterly at meetings and huddles. Run charts were utilized along with raw data and individualized reports. **Results:** At baseline (January 2015), the number of “to-go” medications was 708. Over the next year, this value reduced to 459, showing a 35% reduction in “to-go”. Two years later (June 2017), this had reduced to 142, resulting in an overall reduction of 80% “to-go” medications. Secondary measures are currently under analysis. Further, no increase in prescribing of narcotics was seen during this time period. **Conclusion:** The administration of “to-go” medications from the emergency department has significant individual and societal impact. Frequently, these medications are diverted; meaning, sold for profit on the black market. Further, opioid prescribing is under increased scrutiny as the linkage between opioid prescriptions and addiction / dependency becomes more evident. This quality improvement initiative was successful for a number of reasons. First, we had strong engagement from the full emergency department clinical teams. The issue was first identified collaboratively, and teamwork and participation was strong from the outset. Second, we

used individual and aggregate data to provide feedback on a regular basis. Third, we had strong support from our executive sponsor(s) who were able to support the efforts and champion and present the results locally, and now, throughout the Health Region.

**Keywords:** quality improvement and patient safety, opioids, prescribing practices

#### MP27

##### **Publishing emergency department wait times in the waiting room: implementation and evaluation of a co-designed patient centered solution**

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**Introduction:** Patients in our ED were dissatisfied with their waiting experience, which resulted in patient anxiety and complaints. In 8 months, we aimed to (1) improve patient satisfaction with the ED waiting experience from triage to physician initial assessment by a 15% improvement in patients who rate their experience very good/excellent on a Likert Scale, and (2) improve patient knowledge of ED wait time by a 50% increase in understanding on a Likert Scale. **Methods:** We co-designed a display with ED patients to notify those in the waiting room of their wait process and wait time. The intervention was selected after root cause diagnostics including: Fishbone exercise, Pareto Diagram, and Driver Diagram. The display was co-designed with ED patients and improved via PDSA cycles to establish information displayed and how to incorporate it into the waiting experience. After co-design, a low-fidelity display was piloted in the waiting room. **Results:** A family of measures were evaluated using patient/provider surveys and hospital data metrics. Outcome measures were (1) percentage of patients who rated their ED experience as very good/excellent on a Likert scale, and (2) patients who had a clear/very clear understanding of their wait time on a Likert scale. Process measures were the percentage of patients who (1) looked at the wait time display, and (2) felt they could communicate their wait time to others. Balancing measures were clerk/nurse satisfaction and self-reported interruptions of patients asking wait time. Outcomes were tracked using statistical process charts and run charts. Following display implementation, patient rating of their ED experience and patient understanding of wait time showed positive improvement. Clerks/nurses were also more satisfied with their jobs and self-reported interruptions decreased. **Conclusion:** A low-fidelity wait time display co-designed with patients improved patient satisfaction and understanding of ED wait times. We plan to develop an automated electronic display that resembles the low-fidelity display and evaluate the impact of the intervention on the established measures. This intervention has the potential to be sustainable, feasible for other EDs, and require minimal upkeep costs.

**Keywords:** quality improvement and patient safety, patient-centered, patient co-design

#### MP28

##### **Reducing door-to-needle times across Alberta to 36 minutes**

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**Introduction:** The effectiveness of intravenous alteplase is highly time dependent, and very short door-to-needle times (DNT) of 30 minutes or

less have been reported in single centre hospitals, but never in an entire population. QuICR (Quality Improvement and Clinical Research) Alberta Stroke Program aimed to reduce DNT to a median of 30 minutes across the Canadian province of Alberta. **Methods:** We used the Improvement Collaborative Methodology from early 2015 to September 2016 with participation from all 17 Stroke Centres in Alberta. This methodology included 4 face-to-face workshops, site visits, webinars, data collection, data feedback, intensive process mapping, and process improvements. We compared data in the pre-intervention period from 2009-2014 (collected during the Alberta Provincial Stroke Strategy) to data in the post-intervention period from March 2016-February 2017 (collected during the QuICR DTN Collaborative). Data from January 2015-February 2016 were excluded, as improvements were being implemented during this time. **Results:** There were a total of 2,322 treated cases in the pre- and post-intervention periods. The results show that the median DNT dropped from 68 minutes ( $n = 1,846$ ) in the pre-intervention period to 36 minutes ( $n = 476$ ) in the post-intervention period ( $p < 0.001$ ). There were reductions in DNT across all hospital types: median DNT dropped from 63 to 32 minutes in Urban Tertiary Centres ( $p < 0.001$ ), from 73 to 32 minutes in Community with 24/7 neurology ( $p < 0.001$ ), from 85 to 62 minutes in Community with limited/no neurology ( $p < 0.001$ ), and from 74 to 52.5 minutes in rural centres ( $p < 0.001$ ). **Conclusion:** There were 21.5 to 41 minute reductions in median DNT across all hospital types including smaller rural and community hospitals. A targeted multi-site improvement collaborative can be an effective intervention to reduce DNT across an entire population.

