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Spinal Cord Injury

Poster Number: 1

Title: Exploring the quality of spinal cord injury rehabilitation care through indicator implementation in a resource-constrained environment

Authors (Primary First): Matheus Wiest, Mohammad Alavinia, Farnoosh Farahani, Heather Flett, Sander Hitzig, Mark Bayley, Cathy Craven

Affiliation of Primary Author: Toronto Rehabilitation Institute - UHN

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: The SCI-High project aims to develop and implement quality indicators for 11 domains of spinal cord injury (SCI) rehabilitation care. Herein, we describe the SCI-High project processes and the plans for provincial indicator implementation.

Relevance: Currently, performance of SCI rehabilitation care is limited, except for length of stay and changes in Functional Independence Measure from admission. Quality indicators can inform how well the health system is performing, and evaluate the adequacy of structures and processes of care, and related patient outcomes.

Methods & Analysis: Priority domains of SCI rehabilitation care were ranked for relevance and feasibility by clinicians, researchers, consumers and stakeholders (external advisory committee) using a modified Hanlon method. National domain-specific working groups developed construct definitions and developed/selected one structure, process and outcome indicator. Following indicator identification, the external advisory committee, hospital administrators, non-governmental organizations, and Accreditation Canada rated the importance and urgency of implementation for each domain to guide the order of domain deployment.

Study Sample or Initiative Scope: Canadian SCI rehabilitation centres (n=15), project collaborators (n=50) and the external advisory committee (n=31).

Findings: Bladder Continence; Cardiovascular Health; Community Participation and Employment; Emotional Well-being; Reaching, Grasping and Manipulation; Self-Management; Sexual Health; Skin Integrity; Urinary Tract Health; Walking; and Wheeled Mobility domains were selected and 33 indicators specified for implementation. Urinary Tract Health, Skin Integrity, Emotional Well-being, and Sexual Health were ranked as priorities for implementation in Ontario.

Discussion: Our results align with consumer priorities and hospital fiscal pressures for preventing hospital-acquired conditions. Stakeholder adherence to indicator implementation and reporting is anticipated based on the ecological validity of the planned changes in practice. Also, this is the first attempt to track patients rehab quality as they transition to community.

Conclusions: The SCI-High indicators will provide a snapshot of the anticipated scope of rehabilitation care in Ontario. Successful project implementation has the potential to enhance recovery, health and well-being of individuals living with an SCI.

Spinal Cord Injury

Poster Number: 2

Title: Addressing the Elephant in the Room: Integrating Sexual Health Practice in Spinal Cord Injury (SCI) Rehabilitation

Authors (Primary First): Anna Kras-Dupuis, Calogero (Charlie) Giurleo

Affiliation of Primary Author: St. Joseph's Health Care London Parkwood Institute Main

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: Many people with SCI have questions about their sexuality that are often not addressed in rehabilitation. Increasing clinicians' knowledge and confidence is necessary to provide patients with education and support for their sexual health.

Relevance: Sexual health, a basic human right, may be disrupted after SCI. An interdisciplinary team at Parkwood Institute identified sexual health as a significant gap in clinical practice. As well, 90% of patients surveyed were unaware of resources and their sexual health concerns were not addressed during rehabilitation.

Methods & Analysis: In 2017-18, a team of clinicians, researchers and persons with lived experience followed a systematic process and Implementation Science principles (Fixsen et al., 2005) to fully develop the new sexual health practice. The PLISSITT model (Annon, 1974) and Sexual Rehabilitation Framework (Elliott et al., 2017) were incorporated into the new practice. Initially clinicians reported rarely addressing sexuality. A comprehensive education plan included awareness sessions and a 2-day interactive workshop. As a result, clinicians reported increased knowledge and self-efficacy in addressing patients' sexual health concerns.

Study Sample or Initiative Scope: Adult SCI inpatients on the 15-bed Regional Rehabilitation unit and SCI outpatients have been the recipients of the new sexual health practice.

Findings: Since the launch of the new sexual health practice in June 2018, patients and caregivers have been encouraged to bring forward questions and concerns about sexual health early in their inpatient stay. Multi-faceted education on a variety of topics has been offered. A resource area on the SCI unit has been created for patients and caregivers. The 6-month evaluation cycle, focused on process and outcome indicators, is near completion.

Discussion: Increased clinicians' knowledge and confidence has facilitated normalization of sexual health concerns and questions, thereby addressing the "elephant in the room". A fulsome evaluation will inform any potential improvements, with an ultimate goal of sustainable and consistent practice for all SCI patients. This practice can then be scaled to other patient populations.

Conclusions: Embedding this practice facilitates reintegration of sexual health into the daily lives of SCI patients and supports a more comprehensive and holistic rehabilitation. A systematic process for practice implementation, a sound evaluation plan, and a participatory approach, have been the key factors for sustainability.

Spinal Cord Injury

Poster Number: 4

Title: Half a million dollars in lifetime home care savings with improvements in upper limb function for individuals with SCI

Authors (Primary First): Brian Chan, Jose Zariffa, Sukhvinder Kalsi-Ryan, Catharine Craven

Affiliation of Primary Author: Toronto Rehabilitation Institute - UHN

Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: To determine the incremental cost savings for nursing and attendant care services resulting from improvements in shoulder and hand function for individuals with spinal cord injury (SCI).

Relevance: The study results will estimate the economic impact of shoulder and hand rehabilitation improvements. This will be valuable for researchers and policy-makers to understand the potential economic impact of new rehabilitation technologies that improvement upper limb function.

Methods & Analysis: The recommended levels of nursing and attendant care for different levels of shoulder and hand function for individuals with SCI was obtained by a guidance document developed by the iCARE program of New South Wales Australia. Total amount of nursing and attendant care were converted to costs using the average wage of nursing and personal support workers from the Ontario Nurses Association and the Visiting Homemakers Association collective bargaining agreements (fiscal year 2017/2018). Incremental costs were calculated by subtracting the difference between the different levels of shoulder and hand function.

Study Sample or Initiative Scope: Individuals with cervical SCI and varying degrees of shoulder and hand impairment.

Findings: Improvements in shoulder function from none to good resulted in a decrease in costs ranging from \$138 per week for a non-walker to \$460 per week for a household walker. Improvements of some to full hand function would results in a cost reduction of between \$31 per week to \$238 per week for a non-walker. Improvements in hand function from none to some would reduce costs ranging from \$375 for a household walker to \$623 for a non-walker.

Discussion: Assuming motor function remains stable, improvements in shoulder function can result in a decrease in nursing and attendant care of approximately \$24,000 per year, or \$432,000 over their lifetime. Improvements in an individual's hand function can reduce the cost of nursing and attendant care by upwards of \$32,000 per year, or \$576,000 over their lifetime.

Conclusions: Improvements in hand and shoulder function can substantially reduce the cost of nursing and attendant care for individuals with traumatic SCI.

Spinal Cord Injury

Poster Number: 5

Title: Spinal cord injury and medication management: a descriptive qualitative study exploring the experiences of community-dwelling adults in Ontario

Authors (Primary First): Lauren Cadel, Sander Hitzig, Tanya Packer, Aisha Lofters, Tejal Patel, Alison Thompson, Sara Guilcher

Affiliation of Primary Author: University of Toronto

Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: The research question leading this study was: what are the medication-taking experiences of community-dwelling adults with spinal cord injury (SCI) in Ontario?

Relevance: Persons with SCI can experience a high prevalence of secondary complications, which are often treated with multiple medications (polypharmacy). Polypharmacy has been linked to negative health outcomes, highlighting the importance of optimal medication management. However, there is a lack of research on patient experiences.

Methods & Analysis: For inclusion, participants were required to meet the following criteria: adults (18+ years of age); at least one year post-injury; reside in Ontario; English speaking and cognitively able to give consent. Participants were recruited through local organizations and purposeful snowball sampling. In-depth semi-structured interviews were conducted over the telephone with 19 participants. The interviews were conducted until thematic saturation was reached. Each interview was audio-recorded, transcribed verbatim and analyzed using inductive thematic analysis.

Study Sample or Initiative Scope: Of the 19 participants, 11 were male and 8 were female, with an age range from 36 to 76 years (median= 57); 14 participants had TSCI and 5 had NTSCI.

Findings: The participants described the different supports they access that allow them to take their medications as prescribed. Most participants had positive relationships with their healthcare providers which contributed to their ability to manage their medications. The three main themes that were identified are: (1) disruptive nature of medications; (2) fear of change; and (3) self-management: playing a role in medication management.

Discussion: This study identified that there is a need for proactive discussions between the patient, caregiver and clinician that focus on the patients' goals, expectations, navigating the healthcare system, medication safety and alternatives to medications. There is also a need for peer support and mentorship programs to incorporate all components of medication management.

Conclusions: Medication management is complex and multi-faceted. In order for medication management to be optimized, there are a number of factors that need to be taken into consideration to improve the quality of care and quality of life among persons with SCI.

Spinal Cord Injury

Poster Number: 6

Title: Spinal cord injury and polypharmacy: a scoping review

Authors (Primary First): Lauren Cadel, Amanda Everall, Sander Hitzig, Tanya Packer, Aisha Lofters, Tejal Patel, Sara Guilcher

Affiliation of Primary Author: University of Toronto

Abstract Category: Systematic Literature Review

Abstract

Purpose: The main research question guiding this scoping review was: What is reported in the literature about polypharmacy among individuals with spinal cord injury?

Relevance: Due to the high prevalence of secondary complications among persons with SCI, many are on multiple medications (polypharmacy), which can lead to negative outcomes. Despite the high prevalence of polypharmacy and its negative implications in other populations, there is a lack of research on polypharmacy in persons with SCI.

Methods & Analysis: This review was conducted based on the methodological framework for conducting scoping reviews outlined by Levac and colleagues. Literature was searched using five electronic databases between January 1990 and July 2018. The following keywords were searched: spinal cord injuries, multiple medications, polypharmacy. The initial search identified 1,459 articles and 1,098 remained after deduplication. Following the title and abstract screen of these articles, 81 full-texts were reviewed, 63 were excluded, and 18 met all of the eligibility criteria to be included in this scoping review.

Study Sample or Initiative Scope: Studies were required to involve persons with SCI prescribed or on multiple medications, be peer-reviewed and published from Jan 1990 to July 2018.

Findings: This scoping review analyzed what is reported in the literature about polypharmacy and SCI and found a small number of studies that focus on polypharmacy post-SCI. Less than half of the included studies defined polypharmacy and of those, there were differing thresholds and types of medications included in the definitions. There were several factors and negative outcomes related to polypharmacy.

Discussion: Based on the findings of this review, future research is needed to: develop a standardized definition of polypharmacy, further examine factors and clinical outcomes related to polypharmacy, and explore the knowledge, attitudes, beliefs and experiences of persons with SCI pertaining to polypharmacy.

Conclusions: This review identified a lack of research on polypharmacy post-SCI, highlighting a need for future research. By focusing future research in the suggested areas, improvements can be made in understanding factors and outcomes related to polypharmacy and patient perspectives of their experiences being on multiple medications.

Spinal Cord Injury

Poster Number: 7

Title: Risk factors for dysphagia after a spinal cord injury: a systematic review and meta-analysis

Authors (Primary First): Jerome Iruthayarajah, Amanda McIntyre, Magdalena Mirkowski, Penny Welch-West, Eldon Loh, Robert Teasell

Affiliation of Primary Author: Parkwood Institute Research, Lawson Health Research Institute

Abstract Category: Systematic Literature Review

Abstract

Purpose: Dysphagia is an under diagnosed complication of spinal cord injuries (SCI) that is clinically demanding to recognize and treat. Dysphagia can lead to nutritional and pulmonary issues including aspiration, pneumonia and malnutrition.

Relevance: There have been no research syntheses examining this topic in SCI. Our study aimed to fill this important gap by specifically identifying risk factors for dysphagia in SCI. Awareness of risk factors for the development of dysphagia in SCI can assist in preventing or reducing negative outcomes related to swallowing.

Methods & Analysis: A comprehensive literature search was performed in five scientific databases for English articles that identified risk factors for dysphagia after a SCI in adult (≥ 19 years) individuals. Data extracted included: study design, method of dysphagia diagnosis, and risk factor percentages. For identified risk factors, risk percentages were transformed into risk ratios (RR) with 95% confidence intervals. Quantitative synthesis was performed for risk factors reported in two or more studies using restricted maximum-likelihood estimator random effects models.

Study Sample or Initiative Scope: Eleven studies met inclusion criteria of which ten studies were of moderate quality. The total pooled sample size was

1227 participants.

