CSHP Summer Educational Sessions (SES) 2014: Poster Abstracts / Séances éducatives d'été (SÉÉ) 2014 de la SCPH : Résumés des affiches

CSHP 2015

CSHP 2015 is a quality program that sets out a vision of pharmacy practice excellence in the year 2015. Through this project, CSHP challenges hospital pharmacists to reach measurable targets for 36 objectives grouped under 6 goals, all aimed toward the effective, scientific, and safe use of medications and meaningful contributions to public health. CSHP 2015 applies to inpatients and outpatients, community and hospital pharmacists, and all practice settings. Posters identified with a "CSHP 2015" logo are those judged by the CSHP 2015 Steering Committee to be particularly relevant to one or more of the 36 objectives.

SCPH 2015

Le projet SCPH 2015 est un programme axé sur la qualité qui propose une vision de l'excellence en pratique pharmaceutique en l'an 2015. Au moyen de ce projet, la SCPH met les pharmaciens d'établissements au défi d'atteindre les cibles mesurables de 36 objectifs répartis entre 6 buts, visant tous l'utilisation efficace, scientifique et sûre des médicaments ainsi que des contributions significatives à la santé publique. Le projet SCPH 2015 s'applique aux patients hospitalisés et externes, aux pharmaciens d'hôpitaux et communautaires, et à tous les milieux de pratique. Les affiches marquées du logo « SCPH 2015 » sont celles que le comité directeur du projet SCPH 2015 a jugé particulièrement appropriées à l'un ou l'autre des 36 objectifs.

The texts of poster abstracts are published exactly as submitted by the authors and have not undergone any copyediting by the Canadian Journal of Hospital Pharmacy
Le Journal canadien de la pharmacie hospitalière *n'a pas soumis le texte des résumés des affiches à une révision linguistique et les publie ici tels que remis par les auteurs.*

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Implementation of a Medication Reconciliation Program Utilizing a Telepharmacy Model at a Remote Hospital

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Background: Medication reconciliation has been a Required Organizational Practice (ROP) for hospitals by Accreditation Canada since 2006. However, as of 2012, it was the ROP with the lowest compliance by accredited hospitals.

Description: The Hospital is a 40 bed acute care hospital that provides medical care and inpatient services for the residents of a remote health region of primarily First Nations people. The hospital has had a telepharmacy model of care with remote clinical pharmacist support since 2004, but has not yet complied with the implementation and plan for an effective medication reconciliation program due to limited resources.

Action: To aid in the implementation of a medication reconciliation program, the remote pharmacy program developed a medication reconciliation tool for patients that included medication photographs. A Best Possible Medication History (BPMH) interview would be conducted right in the emergency department at the patient bedside by a remote pharmacist in a home-office environment using Ontario Telemedicine Network's (OTN) secure solution for videoconferencing. Patients would be shown pictures of oral medications and asked how s/he was taking each medication. Language barriers (Cree language) would be solved by family members or a translator in the hospital. The pharmacist-conducted interviews have been offered to the hospital since January 2014.

Evaluation: Uptake at the hospital side for the program has been slow. To date, one interview has been completed, so focus is changing to generating further understanding and referrals from the Hospital. The goal is to have all inpatients (with the exception of obstetrical patients) have a BPMH by the pharmacist (with the service available 24/7).

Implication: Using a secure and readily available OTN videoconferencing infrastructure, telepharmacy can efficiently conduct a BPMH interview on patients being admitted to hospitals to increase hospital compliance with the medication reconciliation ROP.

A Randomized Trial of the Effect of Pharmacist Prescribing on Improving Blood Pressure in the Community: The Alberta Clinical Trial in Optimizing Hypertension (RxACTION) Study

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Background: Since hypertension is largely managed through lifestyle and drug therapy, pharmacists can help address its management. In Alberta, some pharmacists are also authorized to prescribe.

Objective: This study aimed to determine the effectiveness of pharmacist prescribing for patients with uncontrolled hypertension.