**Keywords:** door to needle times, quality improvement, acute stroke

### MP29

#### Creation of the CAEP Acute Atrial Fibrillation/Flutter Best Practices Checklist

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**Introduction:** Patients with acute atrial fibrillation or flutter (AAFF) are the most common acute arrhythmia cases requiring care in the ED. Our goal was to adapt the existing Canadian Cardiovascular Society (CCS) AF Management Guidelines into an emergency physician-friendly best practices checklist. **Methods:** We chose to adapt, for use by emergency physicians, existing high-quality clinical practice guidelines (CPG) previously developed by the CCS using the GRADE system. We used the Canadian CAN-IMPLEMENT© process adapted from the ADAPTE Collaboration. We created an Advisory Committee consisting of 14 academic and community emergency physicians, three cardiologists, one PhD methodologist, and two patients. The Advisory Committee communicated by a two-day face-to-face meeting, teleconferences, and email. The checklist was prepared and revised through a process of feedback and discussions through ten iterations until consensus was achieved. We then circulated the draft checklist for comment to approximately 300 emergency medicine and cardiology colleagues whose written feedback was further incorporated into the final approved version. **Results:** The final CAEP ED AAFF Guidelines are comprised of two algorithms and four sets of checklists, organized by 1) Assessment and Risk Stratification, 2) Rhythm and Rate Control, 3) Long-term

Stroke Prevention with the CHADS-65 Algorithm, and 4) Disposition and Follow-up. The guidelines have been endorsed by CAEP and accepted for publication in the Canadian Journal of Emergency Medicine. During the consensus and feedback processes, we addressed a number of issues and concerns. We highlighted the issue that many unstable patients are actually suffering from underlying medical problems rather than a primary arrhythmia. One controversial recommendation is to consider rate control or transesophageal echocardiography guided cardioversion if the duration of symptoms is 24-48 hours and the patient has two or more CHADS-65 criteria. We emphasize the importance of evaluating long-term stroke risk by use of the CHADS-65 algorithm and encourage ED physicians to prescribe anticoagulants where indicated. **Conclusion:** We have created the CAEP AAFF Best Practices Checklist which we hope will standardize and improve care of AAFF patients in all EDs across Canada. We believe that most of these patients can be managed rapidly and safely with ED rhythm control, early discharge, and appropriate use of anticoagulants.

**Keywords:** atrial fibrillation, guidelines, cardiology

### MP30

#### Impact des bicarbonates sur le devenir des patients souffrant d'un arrêt cardiaque préhospitalier

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**Introduction:** Les patients souffrant d'un arrêt cardiaque extra hospitalier (ACEH) sont fréquemment traités à l'aide de soins avancés en réanimation cardiovasculaire (SARC). Dans ce contexte, des bicarbonates de sodium sont parfois administrés à des patients en arrêt cardiaque réfractaire chez qui une acidose métabolique importante, une hyperkaliémie ou une intoxication est suspectée. Puisqu'il n'y a que peu de données quant à cet usage, l'objectif de la présente étude est de valuer l'association entre le traitement à l'aide de bicarbonate de sodium (une dose ou plus) et le devenir (retour de circulation spontané et survie au congé) chez les patients souffrant d'un ACEH. **Methods:** La présente étude de cohorte a été réalisée à partir des bases de données de la Corporation d'Urgences-santé dans la région de Montréal entre 2010 et 2015. Les patients adultes ayant souffert d'un ACEH d'origine médicale traités en préhospitalier par des paramédics de soins avancés produisant des SARC ont été inclus. Les associations d'intérêt ont été évaluées initialement à l'aide de régressions logistiques univariées, puis à l'aide de régressions logistiques multivariées ajustant pour les variables socio-démographiques et cliniques pertinentes. **Results:** Un total de 1973 patients (1,349 hommes et 683 femmes) d'un âge moyen de 66 ans ( $\pm 17$ ) ont été inclus dans cette étude, parmi lesquels 77 (3,8%) ont reçu une dose de bicarbonate, 763 (37,5%) ont retrouvé un pouls en pré-hospitalier et 222 (10,9%) ont survécu jusqu'à leur congé de l'hôpital. Sans ajustement, il y avait une association négative entre le traitement à l'aide de bicarbonates et le retour de circulation spontané (rapport de cotes [RC]=0,46 [intervalle de confiance {IC} 95% 0,27-0,79],  $p = 0,005$ ) et la survie au congé (RC=0,21 [IC 95% 0,05-0,86],  $p = 0,030$ ). Cependant, ces associations n'étaient plus significatives suite à l'ajustement pour les autres covariables (RC ajusté=0,63 [IC 95% 0,34-1,18],  $p = 0,15$  et RC ajusté=1,69 [95% IC 0,29-10,01],  $p = 0,56$ ). **Conclusion:** Il n'y a pas d'association indépendante entre le traitement à