Findings: Significant risk factors included: age, injury severity, level of injury, presence of tracheostomy, coughing, voice quality, bronchoscopy need, pneumonia, mechanical ventilation, nasogastric tubes, comorbid injury, and a cervical surgery. In the quantitative synthesis: the presence of a tracheostomy posed a threefold greater risk of the development of dysphagia (RR:3.67); while, cervical surgery posed a 1.3 times greater risk (RR:1.30).

Discussion: The findings of this study have important clinical implications in assisting treatment planning for the medical management of SCI, early identification of at risk individuals, and in supporting the role speech language pathologists play in early screening and management of dysphagia in SCI.

Conclusions: Eleven significant risk factors were identified. It is important for clinicians to be aware of these risk factors when

screening SCI patients for dysphagia in all settings to promote optimal care.

Brain Injury / Neuro / Stroke

Poster Number: 8

Title: An evaluation of the predictive potential of the Alpha Functional Independence Measure (AlphaFIM) towards inpatient rehabilitation outcomes.

Authors (Primary First): Jerome Iruthayarajah, Shannon Janzen, Amanda McIntyre, Robert Teasell

Affiliation of Primary Author: Parkwood Institute Research, Lawson Health Research Institute

Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: Current length of stay in Ontario ranges from 7.7 to 48.9 days for those who are eligible for inpatient rehabilitation, and continues to be reduced to allow for more patient turnover.

Relevance: When triaging patients for entry to stroke inpatient rehabilitation, guidelines recommend using AlphaFIM scores (a measure taken in acute care) to determine patient eligibility. Therefore, the AlphaFIM is thought to be a 'common language' between acute and inpatient rehabilitation clinicians during the triage.

Methods & Analysis: To determine the predictive value of the Alpha FIM on inpatient rehabilitation functional outcomes to better prioritize patient length of stay during inpatient rehabilitation. Linear regression models were calculated between AlphaFIM scores and inpatient rehabilitation outcomes (admission and discharge Functional Independence Measure (FIM), FIM gain, length of stay (LOS) and FIM efficiency (FIM gain divided by LOS); each model was adjusted for age, gender and time post stroke.

Study Sample or Initiative Scope: 216 stroke inpatients admitted between 2014 and 2016 to a rehabilitation facility in Southwestern Ontario. Mean age=71.0 years.

Findings: The results of the regression revealed AlphaFIM scores to be a significant predictor of Admission FIM ($\beta=0.760$, p

Discussion: The results of the study suggest the utility of the AlphaFIM in predicting functional outcomes during rehabilitation, such knowledge could prove beneficial in triaging patients from acute care and referring them for the most optimal services at rehabilitation facilities earlier on, and making the continuum of care more seamless

Conclusions: The AlphaFIM has utility in predicting inpatient rehabilitation outcomes in stroke survivors. Knowledge of a patient's AlphaFIM score should be considered during the triage process from acute care to rehabilitation in determining ideal patient LOS and expected functional progress.

Brain Injury / Neuro / Stroke

Poster Number: 9

Title: Rehabilitating Neurological Dysphagia Using Evidence-Based Therapy Approaches - A Case Study

Authors (Primary First): Pamela Rahn, Darien Heathcote

Affiliation of Primary Author: Trillium Health Partners

Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: A combination of three therapeutic exercises (expiratory muscle strength training, chin tuck against resistance, Mendelsohn Maneuver) was used to improve hyolaryngeal excursion and laryngeal vestibule closure, resulting in improved swallow function

Relevance: Currently, swallowing rehabilitation is not always based on impairments observed on the individual patient's VFSS. By following an individualized treatment protocol and conducting pre-and post-treatment instrumental assessments, we hope to be able to inform therapeutic choices in swallowing rehabilitation.

Methods & Analysis: A 80 year-old male with neurological swallowing impairment of unknown etiology presented to the outpatient swallow service at Trillium Health Partners. A videofluoroscopic swallow study (VFSS) revealed a significantly impaired oropharyngeal swallow with reduced pharyngeal contraction and epiglottic deflection, as well as diffuse pharyngeal residue post-swallow. A five-week individualized exercise program was developed based on impairments seen on VFSS. A follow-up VFSS was conducted two months after initiation of the exercise program.

Study Sample or Initiative Scope: Current results are limited to an individual case study, but we are hoping to be able to include two further clients whose treatment is in progress.

Findings: Based on impairments observed VFSS, an exercise program was developed including expiratory muscle strength training (EMST), chin tuck against resistance (CTAR), and the Mendelsohn Maneuver. The client received weekly follow-ups during the exercise period. Post-therapy VFSS revealed improved epiglottic deflection and pharyngeal contraction resulting in less pharyngeal residue and improved airway protection.

Discussion: Instrumental evaluations are an important tool in planning rehabilitative exercises for dysphagia, yet they are not readily available to patients that are not currently hospitalized. Using evidence-based therapy approaches shown to improve the same deficits observed on a client's VFSS can result in functional improvement in a client's swallow several months post onset.

Conclusions: Availability of instrumental swallow assessment to outpatients is very beneficial in that it allows the development of individualized, evidence based therapeutic exercise. Dysphagia intervention should include remediative approaches when possible as they can result in functional improvement for clients.

Brain Injury / Neuro / Stroke

Poster Number: 10

Title: Streamlining Transition from Rehabilitation Hospital Back to the Home Community for Stroke Patients

Authors (Primary First): Rezvan Boostani, Mahsa Karimi

Affiliation of Primary Author: OCAD University

Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: The problem we are addressing is the complexity in transition from rehabilitation to community. Factors that can lead to a poor transition include but are not limited to push for discharge, lack of arranged follow-ups, lack of home assessments.

Relevance: Streamlined transition services can support individuals to better manage their recovery. Follow-up services can increase understanding of stroke and its impact for stroke patients and their caregivers. This can support stroke patients to gain confidence in managing their recovery and further improve their outcome.

Methods & Analysis: To address the complexities within transition, we focused on design thinking approach using the principle of human-centered design. A multidisciplinary group of stakeholders have been involved in various stage of the research to better understand the transition issues. Participants engaged in the study include stroke patient-caregiver dyad, healthcare providers, administrators and volunteers. We conducted mix-methods study to explore the area. Methods are as follows: Literature Scan; Observation of Clinical Rounds; Observation of Stroke Unit; Informal Chats; Interviews; Co-design sessions; Feedback session.

Study Sample or Initiative Scope: Interviews: 5 participants; Co-design: 16 participants; Validation Session: 4 participants.

Findings: The stroke patients, their caregiver, and care providers, experience frustrations and challenges in coordinating, defining and delivering the most optimal support and care for the patient after being discharged from rehabilitation. Our designed intervention introduces a service that works to alleviate these frustrations and fosters a smoother, more supportive care service in the process of transitioning from rehabilitation back to the community.

Discussion: The application areas include health service design to facilitate transition from rehabilitation hospital to home, system thinking in public health for people with complex care needs to promote well-being, patient-caregiver dyad education.

Conclusions: There are stressors on the overall healthcare system, healthcare providers, patient-caregiver dyad in the process of transition. The designed intervention alleviates the strains on patient-caregiver dyad and healthcare providers by setting up a service to streamline transition from the moment a patient is admitted to rehab.

Brain Injury / Neuro / Stroke

Poster Number: 14

Title: Post-Recovery Cognitive Decline in Adults with Traumatic Brain Injury

Authors (Primary First): Alana Changoor, Brenda Colella, Marika Dabek, Robin Green

Affiliation of Primary Author: Toronto Rehabilitation Institute - UHN

Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: In Canada, traumatic brain injury (TBI) is the leading cause of disability for individuals under the age of 40. A critical clinical question about TBI concerns behavioral recovery: how fast, and to what degree does recovery occur?

Relevance: An understanding of recovery post-TBI is complicated by the considerable heterogeneity that exists between patients, their injuries and their impairments. This study provides a characterization of variable recovery trajectories in a typical TBI sample, with implications for prognostication, and treatment planning.

Methods & Analysis: To replicate and extend previous findings of post-recovery cognitive decline, a larger and non-overlapping sample of patients with moderate-severe TBI were recruited from an in-patient rehabilitation program. Neuropsychological tests were administered 2, 5, 12 and 24 months post injury. The Reliable Change Index (RCI), which discerns clinically significant changes on a per-patient basis, was used to analyze recovery trajectories, and examine cognitive domains at particular risk for decline. The 2008 and current samples were collapsed to perform a logistic regression to identify predictors of post-recovery decline.

Study Sample or Initiative Scope: The study sample included n=48 patients with moderate-severe TBI, with a high ratio of male:females, and most injuries sustained by traffic accident.

Findings: Despite most patients experiencing significant recovery in the acute phases of recovery (2-5 months post injury), an increasing rate of cognitive decline was observed in the long term. 33% of patients experienced significant cognitive decline in the post-recovery period of 12-24 months post injury. Verbal recall was the most vulnerable cognitive domain, and injury severity was a significant predictor of long-term decline.

Discussion: Post rehab, clinical planning for TBI presumes maintenance of cognitive gains already achieved. Yet, our results indicate treatment plans should consider risk of post-recovery decline. Research into prevention of decline is critical, and these findings will inform our ongoing development of novel therapies for the chronic phases of recovery.

Conclusions: Consistent with our previous findings, cognitive deterioration may follow an initial period of recovery after TBI. The patterns of decline vary across individuals, but is predicted by injury severity. Novel therapies which mitigate post-recovery decline are needed, with particular attention to verbal learning and memory.

Brain Injury / Neuro / Stroke

Poster Number: 15

Title: Evaluation of a Novel Hand Training Device and Program

Authors (Primary First): Bronte Vollebregt, Daniel Vasiliu, Andrea Pepe, Anshul Jain, Kirsti JE Reinikka, Jane Lawrence-Dewar, Vineet BK Johnson

Affiliation of Primary Author: Lakehead University

Abstract Category: Ideas, Inventions and Innovations that will Transform the Rehabilitation Mosaic

Abstract

Purpose: Brain injury can compromise hand function. Selected grasp functions were trained targeting proprioception, using a novel, low cost, passive rehabilitation device. Changes in performance of muscle and hand function tests were used to evaluate impact.

Relevance: Hand rehabilitation strategies generally involve expensive, complex interventions requiring supervision by trained clinician; often lacking in portability and accessibility. This inexpensive solution positively impacted on hand function, facilitating independent living and enhanced quality of life.

Methods & Analysis: Participants attended 18 one-hour sessions over six weeks. Training characteristics were randomly altered during training. Proprioceptive feedback was stimulated by blocking visual feedback. Hand function was evaluated pre/post-training using CAHAI-9, ABILHAND and Box&Block tests; differences were estimated via a Wilcoxon Signed Rank Test ($\alpha=0.05$). EMG data was collected from eight muscles for three resistance-controlled grasping tasks, isometrically, for 30 seconds. Differences between pre- and post-training assessments were determined using mixed-groups factorial ANOVA using the LSD procedure ($\alpha=0.05$).

Study Sample or Initiative Scope: Eight participants (five males) who sustained a single stroke event, with no other neuromuscular or musculo-skeletal problems impeding hand function.

Findings: CAHAI-9 ($t_7=-3.37$, $p=0.004$) and ABILHAND scores ($t_8=-2.49$, $p=0.02$) improved, BBT scores did not. A main effect was observed for both muscle ($F_7=48.345$, p

Discussion: The data indicated that there were increases in both objective and subjective measures, thereby validating device efficacy. Although these results cannot be broadly generalized without further investigation, findings support the potential of this cost-effective intervention to improve hand function after stroke.

Conclusions: Targeted training using a novel passive rehabilitation device appears to positively impact muscles that control hand function and improve quality of life. The pilot study results are promising; however, generalization of these results requires further testing on a larger participant sample.

Brain Injury / Neuro / Stroke

Poster Number: 16

Title: The importance of self-reported outcomes and continued quality improvement: Aphasia and Communication Disabilities Program - A Program Evaluation

Authors (Primary First): Gemma Woticky, Kate Wheelan, Elizabeth Faraone

Affiliation of Primary Author: March of Dimes Canada

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: There is a need for evaluation and continued quality improvement in care for community based interventions, such as the Aphasia and Communication Disabilities Program, which serves over 250 people who live with aphasia and communication disability.

Relevance: Currently there are 165,761 people in Canada living with aphasia today. The Aphasia and Communication Disabilities Program (ACDP) is a therapeutic and social group program for adults offered by March of Dimes Canada. A comprehensive program evaluation was undertaken from August 2017- May 2018.