Methods: Patients with undiagnosed/uncontrolled hypertension were randomized to enhanced care or usual care, with those randomized to enhanced care further randomized to either fee-for-service or pay-for-performance remuneration for the pharmacist. Enhanced care patients saw the pharmacist for blood pressure (BP) management including prescribing for 6 months. Usual care patients had their BP measured at 3 and 6 months, but the pharmacist did not actively intervene with their care. The primary outcome was difference in change in systolic BP between the enhanced and usual care groups, with change in systolic BP between remuneration groups as a secondary outcome.

Results: A total of 247 patients were enrolled in the study, with 180 randomized to enhanced care, and 67 to usual care. Within the enhanced care group, 91 patients were randomized to fee-for-service and 89 were randomized to pay-for-performance remuneration for the pharmacist. The required sample size of 340 patients was not achieved due to funding limitations. Systolic BP decreased by 17.9 mm Hg in the enhanced care group versus 11.0 mm Hg in usual care, resulting in a difference of 6.9 mm Hg (SE 2.3; p=0.003). Diastolic BP also differed between groups by 3.4 (SE 1.2) mm Hg, which was also significant (p=0.005). Due to inadequate sample size, the study was under-powered to detect a significant difference between remuneration groups.

Conclusion: This study, the first randomized trial of pharmacist prescribing, found that pharmacist care can lower systolic BP by 6.9 mm Hg more than usual care. Even with contamination between groups suspected, this represents a statistically and clinically significant improvement.

Adherence to Community Acquired Pneumonia Guidelines: A Phase I Study for the Development of a Computerized Decision Support System

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Background: Our paediatric hospital's empiric community acquired pneumonia (CAP) guidelines were updated to reflect recent Canadian and U.S. paediatric guidelines recommending ampicillin and ceftriaxone as first line agents over cefuroxime, based on severity of CAP. Despite evidence that adherence to guidelines can improve outcomes, adherence rates are typically low (55-90%).

Description: This study aimed to evaluate baseline adherence to the new guidelines and determine reasons for non-adherence to inform the development of a computerized decision support system (CDSS) to guide empiric prescribing.

Action: A retrospective chart review was completed for patients > 1 month of age admitted to our hospital and treated empirically for CAP following passive dissemination of new CAP guidelines. Data collected included adherence of empiric antibiotics at the initial point of prescribing, prescribing service, antibiotic regimens, costs, CAP severity, and clinical outcomes. Adherence was measured according to agreement of antibiotic choice with the guideline and appropriate weight-based dosing.

Evaluation: Forty patients were included with a mean age of 5.2 years (range: 1 month to 16 years). Only 9 (22%) patients were prescribed first-line antibiotics in accordance with our CAP guidelines. Empiric prescribing occurred primarily in the emergency department (n=33; 82.5%). Cefuroxime-based regimens accounted for 68% (n=21) of partial/non-adherent prescribing. Most patients had severe CAP without effusion (n=23; 58%), or non-severe CAP (n=14; 35%). Thirty-eight (95%) patients had documented clinical improvement while one experienced treatment failure. Antibiotic cost per admission was significantly lower in patients receiving first-line antibiotics (p=0.017).

Implications: Baseline prescribing adherence of first-line empiric antibiotics for CAP appears low. A CDSS incorporating guidelines at the point of prescribing may increase adherence. The frequent choice of cefuroxime suggests prescribers were unaware of, or did not agree with ampicillin or ceftriaxone as first-line agents. Increased prescribing of first-line agents may lead to reduced antibiotic cost per admission.

The Incidence of QTc Interval Prolongation and Ventricular Arrhythmia in Depressed Patients Receiving Escitalopram or Citalopram versus Other Selective Serotonin Inhibitors or Selective Norepinephrine Inhibitors: A Systematic Review

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Background: Despite warnings about a dose related risk of QTc prolongation with citalopram, it is uncertain if this risk is restricted to citalopram or is a class effect associated with serotonin inhibitors (SSRIs) or selective norepinephrine inhibitors (SNRIs).

Objective: To evaluate the incidence of QTc prolongation and ventricular arrhythmia in depressed patients taking citalopram or escitalopram versus other SSRIs or SNRIs.

Methods: MEDLINE, PubMed, EMBASE, PsychINFO, IPA and ClinicalTrials.gov (from inception to October 2013) and the bibliographies of relevant publications looking at the use of citalopram or escitalopram versus other SSRIs or SNRIs in depressed adult patients were searched. Narratives, studies in pediatrics, pregnancy and studies in languages other than English were excluded. Two reviewers independently extracted data and discrepancies were resolved by consensus. Outcomes of interest included QTc interval prolongation and ventricular arrhythmia.

Results: We included 3 studies including 973 042 patients. One cross-sectional retrospective study found a significant dose-related association of QTc prolongation for citalopram (adjusted beta 0.10 (SE 0.04) $p<0.01$) and escitalopram (adjusted beta 0.58 (SE 0.15) $p<0.001$) but not for fluoxetine, paroxetine or sertraline. A second retrospective cohort study found the odds of QTc >400ms in patients receiving citalopram was 5.1 times that of sertraline, when citalopram doses greater than 60mg/day were used. A third prospective cohort study evaluating clinical outcome of ventricular arrhythmia in 934,348 patients found no significant difference in the risk of ventricular arrhythmia with citalopram or sertraline.

Conclusions: The current literature does not support an increased risk of QTc prolongation or ventricular arrhythmia in patients taking citalopram or escitalopram versus other SSRIs or SNRIs. These conclusions are limited by the sparsity of good quality literature. How these results apply to patients with other risk factors for QTc prolongation or ventricular arrhythmia, such as concomitant use of QTc prolonging medications, remains unclear.

Application of Screening Criteria to Determine Need for Pharmacist Intervention in a Frail Elderly Population in Primary Care

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Background: Preventable medication related problems (MRPs) significantly contribute to emergency department utilization and hospitalization. Pharmacists are trained for assessing MRPs; however, pharmacist resources are scarce in primary care, and require judicious use.

Objective: The primary objective was to determine the proportion of frail elderly patients who would benefit from a pharmacist review of medications based on evidence based screening criteria in primary care.

Methods: This study was a retrospective medical record review of initial 30 patients aged ≥ 75 years who were identified as frail within a family practice setting. The following data were abstracted from medical charts: age, gender, and whether patient met ≥ 1 of the following screening criteria, previously demonstrated to increase risk of MRPs: 1. Total number of oral medications prescribed > 5; 2. Number of medical conditions >4; 3. Hospitalization within the previous 30 days; 4. Having a medical condition of interest such as mild cognitive impairment or dementia, heart failure, diabetes mellitus, chronic obstructive pulmonary disease and/or renal impairment; 4. Prescribed a medication of interest (digoxin, warfarin, insulin, any psychotropic medication); 5. Prescribed medications listed on Beers List.

Results: The mean age of the study population was 84 years (range: 75 – 94 years) and the majority (22/30; 73%) were female. Of the 30 frail patients, 29 (96%) met at least one of the screening criteria, 22 (73%) had > 5 oral medications listed in their medical record, 70% of the patients had > 4 medical conditions, and 70% had at least one diagnosis of interest and 70% were taking medications of interest. Only13/60 were on a medication listed on the Beers List.

Conclusion: Since 96% of patients met ≥ 1 screening criteria for pharmacist assessment, results strongly suggest that all frail elderly patients ≥ 75 years should be assessed for MRPs in primary care.

Epidural Production and Utilization: A Quality Improvement and Cost-Effectiveness Study

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Background: Epidural analgesia is effective for post-operative acute pain control; however, the route is considered high risk and costs associated with its use have been increasing. The institution's Department of Pharmacy Services has identified drug expenditures supported by evidence-based practices as a priority tactic.

Objective: To identify potential quality and safety improvements in addition to cost-savings in the production and administration of epidural solutions.

Methods: A prospective, observational, cross-sectional study was conducted in January 2013 to describe current epidural solution utilization in adult patients prescribed an epidural infusion for pain control by the Acute Pain Management Service. Additionally, to compare the institution to similar Canadian hospitals, a survey was conducted involving questions delineating current practices surrounding epidural production and administration.