Methods & Analysis: Five domains were evaluated; clinical evidence, program cost, functional improvement and well-being of patients, expectations and needs of patients/families and current staff/volunteer perspectives on program functions. A comprehensive literature review and two communicatively accessible questionnaires were developed based on the Life Participation Approach to Aphasia (LPAA)/Aphasia Framework for Outcomes Measurements (A-FORM) and the RYFF Scales of Psychological Well-Being. In addition, four focus groups and an online questionnaire were used to assess all four populations (patients, caregivers, volunteers and staff).

Study Sample or Initiative Scope: People with Aphasia interviewed: 67; Caregivers interviewed: 89; Female to male ratio: 2:3; Average age: 67.9 years; Average time in program: 2.48 years.

Findings: Consumers self-reported improvement in all four LPAA domains - language and related impairments (84%), personal identity/attitude/feelings (80%), communication and language environment (74%) and participation in life situations (70%). Areas for continued quality improvement were as follows- administrative support, physical exercise, caregiver support, tools for staff and opportunities for peer support.

Discussion: This evaluation allowed us to delve deeper into the literature and develop an open dialog with program participants, volunteers and staff. There 12 recommendations that are influencing strategic planning in the program and across the department. This report demonstrates the impact and positive outcomes of community programming for people with aphasia and their caregivers.

Conclusions: Understanding self-reported outcomes and consistently targeting quality improvement are essential in community interventions - particularly ones with challenging populations that are under-researched.

Brain Injury / Neuro / Stroke

Poster Number: 17

Title: Predicting Agitation in People Living with Dementia

Authors (Primary First): Sofija Spasojevic, Shehroz Khan, Alex Mihailidis

Affiliation of Primary Author: Toronto Rehabilitation Institute - UHN

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: People living with dementia (PLWD) exhibit various behavioral experiences; agitation being the most common. We hypothesize that combining the physiological and sensor data will result in effective machine learning models for prediction of agitation.

Relevance: Our study addresses the Dementia Research Priority Area of "Health System Capacity". The outcomes of this study will ensure the well-being of PLWD. At the same time, the system will reduce staff workload by decreasing the frequency of agitation assessments in PLWD and consequently, the staff will have more time to do care.

Methods & Analysis: We propose a novel multi-modal sensor framework that uses video cameras, wearable device, motion and door sensors, and pressure mats to collect various types of data for detection and prediction of agitation in PLWD. For this abstract, we only consider the motion and physiological data collected by the wearable (Empatica E4) device. Different sensors in the E4 wearable device samples data at different sampling frequency. Therefore, all sensor signals were sampled to the same (maximum) sampling rate. Then, we extract signal-specific time and frequency domain features and build classification models.

Study Sample or Initiative Scope: We have collected data from 10 PLWD during 184 days with around 191 agitation incidents. This is equivalent to around one agitation per person per day.

Findings: The wearable device captures the following data: accelerometer (ACC), blood volume pulse (BVP), electrodermal activity (EDA), and skin temperature (TEMP). The results show the feasibility of multi-modal sensor in comparison to single sensor. Our findings indicate that ACC and BVP are more important for detecting agitation. Personalized predictive models may be more accurate than generic models that trains on data from all the participants.

Discussion: The technology developed in this study for agitation prediction in PLWD will help address the issue of inadequate staffing resources in long term care facilities. The predictive system also has the potential to be deployed to the home of PLWD, institutions and hospitals, which could reduce the manpower and time needed in observer-based assessment of agitation.

Conclusions: We presented results of a real-world study that suggest the feasibility of multi-modal sensors for detecting agitation in PLWD. These results will be improved as follows: (1) adding data for more patients and from other sensors and (2) testing semi-supervised learning, one-class classification and deep learning methods.

Brain Injury / Neuro / Stroke

Poster Number: 18

Title: Remote Delivery of Neurorehabilitation to Patients with Acquired Brain Injury: Feasibility and Lessons Learned from a Newly Established Telerehabilitation Centre

Authors (Primary First): Mary Boulos, Brenda Colella, Liesel-Ann Meusel, Mark Bayley, Joanne Zee, Lesley Ruttan, Lily Miguel-Jaimes, Marika Dabek, Robin Green

Affiliation of Primary Author: Toronto Rehabilitation Institute; Rehabilitation Sciences Institute, University of Toronto

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: Our lab established an acquired brain injury (ABI) clinical-research centre. The purpose of this pilot project was to evaluate the feasibility of remotely delivering group cognitive and psychological therapies to ABI patients across the province.

Relevance: In Canada, ABI is the leading cause of persisting disability. Previous research shows deterioration of cognition, mood, and brain structures over time. However, long-term access to TBI support is limited, especially for those in remote areas and/or with mobility issues. Ongoing, accessible neurorehabilitation is needed.

Methods & Analysis: Inclusion criteria consists of: prior history of ABI; no current cognitive/psychological therapies; basic computer literacy; English fluency; no active psychosis or aphasia. Therapies are delivered in group format via secure videoconferencing. Based on their needs and deficits, patients receive any/all of the following therapies adapted for ABI: cognitive behavioural therapy (CBT), goal management training (GMT), mindfulness-based meditation and relaxation (MMR). To assess feasibility, we examined recruitment, retention, and adherence; participants were surveyed about their therapy and technology satisfaction.

Study Sample or Initiative Scope: Over a one year period, 152 patients living with the enduring effects of ABI have been referred to the program.

Findings: Seventy six patients were screened, 55 completed the intake assessment, and 44 began therapy. Seventeen groups were completed: four CBT (N=19), six GMT (N=30), and seven MMR (N=27). Adherence and retention were high across all groups. Over 850 clinical visits have been completed. Therapies were reported to be relevant, adequate in information density, and easy to follow. At times, technical difficulties disrupted the therapy sessions.

Discussion: Remotely delivered group therapy for ABI demonstrated high feasibility. Patients anecdotally remarked on benefits of group component of therapy, and requested further opportunities for social interaction, underscoring the value of group (vs. one-to-one). Added technical support and improved telecommunication software would improve the therapy experience.

Conclusions: Remotely delivered group therapy is a feasible treatment option for patients with ABI. Through adoption of remote therapy delivery, clinicians can improve the accessibility and scalability of ongoing rehabilitation. Moreover, group therapy confers social benefits to patients while reducing costs for healthcare systems.

Brain Injury / Neuro / Stroke

Poster Number: 19

Title: Moving towards more engaged stakeholders within a centralized platform

Authors (Primary First): Chad Larabie, Judy Gargaro, Peter Athanasopoulos, Ruth Wilcock

Affiliation of Primary Author: Ontario Neurotrauma Foundation

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: To establish a Provincial Advisory Network to unify the voice of persons who live with persistent symptoms after concussion and to use this as a foundation to expand to all persons across the continuum living with acquired brain injury.

Relevance: Roughly 157,000 Ontarians are diagnosed annually with concussion with about 31,440 going on to have persistent symptoms, negatively affecting quality of life and increasing burden on the healthcare system. There is not a provincial platform to unify the voice of persons living with persistent symptoms of concussion.

Methods & Analysis: Brain injury service providers across the province were consulted to identify regional coordinators who were interested in actively growing a network of concussion stakeholders within their LHIN. The regional coordinators report to a central manager, via committee meetings & telecommunication, to discuss concerns regarding issues and recruitment of stakeholders. The central manager further consults with an expert advisory panel, with experience developing networks, to discuss issues surrounding capacity, resources and engagement, and provides ongoing support back to the regional coordinators.

Study Sample or Initiative Scope: To gather concussion stakeholders living in the community with persistent symptoms from each LHIN to build a Provincial Advisory Network.

Findings: Action plans derived from committee meetings include gathering 15 stakeholders within each LHIN to join the Provincial Advisory Network. Issues raised to the expert advisory panel include topics such as rate of development and sustainability. The network has over 150 engaged stakeholders across 9 LHINs and is projected to grow to over 800 stakeholders and a regional coordinator in each LHIN within one year.

Discussion: The Provincial Advisory Network supports the development of an articulated provincial action plan to amplify the voice of people living with persistent symptoms of concussion on issues such as not receiving evidence-based resources at diagnosis. Stakeholder recruitment is progressing well. The community is passionate about representing issues that are not being addressed.

Conclusions: The Provincial Advisory Network is fully functional and growing. It fills a void that currently exists for persons living with persistent symptoms after concussion. The Network will be a foundation to expand and include stakeholders across acquired brain injury. Action plan messages for government are being collated.

Brain Injury / Neuro / Stroke

Poster Number: 20

Title: Psychosocial factors and long-term outcomes in mild traumatic brain injury (mTBI): The role of anxiety sensitivity

Authors (Primary First): Sarah Caughlin, Mitchell Longval, Sebastiano Failla, Magdalena Mirkowski, Amanda McIntyre, Swati Mehta, Keith Sequeira, Eldon Loh, Robert Teasell

Affiliation of Primary Author: Parkwood Institute, Lawson Health Research Institute

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: To examine the association between anxiety sensitivity (AS), a maladaptive personality trait, and post-injury adjustment after mild traumatic brain injury (mTBI) in an outpatient TBI clinic.

Relevance: Non-injury factors such as demographics and psychosocial status have been reported to be consistent predictors of adjustment and the chronicity of symptoms in mTBI. Psychosocial traits, such as anxiety sensitivity, influence coping styles and, in turn, predict adjustment and well-being outcomes.

Methods & Analysis: AS was measured using the Anxiety Sensitivity Index (ASI), which measures total AS and includes three subscales to measure physical, mental, and social anxiety. A questionnaire booklet containing the ASI and outcome measures related to adjustment (recovery, coping, and quality of life) was given to patients attending an outpatient TBI clinic in London, ON. Linear regression models adjusted for age and gender were used to examine the relationship between AS and all outcome measures.

Study Sample or Initiative Scope: Adult (≥ 18 years) patients ($n = 60$) attending an outpatient TBI clinic at Parkwood Institute who had a concussion at least 3 months prior.

Findings: A significant positive association was found between total ASI scores and: subjective pain ratings ($\beta = 0.461, p = 0.006$), anxiety ($\beta = 0.69, p < 0.001$), depression ($\beta = 0.54, p < 0.001$), stress ($\beta = 0.61, p < 0.001$), use of negative coping strategies, and neurotic personality traits ($\beta = 0.653, p < 0.001$). Mental and social anxieties were found to play a larger role in these negative outcomes than physical anxieties.

Discussion: Identifying and characterizing subgroups of individuals that may be at high risk of long-term disability due to their personality traits would help clinicians at TBI outpatient clinics determine which patients may require more individualized treatment, such as cognitive behavioural therapy, allowing them to act proactively to minimize long-term negative outcomes.

Conclusions: AS was found to be strongly associated with psychological distress, subjective health and pain ratings, and maladaptive personality traits. These results suggest that AS is strongly associated with adjustment post mTBI and could serve as a predictive tool for long-term outcomes in outpatient TBI clinics.

Brain Injury / Neuro / Stroke

Poster Number: 21

Title: Psychosocial factors and long-term outcomes in mild traumatic brain injury (mTBI): The role of experiential avoidance

Authors (Primary First): Sarah Caughlin, Mitchell Longval, Sebastiano Failla, Magdalena Mirkowski, Amanda McIntyre, Swati Mehta, Keith Sequeira, Eldon Loh, Robert Teasell

Affiliation of Primary Author: Parkwood Institute, Lawson Health Research Institute

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: To examine the association between experiential avoidance (EA), a maladaptive personality trait, and post-injury adjustment following mild traumatic brain injury (mTBI) in an outpatient TBI clinic.

Relevance: EA has been shown to play an important role in mediating anxiety, stress, and coping in several psychological disorders as well as in patient populations with chronic illnesses such as cancer. However, there is currently a lack of evidence with regards to the role of EA in mTBI.

Methods & Analysis: EA was measured using the Acceptance and Avoidance Questionnaire 2 (AAQ-II). A questionnaire booklet containing the AAQ-II and outcome measures related to adjustment (recovery, coping, and quality of life) was given to patients attending an outpatient TBI clinic in London, ON. Linear regression models adjusted for age and gender were used to examine the relationship between EA and all outcome measures.

Study Sample or Initiative Scope: Adult (≥ 18 years) patients ($n = 60$) attending an outpatient TBI clinic at Parkwood Institute who had a concussion at least 3 months prior.

Findings: EA was significantly associated with anxiety ($\beta = 0.79$, $p < 0.001$), depression ($\beta = 0.697$, $p < 0.001$), stress ($\beta = 0.77$, $p < 0.001$), and the use of negative coping strategies. High EA scores were also predictive of higher maladaptive perfectionism ($\beta = 0.62$, $p < 0.001$), anxiety sensitivity ($\beta = 0.81$, $p < 0.001$), lower self-esteem ($\beta = 0.77$, $p < 0.001$), increased pessimism ($\beta = 0.63$, $p < 0.001$), and a neurotic personality type ($\beta = 0.72$, $p < 0.001$).