Results: A total of 50 patients were included in the study. Hydromorphone 10 mcg/mL + bupivacaine 1 mg/mL epidural solution accounted for 81% of utilization. There were 8 epidural solution prescription changes in 8 patients. The mean duration of therapy and cumulative volume infused was 56 hrs and 462 mL respectively. The total volume infused over the data collection period was 26,739 mL with 42% (19,510 mL) wastage, representing $2153. Twenty institutions were surveyed, with a 45% response rate (n=9). The median number of standard epidural solutions carried at each institution was 3 (range: 2-6), 8 (89%) purchase at least 1 epidural solution, 7 (78%) add auxiliary labels and 7 (78%) use a standardized Analgesia Flowsheet. Overall, fentanyl/bupivacaine was the most common epidural solution; this combination was carried by 7 (78%) institutions and was purchased externally by 6 (86%) institutions.

Conclusion: Study and survey findings support consideration of purchasing commercially available epidural solutions, reducing the institution's number of standard epidural solutions, reducing the epidural solution bag volume and utilizing a less costly formulation of bupivacaine.

Continuity of Care between Hospital and Rehabilitation Pharmacists: A Needs Assessment

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Background: Continuity of care between rehabilitation and hospital pharmacists is needed to ensure a smooth transition through the health care system and is an essential component for achieving optimal patient outcomes. Currently, there is a lack of standardized procedures to facilitate the efficient exchange of information between pharmacists at Sunnybrook Health Sciences Centre (SHSC) and rehabilitation centres. This has the potential to increase patient adverse events.

Description: To determine the information needs of rehabilitation centre pharmacists and to survey the information hospital pharmacists are routinely communicating, for the purposes of developing a standardized pharmacy transfer tool.

Action: A needs assessment was conducted using semi-structured interviews. Participants included rehabilitation centre pharmacists who provide care to patients transferred from acute care institutions, and pharmacists at SHSC who provide care to patients discharged to rehabilitation centres. Interviews aimed to determine: the types of pharmacy information currently being provided to and often requested from rehabilitation centres; the views of SHSC pharmacists with respect to the information needs of rehabilitation pharmacists; barriers to communicating such information. Data from the interviews was transcribed and reviewed by the investigators. Common themes were summarized for discussion.

Evaluation: Interviews were completed with 19 rehabilitation centre pharmacists and 9 pharmacists from SHSC. There was a high degree of variability in the type of information being transferred, with hospital pharmacists describing uncertainty in what rehabilitation pharmacists actually desired. Emerging preferences identified by rehabilitation centre pharmacists included summaries specific to pharmacists' needs, discharge medication reconciliation with reasons for therapy changes and a designated point of contact. Common barriers related to time constraints.

Implications: Key needs of rehabilitation pharmacists receiving patients from an acute care institution have been identified. The results will assist in the development of a tool to improve continuity of care between these facilities.

Analysis of Current Pharmacist Documentation Practices in a Tertiary Care Hospital

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Background: Timely and effective communication between heath care providers is an essential component of patient care. This is applicable to pharmacist drug therapy interventions as well as patient counseling activities. As it is not feasible to personally communicate all issues to all members of the care team, communication via the patient health record is essential.

Description: Documentation practices of pharmacists have not been evaluated at this institution. Baseline data was gathered to help identify the learning needs of pharmacists and to increase the quality and frequency of documentation in the health record.

Action: A workload measurement tool was used to identify pharmacist's interventions and a corresponding selection of 108 charts was reviewed. Interventions were analyzed using a modified version of the Canadian Society of Hospital Pharmacists (CSHP) document: "Tool to Evaluate Pharmacist's Skills for Documentation in the Health Record". Rate of documentation was determined; as well as analysis of documentation type, content, style and location within the chart.

Evaluation: Thirty-one percent of the patient health records included pharmacist documentation. Interventions included clarifications, pharmacy suggestions, order sets, and clinical progress notes. Content varied but included subjective and objective information, source of information, assessment, recommendations, and reason for encounter. Style ranged from narrative to a recognized systematic form. Documentation was noted in the physician orders and both physician and interdisciplinary progress notes.

Implications: This information was presented to the Pharmacy Professional Practice Committee for feedback. It was identified that the barriers to documentation were a lack of knowledge of proper documentation style and location. Using CSHP guidelines, further education will be provided to pharmacists on appropriate documentation practices. This will include sample documentation notes of common scenarios. Documentation policies of the institution are also to be reviewed.