Discussion: High levels of EA contribute to negative outcomes in many chronic conditions. Identifying maladaptive personality traits, such as EA, early during treatment could help clinicians at TBI outpatient clinics act proactively and provide individualized interventions, such as cognitive behavioural therapy, to minimize long-term negative outcomes.

Conclusions: EA was found to be associated with other maladaptive traits, pain and health ratings, and was predictive of increased psychological distress. These results suggest that EA may be an important contributor to adjustment post mTBI and useful in identifying patients at risk of long-term negative outcomes.

Brain Injury / Neuro / Stroke

Poster Number: 22

Title: The Canadian Occupational Performance Measure (COPM): Exploring local implementation of a system-driven initiative

Authors (Primary First): Katherine Dittmann, Anne Hackland, Elizabeth Linkewich, Sara McEwen, Sander Hitzig

Affiliation of Primary Author: St. John's Rehab

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: This quality improvement initiative describes challenges with the adoption and implementation of the Canadian Occupational Performance Measure (COPM) in a stroke outpatient setting. Recommendations for interprofessional modifications are provided.

Relevance: The COPM includes the patient voice in care planning and was used to enhance client-centred practice (CCP) in a Toronto Stroke Networks' integrated care initiative. However, it is not being used consistently. Perspectives from those using the tool will help understand local issues and inform recommendations for future use.

Methods & Analysis: Four activities were undertaken to identify challenges as well as potential solutions: 1) COPM scores, and reasons it is not being used, were collected by local administration; 2) surveys assessing COPM use and perceived utility were administered to the outpatient rehabilitation clinical team working with stroke outpatients; 3) direct feedback from the clinical team was obtained; and; 4) a concurrent trial using the COPM within the interprofessional team was undertaken.

Study Sample or Initiative Scope: Allied health professionals working with stroke patients at a Toronto rehabilitation hospital, in outpatient service.

Findings: Clinicians reported not using the COPM if it was not mandatory; if patient's language, communication, emotions or cognition made it challenging; or if the client declined. Initial results identified that clinicians were concerned that the tool limits the ability to identify more than five occupational performance issues (OPIs), frustrates patients, is not interprofessional, and duplicates CCPs already in place.

Discussion: The COPM is currently being implemented as a tool to enhance CCPs across Toronto, although local implementation has struggled. Results from this quality improvement initiative suggest that strategies to reduce redundancies, to use the tool collaboratively, and to increase the number of OPIs identified has the potential to inform recommendations to improve local use.

Conclusions: Implementation of the COPM was met with challenges that impacted its effectiveness for improving CCPs locally. Obtaining the perspectives of front line staff provides valuable local insight to inform recommendations for future use.

Brain Injury / Neuro / Stroke

Poster Number: 23

Title: Effectiveness of High-Intensity Interval Training for Fitness and Mobility Post Stroke: A Systematic Review and Meta-Analysis

Authors (Primary First): Joshua Wiener, Amanda McIntyre, Scott Janssen, Jeffrey Chow, Cristina Batey, Robert Teasell

Affiliation of Primary Author: University of Western Ontario

Abstract Category: Systematic Literature Review

Abstract

Purpose: To evaluate the evidence on the effectiveness of high-intensity interval training (HIIT) in improving fitness and mobility post stroke.

Relevance: There is a growing initiative to improve cardiorespiratory fitness in individuals post stroke. Among healthy individuals, HIIT has demonstrated greater effectiveness in improving aerobic capacity and superiority in time efficiency when compared to moderate-intensity continuous exercise (MICE).

Methods & Analysis: A literature search was conducted in five electronic databases (MEDLINE, EMBASE, CINAHL, PsycINFO, Scopus) for articles published in English up to January 2018. Studies were included if the sample was adult human participants with stroke, the sample size was ≥ 3 , and participants received >1 session of HIIT. Study and subject characteristics, treatment protocols, and results were extracted. Mean difference (MD) \pm standard error and 95% confidence interval (CI) were provided. Statistical significance was defined as p

Study Sample or Initiative Scope: A total of six studies met inclusion criteria: three RCTs and three pre-post studies.

Findings: HIIT produced significant improvements in peak oxygen consumption compared to baseline, but not when compared to MICE. HIIT produced significant improvements in walking endurance and balance when compared to baseline, but not when compared to MICE. Meta-analysis of gait speed demonstrated a statistically significant effect of HIIT compared to MICE (MD=0.127 \pm 0.051, 95% CI: 0.027-0.228, $p=.01$).

Discussion: HIIT protocols are advantageous in that they can be adapted to best suit the needs and capabilities of the individual; the modality, interval type, intensity, frequency, and duration can all be modified. The personalization of HIIT has the potential to improve enjoyment of, and thus adherence to, exercise.

Conclusions: There is preliminary evidence that HIIT may be an effective rehabilitation intervention for improving some aspects of cardiorespiratory fitness and mobility post stroke. In particular, HIIT demonstrated an improvement in gait speed that was both statistically and clinically significant.

Brain Injury / Neuro / Stroke

Poster Number: 24

Title: Opioids and Cerebral Physiology in the Acute Management of Traumatic Brain Injury: A Systematic Review

Authors (Primary First): Joshua Wiener, Amanda McIntyre, Shannon Janzen, Magdalena Mirkowski, Heather MacKenzie, Robert Teasell

Affiliation of Primary Author: University of Western Ontario

Abstract Category: Systematic Literature Review

Abstract

Purpose: To conduct a systematic review of the evidence on the effect of opioids on cerebral physiology in traumatic brain injury (TBI) during acute care.

Relevance: After TBI, optimization of cerebral physiology is recommended to promote more favourable patient outcomes. Accompanying pain and agitation are commonly treated with sedative and analgesic agents, such as opioids. However, the impact of opioids on certain aspects of cerebral physiology is not well established.

Methods & Analysis: A literature search was conducted in five electronic databases for articles published in English up to November 2017. Studies were included if: (1) study sample was human subjects with TBI; (2) sample size was ≥ 3 ; (3) subjects were given an opioid during acute care; and (4) any measure of cerebral physiology was evaluated [intracranial pressure (ICP), cerebral perfusion pressure (CPP), mean arterial pressure (MAP)]. Randomized controlled trials were evaluated for methodological quality using the Physiotherapy Evidence Database tool. Levels of evidence were assigned using a modified Sackett scale.

Study Sample or Initiative Scope: In total, 22 studies met inclusion criteria, from which six different opioids were identified.

Findings: Evidence for individual opioids demonstrated equally either: (1) no effect on ICP, CPP, or MAP; or (2) an increase in ICP with associated decreases in CPP and MAP. Opioids administered by infusion resulted in the former outcome, whereas those given in bolus form resulted in the latter. There were no consistent results when comparing different opioids or when comparing opioids to other non-opioid medications.

Discussion: Studies have assessed the effect of opioids on cerebral physiology during the acute management of TBI, but there is considerable heterogeneity in study methodology and findings. Future studies should elucidate the effects of different opioids and varying dosages in order to develop improved understanding as well as allow for tighter control of cerebral physiology.

Conclusions: Opioids are beneficial in terms of analgesia and sedation, but bolus administration should be avoided to prevent additional or prolonged unfavourable alterations in cerebral physiology.

Brain Injury / Neuro / Stroke

Poster Number: 25

Title: Trial Registration and Sample Size Calculation for Randomized Controlled Trials in Motor-Based Stroke Rehabilitation

Authors (Primary First): Joshua Wiener, Jeffrey Chow, Alice Mary Iliescu, Andreea Cotoi, Robert Teasell

Affiliation of Primary Author: University of Western Ontario

Abstract Category: Systematic Literature Review

Abstract

Purpose: To examine the presence of trial registration and sample size calculations in randomized controlled trials (RCTs) evaluating motor-based interventions in stroke rehabilitation, and to determine their influence on study quality.

Relevance: Randomized controlled trials (RCTs) in particular produce high quality research evidence that plays a critical role in clinical decision-making within stroke rehabilitation. Therefore it is imperative that these RCTs are conducted and reported with high methodological quality.

Methods & Analysis: A literature search was conducted up to the end of 2016 for RCTs published in English that included an adult sample with >50% stroke and evaluated motor-based rehabilitation interventions. Descriptive statistics were used to illustrate changes in registration and sample size calculation over time. Linear regression and t-tests were conducted to analyze the correlation between study quality and registration or sample size calculation. Study quality was assessed using the Physiotherapy Evidence Database (PEDro) tool.

Study Sample or Initiative Scope: In total, 1286 RCTs were included. Rates of reporting trial registration and sample size calculation increased over time.

Findings: 18% of all RCTs reported registration in a clinical trials registry. RCTs not reporting registration had significantly lower PEDro scores (5.9 ± 1.4 versus 6.8 ± 1.1 ; p

Discussion: Trial registration aims to prevent publication and reporting bias by maintaining a public record of all conducted RCTs. Sample size calculations help ensure that a trial has enough participants to detect a statistically significant difference between groups. These strategies will help improve the overall strength of the evidence base in stroke rehabilitation research.

Conclusions: This study showed that reporting of registration and sample size calculation within motor-based stroke rehabilitation RCTs remains low, despite increasing over time, and that both criteria are associated with study quality.

Brain Injury / Neuro / Stroke

Poster Number: 26

Title: Comparing the Stroke and Acquired Brain Injury Rehabilitation Intervention Research

Authors (Primary First): Joshua Wiener, Jeffrey Chow, Shannon Janzen, Magdalena Mirkowski, Alice Mary Iliescu, Pavlina Faltynek, Robert Teasell

Affiliation of Primary Author: University of Western Ontario

Abstract Category: Systematic Literature Review

Abstract

Purpose: To systematically examine and compare the number, quality, and sample size of published randomized controlled trials (RCTs) in the stroke and acquired brain injury (ABI) rehabilitation research literature.

Relevance: Stroke and ABI rehabilitation research is often used interchangeably since both involve damaging insults to the brain. There is a need for knowledge regarding the comparison between stroke and ABI rehabilitation evidence to date, to determine the appropriateness of using one evidence base to fill gaps in the other.

Methods & Analysis: Based on the methodology for the Evidence-Based Review of Stroke Rehabilitation (EBRSR) and the Evidence-based Review of moderate to severe Acquired Brain Injury (ERABI), separate literature searches using multiple scientific databases were conducted to identify stroke and ABI rehabilitation RCTs, respectively, up to 2016. Studies investigating any rehabilitation intervention were included. Extracted data included year of publication, methodological quality (Physiotherapy Evidence Database (PEDro) score), and sample size.

Study Sample or Initiative Scope: Included studies had to have either $\geq 50\%$ stroke or moderate to severe ABI populations, adult (≥ 18 years) participants, and ≥ 3 participants.

Findings: RCTs were categorized by intervention or outcome of interest based on five broad categories. In total, stroke rehabilitation had almost 10fold the number of RCTs than that of ABI rehabilitation (1899 vs. 199). This was most evident for motor/sensory RCTs and models of care. Overall, stroke and ABI rehabilitation were largely characterized by smaller RCTs, and were equal in terms of mean PEDro quality rating scores.

Discussion: The focal nature of a stroke in contrast to the diffuse nature of ABI suggests that the generalizability of the evidence from one area to the other is limited. However, in areas where there are no or few RCTs in the ABI literature, the stroke evidence can suggest an evidence-based approach or an avenue for further research.

Conclusions: When examining RCTs alone, stroke evidence is much more extensive than ABI evidence in the rehabilitation research literature.

Brain Injury / Neuro / Stroke

Poster Number: 27

Title: Dysphagia Rehabilitation Intervention Strategies in Moderate-Severe Acquired Brain Injury: A Scoping Review

Authors (Primary First): Amanda McIntyre, Brooke Benton, Magdalena Mirkowski, Pavlina Faltynek, Robert Teasell

Affiliation of Primary Author: Lawson Health Research Institute

Abstract Category: Systematic Literature Review

Abstract

Purpose: To conduct a scoping review to answer the research question: What literature is available investigating dysphagia-specific interventions for moderate-severe non-stroke acquired brain injury (ABI)?

Relevance: While some literature reviews and syntheses of the evidence exist, they often report on mixed populations with little differentiation between studies in neurogenic etiology. Discourse on dysphagia interventions for individuals with non-stroke ABI is not well documented in the literature.