Revolutionizing a Regional Pharmacy Practice Model: Pharmacist and Pharmacy Technician Satisfaction Survey Results

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Background: Capital Health's pharmacy practice model (PPM) has changed dramatically over the past two years to expand pharmacy technician roles and to increase the number of patients who receive direct care from a pharmacist. Significant PPM initiatives include decentralized order entry, collaborative multi-site order entry, technician order checking, and clinical support technicians. These innovations were achieved without

additional resources. Evaluation and incorporation of staff feedback was integrated into the process.

Objective: To assess pharmacist and pharmacy technician opinions and satisfaction with the major PPM initiatives and the impact on their professional roles.

Methods: PPM initiatives were implemented from December 2011 through July 2013. Surveys were available in paper form and electronically and were administered to all staff in June 2013.

Results: Survey response rates were 69% for pharmacists (n=53) and 57% for pharmacy technicians (n=70). At least 75% of pharmacy staff agreed that pharmacy technicians who were validated to check medication orders and enter chemotherapy orders provide a service just as safe and efficient as the previous system. Pharmacists (98%) and technicians (99%) felt that expanded technician roles resulted in a better use of time for both professions. Greater than 86% of staff were satisfied with their professional relationships with each other. Pharmacists believed that PPM changes decreased medication turnaround time and facilitated sharing of order entry workload (77% and 64%, respectively) while 6% agreed that PPM changes had improved their order entry skills. Pharmacists cited inadequate access to information resources (25%) and technology (58%) as potential impediments to optimizing the success of PPM implementation.

Conclusions: Staff expressed satisfaction with the majority of the new roles, particularly the expansion of pharmacy technician responsibilities. The survey also supplied valuable feedback from staff that may be incorporated to ensure success in the ongoing evolution of pharmacy practice at Capital Health.

Utilizing a Telepharmacy Model to Support 24/7 Medication Order Verification and Electronic Medication Administration Records for a Collaborative Group of Community Hospitals

CSHP2015
Targeting Excellence in Pharmacy Practice

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Background: To implement medication safety initiatives, including Computerized Prescriber Order Entry (CPOE) systems and Electronic Medication Administration Record (eMAR), 24-hour pharmacist review of all medication orders prior to being dispensed or removed from an automated dispensing cabinet should occur as outlined by Accreditation Canada. The orders are required to be profiled in real time, even when pharmacy departments are traditionally closed.

Description: A group of 9 community hospitals, ranging from 12 to 178 beds, sharing a common pharmacy management software platform, implemented 2 key medication management initiatives: CPOE and eMAR. One of the hospitals had already implemented a 24-hour hospital pharmacy service utilizing a remote pharmacist telepharmacy model of care.

Action: A telepharmacy provider was hired and the hospitals initiated a stepped approach for 24-hour pharmacist order review implementation. The telepharmacy provider would review orders when the hospital pharmacy departments were closed, usually between the hours of 1700 and 0700 during the week and around the clock on weekends. Regular meetings were scheduled for all stakeholders to provide feedback on implementation processes and determine if any improvements were required. All hospital CPOE orders would be merged into one queue to allow the remote pharmacist to review orders efficiently.

Evaluation: The hospitals have successfully implemented a cost-effective 24-hour pharmacist medication order review solution. The remote pharmacists account for 30% of medication order reviews. Along with the success, significant lessons were learned by all stakeholders throughout the planning and implementation phases of a unique and innovative model for 24-hour pharmacist order review.

Implication: Telepharmacy use for medication order review during afterhours is an effective means to reduce costs, share pharmacist resources across several hospitals, and to allow for 24- hour access to a pharmacist, thereby facilitating implementation of safer technologies such as CPOE and eMAR, and complying with Accreditation Canada's standards.

Revolutionizing a Regional Pharmacy Practice Model: Enhancing Consistency in Clinical Care

CSHP2015
Targeting Excellence in Pharmacy Practice

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Background: The consistency of clinical pharmacy coverage was evaluated by assessing pharmacists' schedules and workload statistics. Gaps were evident in several acute care services, including areas providing care to inpatients with complex and high-risk medication regimens. Practice changes, with no additional resources, were necessary to achieve optimal patient care.

Description: Two innovative models of practice were created to optimize patient care. Clinical cross coverage (CCC) enhances scheduling flexibility to meet urgent or emergent patient care needs. Clinical liaison (CL) is designed to enable priority interventions for patients in areas without a scheduled pharmacist.

Action: A pharmacy practice model working group built an implementation plan for CCC and CL initiatives which focused initially on high acuity patients and then broadened across Capital Health. For CCC, a plan to cross-train pharmacists in a secondary practice area was created considering intensity of patient care and clinical skill set. Clinical pharmacist knowledge self- assessment tools and clinical activity review tools were created to define training, identify resources, and prioritize activities. Training was individualized and accomplished by educational sessions, mentors and mini-residencies. A CL plan was developed that divided all patient care areas into groups which were matched to an assigned group of pharmacists. Pharmacists rotate being on-call to provide identified priority interventions to areas without a pharmacist.

Evaluation: Measures of clinical consistency were assessed. Over a 1 year period, a 23% increase in scheduled clinical days was observed with an increase in clinical time identified as direct patient care (79% vs.68%). This correlated with a 25% increase in direct care activities. Clinical coverage increased from 88% (25 areas, November 2011) to 93% (29 areas, May 2013).

Implications: CCC and CL practice initiatives were associated with a positive impact on clinical consistency and supported the provision of direct care activities to more patients.

Development and Implementation of Medication Reconciliation upon Internal Transfer from the Critical Care Medicine Service: How Does Kingston General Hospital Measure Up?

CSHP2015
Targeting Excellence in Pharmacy Practice

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Background: Medication reconciliation (MedRec) is a Canadian Required Organizational Practice to ensure accurate and comprehensive medication information is communicated consistently across transitions in care. A best possible medication history (BPMH) and MedRec is completed when patients are admitted to the Critical Care Medicine (CCM) service at Kingston General Hospital (KGH). Increased risk for medication errors has been associated with intensive care unit admissions; therefore, a formalized process for MedRec upon internal transfer (MRIT) from CCM should be established.

Objective: The primary objective is to implement a formalized process for MRIT from CCM. Secondary objectives include: adherence to key processes required to complete MRIT; physician completion of MRIT; and recommendations concerning process improvements required to complete MRIT.

Methods: A MedRec order set was developed and embedded into a preprinted CCM internal transfer suggests order set. Six weeks following implementation, all adult patients who underwent internal transfer from CCM at KGH were included in the study. Physician completion of MRIT and adherence to the process measures were determined.

Results: Of 88 patients (73% male, mean age 60), those admitted to CCM on a weeknight were more likely to have MedRec completed by a pharmacist at admission and by a physician upon transfer. CCM admission BPMH/MedRecs completed by physicians were a significant positive predictor for completion of MRIT from CCM (rate 85.2%, p=0.002). The presence of a Drug Profile Viewer report trended in increasing likelihood for MRIT completion.

Conclusion: A formalized process for MRIT from CCM can be successfully carried out by KGH physicians. Compliance to key processes demonstrated that only BMPH/MedRecs completed by physicians at CCM admission positively influenced the completion of MRIT. Consideration should be given to further study the accuracy of physician and pharmacist BPMH/MedRecs, patient prioritization criteria, and patient outcomes (e.g. adverse events, length of stay, morbidity, and mortality).

Non-pharmacological Outpatient Interventions for Benzodiazepine Discontinuation in Elderly Persons: A Systematic Review

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Background: Benzodiazepine use is associated with adverse effects in the elderly such that discontinuation is recommended. Different withdrawal strategies have been published with no clear consensus on the most effective intervention.

Objective: To compare success rates of non-pharmacological benzodiazepine withdrawal interventions in elderly outpatients.

Methods: PubMed, Embase, CINAHL and IPA were searched from inception to July 2013 with search terms 'benzodiazepine', 'dependence', 'discontinuation', 'strategy', 'elderly', 'outpatient', and combinations thereof. Bibliographies of eligible papers were hand-searched. Inclusion criteria were defined as prospective clinical trials using outpatient participants with a mean age of at least 60 years. Studies that were non-English, non-comparative, used medication-based withdrawal interventions, or did not report outcomes were excluded. Benzodiazepine cessation rates were derived using an intention-to-treat analysis.