Methods & Analysis: A literature search was conducted using PubMed, MEDLINE, Embase, and CINAHL for studies published in English up to July 2018. Studies were included if: (1) a dysphagia rehabilitation intervention was provided to participants, (2) any of the participants had moderate to severe non-stroke ABI, and (3) there were $n \geq 1$ adult (≥ 18 years) participants. For studies meeting inclusion criteria, data on authors, year, country of publication, study design, sample size, demographic information, intervention type, comparators, and outcome measures were extracted.

Study Sample or Initiative Scope: The initial literature search resulted in a total of 1,218 publications, of which 16 studies met inclusion criteria for this scoping review.

Findings: Eight studies had 50% ABI, and five included an unspecified percentage of ABI. Nine different interventions were investigated for dysphagia rehabilitation, with electrical stimulation, individualized management programs, and diet manipulation being the most common interventions. Eleven unique outcome measures were used and evaluated various outcomes including swallowing function, nutritional status, and aspiration.

Discussion: There is a growth in the number of relevant studies within recent years, which suggests the increasing importance of evidence-based dysphagia rehabilitation for this clinical population. However, ABI literature related to dysphagia rehabilitation is limited, especially when compared to other neurological populations such as stroke.

Conclusions: The dysphagia rehabilitation literature for non-stroke ABI is limited, with a wide variability of intervention types, interventional study designs, study population injury etiology, and outcome assessments. There remains an important gap in the literature pertaining to dysphagia rehabilitation in non-stroke ABI populations.

Paediatrics

Poster Number: 28

Title: Nonpharmacological Rehabilitation Interventions for Motor and Cognitive Outcomes Following Paediatric Stroke: A Systemic Review

Authors (Primary First): Amanda McIntyre, Magdalena Mirkowski, Pavlina Faltynek, Nicholas Sequeira, Caitlyn Cassidy, Robert Teasell

Affiliation of Primary Author: Lawson Health Research Institute

Abstract Category: Systematic Literature Review

Abstract

Purpose: To evaluate the evidence for nonpharmacological rehabilitation interventions for motor and cognitive impairment following paediatric stroke.

Relevance: Although not as common as adult stroke, paediatric stroke is a significant cause of disability in children, often associated with long-term sequelae such as motor and cognitive deficits. There is a need to establish a knowledge base regarding available evidence-based therapies for this clinical population.

Methods & Analysis: A literature search for journal articles published from January 1, 1980 to December 8, 2017 was conducted using multiple scientific databases. Studies were included if motor or cognitive outcome measures were used to assess the effect of treatment. Extracted data included participant, study, and treatment characteristics, as well as outcome measures, assessment time points, and results. Methodological quality of randomized controlled trials (RCTs) was assessed using the Physiotherapy Evidence Database tool. Levels of evidence were assigned to each study to determine the strength of the evidence for each intervention.

Study Sample or Initiative Scope: The 18 included studies had a >50% paediatric (<18yrs) stroke population, explicit mention of stroke diagnoses, and ≥3 paediatric stroke participants.

Findings: Of the 18 studies, most examined rehabilitation of the upper limb, with constraint-induced movement therapy (CIMT) as the most common intervention. Overall, the evidence supports the use of CIMT, repetitive transcranial magnetic stimulation, functional electrical stimulation, and robotics, but suggests no beneficial effect of transcranial direct current stimulation. Few studies assessed interventions for the lower limb or cognitive impairment.

Discussion: Despite differing aetiologies and recovery patterns between paediatric and adult stroke, rehabilitation for children is largely guided by the adult stroke literature. Existing reviews and guidelines relevant to paediatric stroke often include mixed clinical populations. The current review offers both paediatric-specific and stroke-specific implications for rehabilitation.

Conclusions: Effective rehabilitation approaches are important for optimizing outcomes in children who have had a stroke. Although the number of published clinical trials has increased in recent years, little evidence-based guidance exists for this clinical population.

Paediatrics

Poster Number: 30

Title: Planning for the future: using industrial engineering methodology to predict future resource needs for rehabilitation pharmacists

Authors (Primary First): Amy Hu, Tammi Hawa, Darin Kutob, Nathan Ho, Mazen Almaoui, Michael Carter

Affiliation of Primary Author: Holland Bloorview Kids Rehabilitation Hospital

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: This study seeks to measure the current state of pharmacist workload, and explore the impact of client complexity trends on future resource needs.

Relevance: Demand for rehabilitation pharmacy services has increased significantly over the past few years. There is a need to better understand the impact of client complexity trends on future resource needs. This allows the department to proactively plan for clinical operations and maintain client-centred quality and safety.

Methods & Analysis: This study used tools from industrial engineering to predict workload. First, a quantitative workload analysis was conducted to determine the amount of pharmacist time spent on key client-dependent and client-independent activities. Next, historical client demographics data from the hospital was used to forecast the volume and type of clients in the future. Finally, a mathematical model was constructed to predict the number of pharmacist FTEs required to meet clinical demand in the future. The project followed IHI's quality improvement PDSA cycle.

Study Sample or Initiative Scope: The study captured 80% workload for all 4 pharmacists and 3 students on the team. The historical data included all hospital admissions from 2014-2017

Findings: Pharmacist workload data illustrated that pharmacy activities for medically complex clients can take up to 3 times longer than for typical clients. Historical demographics data showed an increasing trend for very young pediatric clients, who are often more medically complex. The mathematical model predicted that the number of FTEs required would increase incrementally with time as the complexity of the client increases.

Discussion: Study results suggest that there is a trend towards increasing client complexity at the rehabilitation hospital, which requires additional resources. This information may be used in future business cases to provide quantitative justification for additional funding for clinical staff in order to meet service demands.

Conclusions: This study proposes a methodology for quantifying and modeling clinical pharmacist workload and measuring trends in client complexity. The results of this model can be used to guide staffing decisions in the pharmacy to meet the needs of changing client populations and maintain quality and safety in medication management.

MSK

Poster Number: 31

Title: The Hip and Knee Integrated Care Collaborative (ICC) and Bundle Model: Seamlessly Caring for our Patients through Navigation, Integration, Communication and Standardization

Authors (Primary First): Linda Jussaume, Valeria Thompson, Michelle Lorello, Rashmitha Mohanarajah, Erin Landry

Affiliation of Primary Author: North York General Hospital

Abstract Category: Knowledge Transfer and Exchange Initiative

Abstract

Purpose: The Hip and Knee ICC and Bundle Initiative address the issues encountered by hip and knee joint replacement patients across the care continuum. It collapses the boundaries between health care sectors that often operate independently.

Relevance: The hospitals are now accountable to ensure clinical services are delivered and providers are compensated along the patient's entire journey, including post hospital care such as inpatient rehab, outpatient rehab and community home care. This ensures patients receive the appropriate care across multiple settings.

Methods & Analysis: Both initiatives were planned and developed in collaboration with the inter-professional team, the LHIN, CCO, rehab and homecare partners with a patient and family advisor. A project charter and formal structures were developed, along with patient education specific to the program and the implementation of the patient navigator role. Patient reported outcome measures were implemented which will help inform bundled care holders of patients' progress. With these quality of life measures, we can review and continue to improve on our services for our patient population.

Study Sample or Initiative Scope: The bundle initiative includes unilateral hip and knee patients that represent 1000 patients that fall within the QBP inclusion criteria.

Findings: Since 2013, our hospital has improved on all provincial quality indicator targets and decreased our costs. Now with the Hip and Knee Bundle, we continue to improve our care by collaborating with our rehabilitation partners. This collaboration is intended to encourage providers to work together to reduce duplication, improve transitions of care across providers and across sectors, and ultimately improve patient outcomes.

Discussion: Unilateral total knee replacement patients will receive their first outpatient rehabilitation assessment within 7 days post discharge and unilateral total hip replacement patients will be seen at 2- 4 weeks. Develop agreements and care pathways with rehab service and home care service providers. Creating new data capture processes to track patient's post-op journey.

Conclusions: The Hip and Knee Bundle is to provide excellent patient experiences and outcomes through seamless, integrated joint replacement, not just within the hospital but through the entire patient's journey from pre-operative to 90-120 days post discharge. It allows us to strive on improving value and experience for patients.

MSK

Poster Number: 32

Title: A continuing education workshop to educate rehabilitation and exercise professionals about osteoporosis management: reflecting on 9 years

Authors (Primary First): Judi Laprade, Caitlin McArthur

Affiliation of Primary Author: University of Toronto

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: The purpose of our continuing education program was to educate rehabilitation and exercise professionals about how to work safely and effectively with people with osteoporosis.

Relevance: People with osteoporosis are at an increased risk for falls and fractures, which can result in pain, disability, and death. Exercise, physical activity, and safe movements can be part of a fall and fracture prevention program for people with osteoporosis but can be risky if done improperly.

Methods & Analysis: Our workshop was developed in 2010 by an educational consultant who first conducted a needs survey to clients with osteoporosis and providers to determine scope of training and learning preferences. A scan of existing training and educational programs for osteoporosis was also undertaken to determine any gaps in existing educational opportunities. Finally, relevant research was synthesized and incorporated as best practices, wherever possible. All content was reviewed and given approval by the Scientific Advisory Council at Osteoporosis Canada in 2009.

Study Sample or Initiative Scope: 1450+ exercise specialists and rehabilitation professionals in Ontario have been trained. In 2017, 75 participants completed a post-workshop survey.

Findings: In 2017, 97.3% of participants reported the workshop met or exceeded their expectations. After the workshop, participants reported an average confidence level of 8.0/10.0 (where 10.0 is extremely confident and 0 is not confident at all) in assessing or screening clients with osteoporosis. Likewise, they reported an average confidence level of 8.5/10.0 in prescribing/adapting/teaching/progressing exercise to clients with osteoporosis.

Discussion: Our workshop has trained rehabilitation and exercise professionals across 7 Canadian provinces and 1 American state. It has been well received by participants and they feel very confident in assessing and screening, and prescribing exercise for clients with osteoporosis. They are now better prepared to help people with osteoporosis reduce their risk for fracture.

Conclusions: Our workshop provides exercise and rehabilitation professionals the confidence to work with people with osteoporosis in various settings (e.g., group exercise, personal training, physiotherapy). We continue to update the content of our workshop as new evidence emerges.

MSK

Poster Number: 33

Title: Healing, Pain and Function after Mid-Shaft Clavicular Fractures: A Systematic Review of Treatment with Immobilization and Rehabilitation

Authors (Primary First): Michael Catapano, David Hoppe, Patrick Henry, Diane Nam, Lawrence Robinson, David Wasserstein, Nikola Pupic

Affiliation of Primary Author: Orthopedic Rehabilitation Institute

Abstract Category: Systematic Literature Review

Abstract

Purpose: To systematically evaluate the scientific literature examining the efficacy of non-operative management for mid-shaft clavicular fractures, specifically looking at the effect of immobilization and/or functional rehabilitation.

Relevance: Although surgical management of mid-shaft clavicle fractures are increasingly common, the majority are still treated non-operatively. Non-operative treatment protocols vary significantly between practitioners without consensus on the use of immobilization and/or rehabilitation.

Methods & Analysis: MEDLINE, EMBASE and CINAHL were searched from database inception to June 1st, 2017 for articles addressing mid-shaft clavicular fractures. The search terms "clavicle" and "non-operative" or "conservative" were used. Systematic article screening and data abstraction was performed independently and in duplicate by two authors. Inclusion criteria included adult patients enrolled in a controlled study evaluating bony healing, pain and/or function-related improvements after a strict non-operative treatment plan for management of mid-shaft clavicle fractures.

Study Sample or Initiative Scope: Patients with mid-shaft clavicular fractures undergoing a non-operative rehabilitation protocol.

Findings: Studies without a strict immobilization period had a non-union rate of 5-24% and residual pain in 35-83% of patients compared to studies with a strict immobilization period with a non-union rate of 3-29% and residual pain in 14-49% of patients. Studies including functional rehabilitation protocol had Constant Scores of 87.8-96 and non-union rates of 12-25% compared to 81-85 and 3-29% in those without a rehabilitation protocol.

Discussion: No studies directly examine the effect of immobilization and functional rehabilitation on clinical outcomes for mid-shaft clavicular fractures. However, studies with rehabilitation protocols that progressed from immobilization to strengthening exercises demonstrated lower non-union rates, lower residual pain, and greater functional recovery.

Conclusions: We recommend an immobilization period of 3-weeks with a subsequent 3-weeks of gradual passive ROM and limited active ROM to the horizontal plane, culminating with full active ROM and strengthening protocol beginning at 6-weeks.

Complex Continuing Care

Poster Number: 34

Title: Inter-Organizational Transfer of Accountability: From Acute Care to Rehabilitation and Complex Continuing Care

Authors (Primary First): Sanja Milicic Iafate, Charissa Levy

Affiliation of Primary Author: GTA Rehab Network

Abstract Category: Ideas, Inventions and Innovations that will Transform the Rehabilitation Mosaic

Abstract

Purpose: This initiative sought to identify common issues in transferring patient care, defined as Transfer of Accountability (TOA), on discharge from acute care and admission to rehabilitation and/or complex continuing care (CCC) programs (Project Phase I).

Relevance: Despite improved referral pathways and online information systems, patient care transitions from acute care to rehabilitation/CCC continue to require interactive coordination. If coordination is not executed successfully, continuity of care and patient safety are compromised.

Methods & Analysis: Six rehab/CCC organizations in Ontario participated in tracking Transfer of Accountability (TOA) issues on admission to their programs for a period of two months. TOA issues were tracked by front-line staff and reported via a standardized form to an executive lead. Across the six participating organizations, ninety-four TOA issues were reported. Thematic analysis was applied to identify common themes and issues. This was the Phase I of the project.

Study Sample or Initiative Scope: Six rehabilitation/CCC organizations tracked data over the course of two months and reported ninety-four TOA issues in total.

Findings: 78% of TOA issues were related to transfer of information at referral or admission stage. Examples included: missing discharge summaries, missing or incorrect medical administration records, and patient presentation on admission not matching the needs outlined in the referral. 5% of TOA issues were caused by medical instability on first admission or readmission, while 7% included other causes (e.g., unsafe transportation).

Discussion: At a clinical level, TOA issues are often unreported, as interprofessional teams have developed temporary fixes and workarounds. Furthermore, online referral systems have not mitigated risks of TOA issues. These findings will be used to highlight the importance of TOA issues (Phase I) and applied in future work of developing an Inter-Organizational TOA Guideline (Phase II).

Conclusions: Despite improved referral pathways and online information systems, TOA between organizations remains a point of vulnerability for patient safety and continuity of care. A spotlight on TOA issues that are occurring between organizations is a call to action for a more integrated healthcare system.

Complex Continuing Care

Poster Number: 35

Title: Enhanced Oral Care Pilot Project in Complex Continuing Care

Authors (Primary First): Sandra Paravantes, Kate Tieng, Kelsey Bowers, Penney Deratnay, Angela Dowd

Affiliation of Primary Author: West Park Healthcare Centre

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: The purpose of this initiative was to determine if an enhanced oral care protocol, incorporating a suction toothbrush and supported by nursing staff education, improved the oral health of CCC patients.

Relevance: Good oral hygiene reduces oral bacteria and dental disease. Aspiration pneumonia (AP) has been associated with poor oral health in CCC patients. The cost of treating one case of AP is estimated \$11,292. The reduction of AP in this patient population would result in cost savings for the healthcare system.

Methods & Analysis: Ten CCC patients were selected to participate. Prior to initiating the new oral care protocol, patients were assessed using the Oral Health Assessment Tool (OHAT) and photographs of the patients mouths were taken. Nursing staff received training on an enhanced oral care regiment that included the use of a suction toothbrush. Nursing staff implemented the oral care protocol over 3 months. Post-trial OHAT assessments and photographs were completed. Nursing staff and patient family members completed an anonymous satisfaction survey to provide feedback about the enhanced oral care regiment.

Study Sample or Initiative Scope: Ten CCC patients on thickened fluids or NPO, with natural dentition and assessed as having poor oral health status by a dentist.

Findings: The new protocol improved patients' overall OHAT scores (Matched pair t-test 5.6 versus 2.9, $p < 0.01$, statistically significant). Over 75% of the staff and family reported that compared to a manual toothbrush, the suctioning toothbrush was safer, easier to use, increased efficiency in maintaining oral hygiene, and was suitable for patients with dysphagia. Preliminary results showed one patient had reduced acute care admissions related to AP.

Discussion: Results of this quality initiative indicate that enhanced oral hygiene, including a suction toothbrush and supported through staff education, improved the oral hygiene of patients and increased staff awareness of patients' oral care needs. Preliminary results suggest that this protocol may lead to a lower incidence of AP.

Conclusions: Implementing an enhanced oral care protocol for CCC patients improves oral health and may reduce the incidence of AP in this population. The reduction of AP will lead to fewer transfers to acute care and significant cost savings to the healthcare system overall.

Oncology

Poster Number: 36

Title: Trismus Management for Head and Neck Cancer Patients: Evaluation of a Speech-Language Pathology-led Trismus Group Intervention Class

Authors (Primary First): Andrea Gomes, Abiraa Karalasingam, Elana Aziza, Yumi Lee, Maurene McQuestion, Jolie Ringash

Affiliation of Primary Author: Princess Margaret Cancer Centre - UHN

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: To evaluate the acceptability of a trismus group intervention class for head and neck cancer patients facilitated by a Speech-Language Pathologist; and to understand the patients' experiences with trismus management.

Relevance: Currently, there are no evidence-based guidelines for treating trismus. The trismus group class was designed for head and neck cancer patients with, or at-risk for trismus, to educate, explain therapy options, and develop a home management program.

Methods & Analysis: A retrospective chart review of demographics/clinical background was performed for all patients referred to the class. To evaluate a patient's experience in the class, quantitative data from post-class evaluations was collected and analyzed using descriptive statistics; open-ended responses were analyzed thematically. Semi-structured interviews were conducted with a subset of attendees to understand how patients manage their trismus after attending the class. Interviews were transcribed and analyzed thematically.

Study Sample or Initiative Scope: Over 3 years, 137 patients were referred, 122 were cleared, 76 attended, 66 completed evaluations, and 8 were interviewed.

Findings: Referrals increased over time, suggesting an enhanced awareness of trismus and class acceptability; 50% of attendees reported a preference for trismus education and clinical support to be available before or during treatment. Therapy instructions and psychosocial support from SLP and peers were reported to be helpful. 2 themes emerged from patients' trismus management experience related to exercise adherence: 1) facilitators and 2) challenges.

Discussion: Since its implementation, demand for the trismus class has risen, suggesting enhanced awareness of trismus management and an unmet patient need. Patient feedback was positive. Revising class content and developing new methods of class outreach (e.g. e-learning) will ensure sustainable practice and continuous quality improvement.

Conclusions: The trismus class was developed and facilitated to support cancer survivors and caregivers through trismus management. Through clinical and peer support from attending the class, patients reported feeling motivated to work towards their mouth opening in the context of improving their daily activities.

Senior-Focused Care

Poster Number: 37

Title: Focal Spasticity Management in Long Term Care

Authors (Primary First): loveth Piedrahita, Kelly Wark

Affiliation of Primary Author: Lifemark

Abstract Category: Ideas, Inventions and Innovations that will Transform the Rehabilitation Mosaic

Abstract

Purpose: Is Onabotulinum toxin (BOTOX) beneficial to residents suffering from effects of spasticity in long term care? We will explain the benefits, process and role of the interdisciplinary team involved in spasticity management in long term care.

Relevance: Onabotulinum toxin improves the quality of life of the residents reducing the use of psychotropic and analgesic medications, improving responsive behaviors and functionality in ADLs. Treatment leads to a more productive use of staff resources and it is reflective in MDS funding outcomes for long term care facilities.

Methods & Analysis: Prior to the program starting, education is provided to health care professionals with regards to spasticity management and the effective and safe use of Onabotulinum toxin. The next steps include the assessment of residents with spasticity by a neurologist, physician, physiotherapist and nursing at the long term care facility. The outcome of the assessment will determine what kind of treatment the resident will most benefit from. If Onabotulinum toxin is initiated, there is ongoing monitoring of the efficacy including outcome measures, medication and behavioral assessments in regards to responsive behaviors.

Study Sample or Initiative Scope: Residents of a LTC affected by spasticity. We will explain the interference to ADLs and QOL, the burden on health care team and management approaches.

Findings: This presentation will focus on the collaborative approach to treatment including the resident, physicians, nursing and physiotherapy. There will be some clinical scenarios where the benefits of Onabotulinum toxin injections are well appreciated and it is reflected in MDS funding outcomes for long term care facilities. We will present pictures of residents showing the efficacy of the treatment.

Discussion: Practical implications involve improving quality of life for the residents in LTC which will decrease caregiver burden and direct time of care, promote more productive use of staff resources and increase MDS funding outcomes for long term care facilities.

Conclusions: When Onabotulinum toxin is part of a facility's overall spasticity management program, residents benefit from reduced muscle tone, reduced pain, improved functionality (ADLs), muscular flexibility, gait, wheelchair positioning as well as reducing responsive behaviors, improving their QOL

Burn

Poster Number: 38

Title: The Impact of Introducing a Physical Medicine and Rehabilitation Trauma Consultation Service to an Academic Burn Center

Authors (Primary First): Lawrence Robinson, Matthew Godleski, Sarah Rehou, Marc Jeschke

Affiliation of Primary Author: Sunnybrook/St. John's Rehab

Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: Prior retrospective studies suggest that physical medicine and rehabilitation (PM&R) consultation improves outcome and reduces acute care length of stay (LOS) in trauma patients. Our goal is to evaluate this impact in burn patients.

Relevance: There is growing evidence that rehabilitation after severe burns plays an important role in recovery. Starting rehabilitation early after hospitalization may minimize the deleterious effects of immobility and facilitate restoration of function. Having a burn physiatrist across the continuum of care may improve efficiency.

Methods & Analysis: This study compared outcomes before and after the introduction of a PM&R consultation service to the acute burn program, and the inpatient rehabilitation program, at a large academic hospital. The primary outcomes measure were LOS in acute care and during inpatient rehabilitation

Study Sample or Initiative Scope: Acute care:194 patients in pre-PM&R group,114 who received PM&R consult. Rehab phase:109 patients in pre-PM&R group,104 who received PM&R care.

Findings: In acute care, there was no difference in age, Baux Score, or LOS in these patients. In rehab, the LOS was significantly shorter in the group with burn physiatrist (24 days vs. 30 days, $p=0.002$). FIM change and discharge destination were not affected.

Discussion: The addition of a burn physiatrist did not influence acute care LOS. But there was a marked reduction in inpatient rehabilitation LOS. This could be related to burn expertise that allows faster progression of rehab.

Conclusions: Adding an academic burn physiatrist to acute care does not change LOS, but it does make inpatient rehab more efficient. This study does not evaluate patient, family or staff satisfaction, which may also be improved.

Other

Poster Number: 39

Title: Implementation of a psychiatry consult liaison (PCL) model for inpatient rehabilitation.

Authors (Primary First): Lawrence Robinson, Matthew Boyle, Rosalie Steinberg, Marie Disotto-Monastero

Affiliation of Primary Author: Sunnybrook/St. John's Rehab

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: The purpose of this study was to assess which diagnostic groups at a rehabilitation setting most frequently used PCL services.

Relevance: Patients with new disabilities frequently experience mental health needs. We recently introduced a PCL service to our 178 -bed rehabilitation inpatient setting.

Methods & Analysis: We measured the number of patients in each diagnostic group who received inpatient PCL services.

Study Sample or Initiative Scope: There were 3652 discharges during the 18-month period of record.

Findings: There were 519 patients seen during the study period. The diagnostic groups with the largest numbers were: stroke(145), MSK(77), complex care(70) trauma(68), and amputees(58). The diagnoses with largest percentage receiving PCL services were: amputee(41%), burns(31%), stroke(28%), trauma(20%), oncology(20%). Commonly disorders were: adjustment, anxiety, depression, delirium/dementia, and substance use.

Discussion: Rehabilitation inpatients have frequent mental health needs. Groups commonly accessing services include: amputee, burns, stroke and trauma.

Conclusions: A PCL model can be effectively used to address mental health needs for rehabilitation inpatients.

Other

Poster Number: 40

Title: What is the demand and unmet need for outpatient rehabilitation?

Authors (Primary First): Sharon Ocampo-Chan, Charissa Levy, Marie Di Sotto-Monastero, Michael Gekas

Affiliation of Primary Author: GTA Rehab Network

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: The goal of the initiative is to explore unmet needs of clients referred to hospital-based outpatient rehab programs based on a data audit from participating programs.

Relevance: Since 2014-15, information on the total joint replacement, hip fracture and stroke patients accessing outpatient rehab are available. However, little is known about access trends and unmet needs in outpatient rehab programs across other populations. Initiative findings will inform capacity planning for outpatient rehab.

Methods & Analysis: Hospital-based outpatient rehab programs from one Local Health Integration Network (LHIN) were engaged to participate in collecting information on referrals received in one reporting period. These referrals were monitored for two to five months until the data submission deadline. Referral information collected includes volume of referrals received, accepted, denied, admitted and cancelled by client group. The primary reasons for declining and cancelling referrals were also documented.