Results: Of 1444 abstracts reviewed, 12 articles reporting outcomes from nine studies (N=5558) met eligibility criteria. Interventions included: minimal interventions (MI; letter or brief consultation explaining self-help strategies to reduce benzodiazepine use), dose tapering schedules (DT; reductions of 10-25% every 1–2 weeks), and psychological interventions (group cognitive behavioural therapy (CBT) for insomnia or withdrawal symptoms). Five studies (n=5098) showed that long-term (6, 12 and 21-month) benzodiazepine cessation rates were higher with MI (10-35%) than under routine care (RC; 0-10%). One study (n=139) showed that MI plus DT (45%) was also more successful than RC (9%) at 12 months. Two studies (n=141) found that CBT plus DT (59-66%) was more successful than either DT (23-52%) or CBT (33%) alone at 12 months; however, one study (n=180) reported lower success for CBT plus DT (27%) compared to DT alone (34%), but greater success than RC (15%) at 15 months.

Conclusions: MI, DT and CBT, individually or in combination, are more successful than RC in withdrawing benzodiazepines among elderly outpatients. Combination strategies involving DT appear to have the highest success rates.

A Randomized Controlled Trial of Costs Associated with Anemia Therapy in Hemodialysis Patients Treated with Intravenous Darbepoetin alfa versus Intravenous Epoetin alfa

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Background: Two erythropoiesis stimulating agents (ESAs) are currently available in Canada, epoetin alfa(EPO) and darbepoetin alfa(DA). These are considered equally effective in achieving target hemoglobin in anemia of Chronic Kidney Disease but it is not clear if there is a cost difference.

Objective: To determine if a cost difference exists between intravenous (IV) DA and EPO in a hemodialysis population.

Methods: An open label randomized controlled trial of intravenous DA versus EPO was conducted in 50 hemodialysis patients. A dose stabilization run-in phase was followed by a 12 month active phase. ESAs and iron were dosed using an algorithm to maintain hemoglobin (Hb) within 100-120g/L. The primary outcome was ESA cost per patient over 12 months. Secondary outcomes included deviation from target ranges in anemia indices, iron dose and cost, time and number of dose changes required for dose stabilization, number of dose changes in the active phase and the dose conversion ratio.

Results: The median cost over 12 months was $4179(IQR $2416-5955) for EPO and $2303(IQR $1178-4219) for DA with a difference of $1876 (p=0.017). The median weekly iron dose was 40.4mg for EPO and 41.7mg for DA (p=0.992). There were no significant differences in Hb: 108.0g/L EPO and 109.8g/L DA (p=0.336); serum ferritin: 848µg/L EPO and 726µg/L DA (p=0.202); TSAT: 26.7% EPO and

28.6% DA (p=0.472).The number of dose changes and the time to hemoglobin stability were similar for both groups. The dose conversion ratio was 280:1 (95% CI 197-362:1) at the end of the run-in phase, 360:1 (95% CI 262-457:1) at the 3 month point of the active phase and 382:1 (95% CI 235-529:1) at the 6 month point of the active phase.

Conclusion: In this study of hemodialysis patients with comparable anemia management IV darbepoetin cost $1876 less per year per patient than IV epoetin.

Evaluation of a Pharmacist Managed Anemia Protocol in a Canadian Hemodialysis Centre

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Targeting Excellence in Pharmacy Practice

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Background: Despite numerous published clinical guidelines to direct the use of Erythropoiesis Stimulating Agents (ESAs) and iron in hemodialysis patients, anemia management is often less than optimal. Anemia management protocols have been found to provide significant clinical and economic benefits. A pharmacist-managed protocol has been in place at this hemodialysis centre since 2005. The current protocol was developed in 2009 using the Canadian Society of Nephrology guidelines.

Objectives: As a quality measure and in an effort to validate the protocol, a comparison was undertaken between the anemia management targets and the intravenous epoetin alfa doses in this hemodialysis centre and another centre in the same health region without an anemia protocol.

Methods: Anemia management data is collected each month and means are determined for hemoglobin (Hb), weekly intravenous epoetin alfa dose, transferrin saturation (TSAT) and ferritin. From January to December 2010, data was compiled for both centres and means were compared using the independent samples t-test. Mean weekly epoetin costs were calculated and compared.