Study Sample or Initiative Scope: Over 3,000 referrals received across all client groups were reported by five participating organizations in one reporting period.

Findings: Out of the 3,143 referrals received, 9% of the referrals were declined by outpatient rehab programs. Further details on client groups declined and top declined reasons, types of outpatient rehab programs that have longer admission wait times and cancelled referrals will be presented.

Discussion: Findings in this initiative draw attention to the unmet needs of a region from the perspective of declined referrals and long admission wait times. This initiative also highlights the importance of having a standardized set of performance measures and data reporting system to better understand the unmet needs of clients referred for outpatient rehab.

Conclusions: This initiative presents the current state of access issues in outpatient rehab to inform future service delivery and capacity planning and to identify system improvement opportunities for health system planners.

Other

Poster Number: 41

Title: Care transitions: Experience of rehab care providers in home and community care

Authors (Primary First): Sharon Ocampo-Chan, Charissa Levy

Affiliation of Primary Author: GTA Rehab Network

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: The purpose of the initiative is to integrate key issues in care transition experienced by rehab care providers in home and community care to develop a transfer of accountability guideline.

Relevance: Transfer of accountability is the interactive process of transferring client information and follow up care to ensure continuity and client safety. Leading practices in inter-organization and cross-sectoral transfer of accountability have not yet been well established.

Methods & Analysis: A survey was developed and disseminated to identify experiences of rehab care providers in home and community care when they receive hospital referrals. Questions in the survey included if gaps in information received exist and the magnitude of this issue, types of referrals and transition points where gaps are mostly identified and quality improvement recommendations by rehab care providers. Findings will be analyzed and integrated to develop a transfer of accountability guideline.

Study Sample or Initiative Scope: One hundred thirty-eight rehab care providers providing services to home and community care across five LHINs responded to the survey.

Findings: Approximately 60% of respondents identified experiencing gaps in information received that impacted their ability to provide safe client care in the community. Majority of referrals with gaps in information were mostly from acute care inpatient and emergency programs, from the same LHIN and did not have a hospital rehab care provider involved. Further details of findings will be presented.

Discussion: The survey findings will inform specific practice areas for improvement that need to be considered in the development of the transfer of accountability guideline. Strategies to address these issues will also be integrated in the guideline.

Conclusions: Findings based on experiences of rehab care providers in home and community care will be used to identify care transition issues to develop a transfer of accountability guideline and potential improvement opportunities.

Other

Poster Number: 42

Title: Embedding the patient voice in care delivery through a Patient and Family Advisory Council.

Authors (Primary First): Adam Saporta, Susan Schneider

Affiliation of Primary Author: Sunnybrook Health Sciences Centre, St. John's Rehab

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: Our Patient and Family Advisory Council (PFAC) was developed to embed the patient voice into operations and research. We hypothesize that this Council will assist in enhancing our patient experience and fulfill our Quality and Strategic Plan mandate.

Relevance: As PFACs from other organizations have been effective in improving clinical outcomes and the patient experience, our Council will provide a forum to ensure that advisors have input into how care delivery will directly impact their recovery. These forums will also drive research focused on the patient experience.

Methods & Analysis: Terms of references from other PFACs within our organization were reviewed. Resources from Health Quality Ontario and the Institute for Patient and Family Centered Care were appraised. Engagement of staff during various forums assisted in recruiting patient and family members. Interested members completed an application and were interviewed to ensure their goals and experiences were aligned with the objectives of our PFAC.

Study Sample or Initiative Scope: The Council is composed of patients and families who have received care or been involved in our program and our staff.

Findings: The Council has identified three quality improvement (QI) projects that directly impact the experience at within our program. These include parking services at the site, recreational activities and the transition process from rehabilitation to home. Working groups from within the PFAC have been formed to address these QI initiatives. These topic areas are also aligned with our program's Canadian Patient Engagement Survey (CPES) results.

Discussion: As the PFAC is still in its early stages, we hypothesize that the actionable areas identified by the Council will improve our CPES scores, patient experience and clinical outcomes in all rehabilitation programs offered at our site. As well, they may inform large scale changes that can be extended to the organizational level beyond our program and research as well.

Conclusions: When patients & families inform and provide input into clinical and support services, improvements in clinical outcomes and patient experience are evident. Collaboration between patients and their interprofessional care providers in our program in formalized settings optimize their transition from rehabilitation to home.

Other

Poster Number: 43

Title: The Development of Education for Registered Practical Nurses in a Rehabilitation Program to Gain Competence in the Care & Maintenance of Peripheral IVs and Peripherally Inserted Central Catheters

Authors (Primary First): Elizabeth Williamson, Susan Schneider

Affiliation of Primary Author: St. John's Rehab - Sunnybrook Health Sciences Centre

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: Prior to this initiative, only Registered Nurses (RNs) administered IV medications and provided the care of and maintenance for peripheral IVs and peripherally inserted central catheters (PICCs) in our rehabilitation program.

Relevance: It is within the scope of practice for Registered Practical Nurses (RPNs) to provide care related to IV therapy. This was an opportunity for us to align our practice with other settings. This initiative allowed many RPNs to learn new skills and others to practice previously learned skills.

Methods & Analysis: The Advanced Practice Nurses (APNs) designed and delivered education which consisted of theory, care and maintenance of IVs, IV pump programming, and hands-on skills practice. Prior to the development of the education, a survey was sent to the RPNs to assist the APNs understand their experience with IVs, potential learning needs, and interest in learning these skills. Each RPN attended a 7.5 hour group education day. Knowledge comprehension was assessed by a written quiz; a minimum score of 80% was required. The APNs also provided post-education support on the units and in a Skills Lab setting.

Study Sample or Initiative Scope: There are approximately 70 RPNs in our setting, with varying levels of education (certificate or diploma prepared) and varying experience with IVs.

Findings: Each RPN successfully completed their education day and the majority of these RPNs have had the opportunity to incorporate these skills into their practice. The feedback from the education day and post-education support on the units has been positive. This experience has also provided mentoring opportunities for some of our RNs and RPNs who had previous experience with IV therapy.

Discussion: Although many of our RPNs have had the opportunity to practice skills related to IVs, one limitation is the frequency in which they are able to practice these skills. There are occurrences when there are a small number of patients requiring IV therapy within our program. There is the opportunity to consider various methods to maintain this competency with our nurses.

Conclusions: Our aim is for this initiative to support continuity in quality patient care. Other benefits may be linked to recruitment and retention of RPNs in our program, and improved staff satisfaction related to the ability of our RPNs to practice skills within their scope of practice.

Other

Poster Number: 44

Title: Optimization of Rehab Services in an Acute Care hospital: Enhancing patient and staff experience and organizational outcomes through committed leadership and inter professional collaboration.

Authors (Primary First): Shelby Fisch, Amir Soheili, Raagula Sivayoganathan, Fazeela Jaffer

Affiliation of Primary Author: SE Health; Mackenzie Health

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: The main reason for this initiative was that the review and optimization of rehab services including staffing levels, processes, workflows and culture was clearly identified and supported by various stakeholders within the hospital as a priority.

Relevance: The relevance of this initiative is based on 4 main areas of interest: 1) Opening of a new hospital and operating as a two site model 2) Changing demographics and system pressures increasing demands for rehab services 3) Aligning with rehab best practices, QBPs and funding structures 4) Renewal of the rehab services contract

Methods & Analysis: This initiative can be broken into three main components. The first main component was an operational review of the current state and environmental scan. This included the engagement of over 100 internal and external stakeholders including patients, physicians, managers and frontline staff using surveys, interviews and observations. Second major component was an optimization event to understand future state opportunities and creation of the work plan that was needed to bridge the gap between current state and the future state. The third and final component was to implement, evaluate and sustain the new state.

Study Sample or Initiative Scope: Rehab Services covers 17 programs at the hospital with approx. 130 rehab staff across 7 days a week. Includes PTs, OTs, Therapy Assistants and KINs.

Findings: The operational review, environmental scan and optimization event led to 5 main areas of focus to improve, enhance and optimize rehab services within the hospital: staffing levels and scheduling across programs, role clarity and referral criteria to rehab services, discharge practices, governance and communication practices and streamlining of documentation. Through engagement of staff and management successful outcomes were achieved.

Discussion: The rehab services optimization initiative was critical in order to continue to make a positive impact and contribution to the performance and financial outcomes and experience of the patients, hospital and overall healthcare system. Key performance indicators include: patient/family and staff experience, adherence to QBPs and best practices, LOS, CMI, FIM efficiency.

Conclusions: Rehabilitation services play a key role in helping patients achieve wellness in their recovery. A high-functioning rehabilitation program helps to alleviate pressures at the organizational and health care system level by helping patients receive the rehab services they need both within and outside of the hospital setting.

Other

Poster Number: 45

Title: How to Document Less... with Better Quality

Authors (Primary First): Catherine Chater, Jaspreet Soor

Affiliation of Primary Author: VHA Home Healthcare

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: How to relieve time spend on administration and dedicate it back to direct patient care has proven to be a challenge in a health system that increasingly relies on documentation to demonstrate regulatory adherence and performance indicators.

Relevance: Health professionals spend a significant portion of their workday charting. Even with the introduction of electronic medical records (EMRs) -- despite their significant advantages -- an EMR per se typically does not reduce a clinicians' charting time: another approach is required to optimize information management .

Methods & Analysis: Documentation practices were comprehensively overhauled in the course of developing a rehab EMR. Through the engagement of point of care OTs, chart audits and continuous QI testing, innovative solutions which both improved charting efficiency and best-practice clinical decision-making were defined. Accuracy and precision of data field requirements was achieved through a comprehensive review of required documentation standards and current practice scope, which allowed differentiation between essential items for high quality charting/clinical decisions, and those which remained in the chart without distinct purpose.

Study Sample or Initiative Scope: Project group included 7 OTs, 2 OT supervisors, a professional practice leader, clinical informatics specialist, IT. The chart is used by 200 OTs.

Findings: Data entry has been attuned to real-life workflow, clinical analysis/prompts now cue best practice decision making, and documentation volume has been cut by up to 60%. The tool's design has been so successful, that voluntary uptake of the paper-based PDSA trials has reached over 90%. Chart audit data reflects more consistent application of documentation/practice standards. Early formal survey results strong satisfaction by users.

Discussion: Practical and evidence-informed strategies applied to streamline documentation can improve quality of clinical decision-making, while adhering to the accountabilities required by regulatory colleges, accreditation, funder KPIs and legislation.

Conclusions: Effective clinical design of documentation (EMRI or paper-based) is of paramount importance to optimize use of limited health resources. Thoughtful examination of standards with clinical best practice and provider workflow, can positively impact both client outcome and provider job satisfaction.

Other

Poster Number: 46

Title: Building patient and provider health literacy at a multi-hospital system

Authors (Primary First): Melissa Yan, Farrah Schwartz

Affiliation of Primary Author: University Health Network

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: Recognizing health literacy as a critical component of improving patient care and engagement, the University Health Network implemented evidence-informed practices to ensure patients and healthcare providers have the tools to partner in care.

Relevance: Health literacy plays an important role in helping rehabilitation patients overcome challenges from their injury or health condition to live healthier lives and with community reintegration. Health literacy skills help patients understand and safely manage their condition when they are at the hospital and after discharge.

Methods & Analysis: UHN's Patient Education and Engagement Program has implemented and evaluated evidence-informed initiatives to address health literacy. These include creating clear and accessible health information resources for patients and their families such as brochures, videos, classes, and posters; developing and delivering health literacy skill-building workshops for health care providers; collaborating with the province to offer online webinars and symposiums for health literacy learning and capacity building; and supporting a nationwide listserv to promote health literacy networking and discussion across the country.

Study Sample or Initiative Scope: UHN's health literacy initiatives are available to all its patients, their families, community members, and 14 986 staff members.

Findings: From April 2017 to March 2018, there were: 47 000 total visits to the UHN Patient Libraries, 64 235 health information requests at the UHN Patient Libraries, 1 010 health talk attendees, 471 new clinical staff trained in health literacy, 5 health literacy webinars with a 550+ total registrations, 150 in-person and 92 web attendees at the Ontario Health Literacy Symposium, and 150 members in the Canadian Health Literacy Patient Education Network.

Discussion: Health literacy can help rehabilitation patients be engaged in their care and safely self-manage. Having access to reliable health information and their personal health records allow patients to get the information they need to achieve these outcomes. Health literacy tools and learning enables rehabilitation providers/specialists to foster this engagement in clinical care.

Conclusions: Health literacy is associated with patient engagement, self-management, and medication safety. UHN has successfully embedded many evidence-informed initiatives to build patient and provider health literacy capacity. The learnings from UHN can be replicated, adapted, and scaled accordingly to various rehabilitation settings.