Results: There was no significant difference in Hb or the percentage of values in the target Hb range of 100-120g/L. There were significant differences in the percentage of values in the two centres with TSAT (30.8% vs 15.6%) and ferritin (25.2% vs 10.8%) below target. The mean weekly epoetin alfa dose per patient was 10 267 units in the comparator centre and 7715 units in the centre with the anemia protocol ($p<0.05$). This dose difference translates into a cost difference of $36.26 per patient per week or $1885.52 per patient annually.

Conclusion: This data suggests that the pharmacist-managed anemia protocol currently used in this hemodialysis centre provides comparable or better clinical target achievement with significant economic benefit when compared to a similar centre without a protocol.

Evaluation of a Process to Promote Rational Use of Dexmedetomidine in Intensive Care Units

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Background: Evidence suggests that while there may be minor benefits of using dexmedetomidine compared to other sedatives in the intensive care unit (ICU), the cost of dexmedetomidine is significantly higher. This agent is non-formulary in Alberta Health Services (AHS), however, requests for use in ICU lead to AHS Pharmacy Services implementing an authorization process for the rational use of dexmedetomidine in adult ICUs.

Description: To be authorized to use dexmedetomidine, prescribers had to complete a therapy request form with specific patient inclusion and exclusion criteria. The form was then submitted to pharmacy with the patient order for dexmedetomidine. For those who received dexmedetomidine, an audit checklist was to be completed to record patient outcomes. Completed forms were submitted to AHS Drug Utilization and Evaluation for analysis.

Action: The development of the criteria for use of dexmedetomidine and audit form was a joint effort between critical care practitioners and Pharmacy Services. After form development, the process was implemented from November 1, 2012 to April 30, 2013. Communication of the process and AHS-approved criteria for dexmedetomidine use was completed with information letters circulated via email and through pharmacy to critical care practitioners, and webinar sessions held for pharmacists.

Evaluation: A total of 37 adult ICU patients had dexmedetomidine therapy requests submitted to pharmacy. Among these, 10 patients (27%) did not meet inclusion criteria but still received dexmedetomidine. Also, audit forms were often incomplete, particularly relating to omitted delirium scores (a primary criterion for dexmedetomidine eligibility) pre- (n = 16; 43.2%) and post-dexmedetomidine (n = 21; 56.8%).

Implication: Although clear criteria were provided, 27% of patients in our study population received dexmedetomidine without meeting these criteria, and many did not have complete information on delirium. It does not appear that having a request form with strict inclusion/exclusion criteria limits the use of dexmedetomidine.

Assessment of Current Antimicrobial Stewardship Policies and Resources: A Qualitative Focus Group Approach

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Background: Antimicrobial stewardship (AS) processes have not been evaluated within Pharmacy Services, Alberta Health Services (AHS). A focus group approach was used to engage frontline pharmacy staff and leadership in a qualitative assessment of their perspectives on AS resources and related formulary policies.

Objectives: The objectives of this study were to identify AS processes currently in use in AHS, and to evaluate stakeholder perceptions of the effectiveness of current formulary policies and resources.

Methods: A semi-structured cross-sectional interview process was led by AHS drug stewardship pharmacists. Focus groups included Pharmacy Services employees from AHS and Covenant Health (CH). Transcripts of each session were created by a professional transcriptionist, and were then reviewed by investigators. Consensus was reached on themes and topics that were identified utilizing conventional and deductive analytic approaches. Codes were recorded for prevalence and total number of mentions.

Results: Ten percent of Pharmacy Services staff participated in the focus groups at 24 sites in the province. Eight main themes were identified by conventional and deductive approaches: antimicrobial resources, influences on antimicrobial utilization, barriers to AS, establishing AS teams, education needs, improving communications, antimicrobial utilization concerns, and enablers for improvement. Two hundred and six topics were identified to support the major themes, with 1966 data points. Prominent topics included ubiquitous awareness of the Bugs & Drugs reference (24/24 sites; 100% prevalence), prescriber preferences influencing prescribing of antimicrobials (16/24 sites; 67 % prevalence), and desire to improve interprofessional teamwork, communication and educational opportunities (14/24 sites; 58% prevalence).

Conclusions: This study provides information regarding AS and formulary policy perceptions of Pharmacy Services staff within AHS and CH. Themes and topics will be considered when designing and implementing future AS programs.