Other

Poster Number: 47

Title: Evolution of Rehabilitation Practice Leadership: Transformation of the Rehabilitation Clinical Support Structure.

Authors (Primary First): Sarah Tam Lee, Amanda Longfield, Kaiyan Fu, Paul Holyoke, Karen Troughton

Affiliation of Primary Author: SE Health

Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: To design an innovative rehabilitation clinical support structure that meets the needs of the rehabilitative staff in the home and community setting.

Relevance: The need to transform the face of rehabilitation practice support at an organizational level stemmed from the evolving needs of our clinicians, the changing landscape of community practice and the need to foster rehabilitation leadership.

Methods & Analysis: An evaluation of the rehabilitation clinical support structure was completed in 2017 using a mixed methods approach with thematic analysis. The evaluation produced a set of recommendations for improvements to the clinical support structure that were based on the themes identified. Based on these recommendations, a new rehabilitation clinical support structure was developed along with an implementation and evaluation plan.

Study Sample or Initiative Scope: The rehabilitation clinical leadership, operational leadership and frontline rehabilitation staff.

Findings: The engagement of clinicians, clinical and operational leaders produced a new rehab clinical support structure. The following roles were developed: corporate rehab practice leadership roles, local rehab practice and clinical quality improvement leadership roles, clinical mentors and consultants. The new clinical structure focuses on providing an interdisciplinary, standardized approach to clinical support for the rehabilitation disciplines.

Discussion: This work can inform organizations across sectors who are interested in developing their rehabilitation leadership and clinical support model. Lessons from our journey on developing an approach to rehabilitation practice support that focuses on interdisciplinary collaboration and reflective practice can provide insight for those who wish to embark on a similar adventure.

Conclusions: Meeting the needs of our clinicians, supporting evidence-informed practice and interdisciplinary collaboration were drivers in the rehabilitation support restructure. Redesigning the structure requires collaboration between clinicians, leadership and all levels of the organization.

Other

Poster Number: 48

Title: Reiki: An Effective Adjunct to Improving Holistic Patient Care in a Hospital Setting

Authors (Primary First): Christine Grant, Julie Wilding

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Abstract Category: Rehabilitation-Related Best Practice Initiative or Organizational Innovation

Abstract

Purpose: Reiki is an innovative, cost effective way to improve health care provider, patient and family experiences. It promotes a holistic, nurturing environment which aids in addressing current challenges found within health care systems.

Relevance: Holistic, nurturing care is a vital part of a patients recovery. Yet hospitals are an increasingly demanding and stressful environment for patients, families and health professionals alike. Introducing an innovative, cost-effective adjunct, such as Reiki, to the traditional medical model of care may benefit all involved.

Methods & Analysis: A proposal for a volunteer Reiki program was accepted by an Ontario community hospital, based on a model at a renowned U.S. teaching hospital. Policy and procedures were developed. Level 2 Reiki volunteers were vetted through a Reiki Volunteer Coordinator and Volunteer Department.

The program was implemented on the palliative care unit and overseen by a Reiki Program Coordinator. Based on the consistently positive feedback the program was expanded to include complex care and in-patient rehabilitation units.

An anonymous voluntary feedback questionnaire was developed and implemented as part of the program evaluation.

Study Sample or Initiative Scope: A model for Reiki provision to in-patient hospital units for patients, families and staff, indicated for any diagnosis and extends into end of life.

Findings: In one year this program's volunteers have provided 491 Reiki treatments; 315 to patients, 65 to family members and 111 to staff.

We have collected anecdotal feedback to date for 65% of the treatment given, of which 93% were positive statements.

Qualitative and quantitative data in an anonymous questionnaire format is currently being collected.

Discussion: A Reiki Volunteer Program is easy to implement in any healthcare setting and with any patient population and can have positive results. This model provides an innovative and low-cost way to provide nurturing adjuncts to care for our patients and give our staff and families avenues for self-care with potential for improvements in the patient care experience and outcomes.

Conclusions: Implementing a volunteer based model to provide Reiki within the current health care system is an effective, low cost way to increase holistic care and improve patient, family and staff experiences for a broad range of diagnoses. This simple model could be used in any health care organization across Canada.

Other

Poster Number: 49

Title: Predictors of Pain Disability Among Individuals who Use Opioids Attending a Chronic Pain Clinic

Authors (Primary First): Amanda McIntyre, Fatima Alibrahim, Swati Mehta, Eldon Loh, Ricardo Viana, Robert Teasell

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Abstract Category: Ideas, Inventions and Innovations that will Transform the Rehabilitation Mosaic

Abstract

Purpose: To examine predictors of pain disability among individuals who use opioids attending a chronic pain clinic.

Relevance: Numerous studies have assessed the epidemiology of chronic pain and its relationship to individual biopsychosocial variables; however, there are few studies which have assessed how these variables differ between individuals who use opiates and non-opiates in a chronic pain population.

Methods & Analysis: Cross-sectional, observational study of individuals with chronic pain attending an outpatient clinic. Patients completed several questionnaires and the following outcomes were assessed: age, gender, type, dose and frequency of opioids medication used, Morphine Equivalent Dose (MEQ), EuroQoL-5D (EQ-5), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder-7 (GAD-7), CAGE substance use screening tool, and Pain Disability Index (PDI).

Study Sample or Initiative Scope: Adults (>18 years) who were diagnosed with chronic pain, received opioid treatment for at least 3 months, and attended the outpatient clinic in 2017.

Findings: In total, 30 individuals (13 males, 17 females) with a mean age of 48.1 ± 12.5 years attended the chronic pain clinic. The most commonly taken opioid medications were oxycodone (33.0%) and oxycodone/acetaminophen (36.7%). Linear regression showed no significant effect of EQ-5D on PDI ($p=0.141$) or CAGE on PDI ($p=0.399$); however, PHQ-9 ($p=0.001$) and GAD-7 ($p=0.001$) was shown to significantly affect PDI.

Discussion: Individuals attending a chronic pain clinic were shown to use a moderate-high dose of opioid medications to manage their pain. Pain disability was dependent on self-reported depression and anxiety. The findings from this pilot study should be confirmed in a study with a larger sample size.

Conclusions: Despite public health initiatives to reduce opioid use, individuals with chronic pain continue to use them to manage their pain and this is associated with significant disability outcomes.

Other

Poster Number: 50

Title: Implementing a Rehabilitation Model of Care in Community Rehabilitation: Spread, Scale, and Sustainability

Authors (Primary First): Eileen Keogh, Lisa Warner, Katie Churchill

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Abstract Category: Ideas, Inventions and Innovations that will Transform the Rehabilitation Mosaic

Abstract

Purpose: In 2017 a model of care was launched to support evidence informed, accessible, and client centered community rehabilitation. Innovation learning collaborative methodology was used to implement the model of care with early adopter teams.

Relevance: The rehabilitation model has core components that include patient outcomes, collaborative goal setting, access, wayfinding, and optimal transition practices. After implementation with early adopter teams, the model was spread to over 60 teams with a plan to scale to all community rehabilitation sites in the province.

Methods & Analysis: Learning collaborative methods support teams to develop balanced scorecards along six quality dimensions. Teams were trained in Health Change Methodology™ and supported across all levels of leadership. Ongoing PDSA cycles fostered data collection and feedback to inform future implementation sites. The early adopter teams collected three mandatory metrics (a patient reported outcome measure, a patient reported experience measure, and a measure of collaborative goal setting). New teams were phased into the model of care implementation by starting with the collection of the mandatory metrics.

Study Sample or Initiative Scope: The sites (n=60) represent urban, regional and rural. The teams consist of single provider and multi-discipline teams with a mix of professionals.

Findings: The use of learning collaborative methodology to support implementation of the rehabilitation model of care fostered a provincial strategy with customization to support local context. Pacing the spread and scale allowed teams to take on smaller, more manageable aspects of implementation, such as mandatory metrics, while focusing on other commitments and ensuring the delivery of high quality client care.

Discussion: Phasing implementation allows adjustments in processes, methods, and tools, and an awareness of the need to be responsive to local context. Diverse and similar-service teams benefit from sharing experiences and learning from one another through the learning collaboratives. Ongoing spread and scale requires further refinement to support successful implementation.

Conclusions: A rehabilitation model of care provides core components, common expectations and common language that resonates across service sectors. Large scale Implementation requires collaboration, engagement and efforts by many. A provincial strategy with local customization is key for successful spread, scale and sustainability.

Other

Poster Number: 51

Title: Building a Competency-based Orientation Pathway for a Rehabilitation Setting

Authors (Primary First): Rajwant Dhillon

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Abstract Category: Ideas, Inventions and Innovations that will Transform the Rehabilitation Mosaic

Abstract

Purpose: To develop a competency-based orientation pathway for newly hired experienced and new graduate nurses in a rehabilitation setting to build capacity and improve the quality of specialized nursing care.

Relevance: This initiative is of interest at the practice level of rehabilitation because currently, there is a lack of integration of the rehabilitation competencies in unit-specific orientation programs resulting in inconsistencies in the competency levels of newly hired nurses and quality of care to this unique patient population.

Methods & Analysis: Iwasiw and Goldenberg's Model of Context-Relevant Curriculum Development was used to gather data in order to inform the development of the orientation pathway. Data was collected through the completion of a literature review related to the development of orientation pathways for experienced and new graduate nurses. The CNA rehabilitation competencies were integrated into the pathway. Consultations with external informants, specifically other Greater Toronto Area rehabilitation leaders, and internal informants, including nursing staff on the rehabilitation unit, were further sources of data.

Study Sample or Initiative Scope: This initiative is designed to build capacity in newly hired experienced and new graduate nurses in a rehabilitation setting.

Findings: An evidence-informed, competency-based orientation pathway was developed for newly hired experienced and new graduate nurses for a rehabilitation setting. The key features of this orientation pathway include a four-week rehabilitation competency acquisition checklist and rehabilitation competencies assessment and intervention worksheets.

Discussion: The implications of my initiative at the clinical practice level include standardizing expected levels of nursing performance in rehabilitation practice settings and improving the quality of patient care.

Conclusions: The implementation of the competency-based orientation pathway in a rehabilitation setting has the potential to build nursing capacity and improve the quality of care for a specialized patient population.

Other

Poster Number: 52

Title: Detection of Risky Actions in the Inpatient Acquired Brain Injury and Behavioral Service Unit using Video-based Artificial Intelligence Solutions

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Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: The hypothesis is to develop a camera-based artificial intelligence solution for detection of falls and aggressive behaviors in an inpatient acquired brain injury and behavioral service (ABIBS) setting to allow behavior therapists to intervene.

Relevance: Cameras in patients' rooms provide continuous video feed, but staffing precludes continuous monitoring by a human. We have developed and tested AI algorithms for detection of falls and aggressive behaviors which are relayed to staff for early intervention in the event and provide continuous oversight of ABI patients.

Methods & Analysis: We have collected 12000 video samples from the ABI patients. All the videos were captured after the consent form signed by patients. Then, the videos were redacted to meet the privacy aspects. People are not recognizable in redacted videos. In addition to this samples, we created synthetic videos and finally augmented dataset to increase number of samples to 30000.

Then, we trained the deep models for video action recognition in real-time. The developed deep models achieved ~95% accuracy for fall recognition and ~80% accuracy for aggressive recognition. We got 1 false positive result from each camera in 1 day.

Study Sample or Initiative Scope: Five inpatient ABI clients (40% male; 48 (M) +/- 21 (SD) years of age) were included in the study.

Findings: Based on the running pilot at West Park Healthcare Centre, future directions aim towards creating a symbiotic "AI-rehabilitation" environment with the goal of reducing manual data collection and use those savings to maximize on clinical interactions, treatment fidelity, and daily activities. The proposed AI solution achieved impressive results for falling and aggressive detection by means of video analysis in real-time.

Discussion: Behavior therapists in the inpatient ABIBS setting are challenged to provide continuous oversight of ABI patients. The developed AI technology provides early automatic detection of falls and aggressive actions in real-time. Consequently, it allows for a more immediate clinical response to respond to or prevent client injury.

Conclusions: The implications were twofold: 1) responding becomes easier and creating solutions to limit the triggers for future falls is easier to establish. 2) objectivity is increased with automatic data collection, which can help clinicians measure the true effect of their interventions with less effort and manpower.

Other

Poster Number: 53

Title: A Streamlined Low-Tolerance Long-Duration (LTLT) Admission Process: A Quality Improvement Project

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Abstract Category: Research in Rehabilitation (quantitative, qualitative or mixed methods)

Abstract

Purpose: To review the current practices involved with admitting LTLT patients throughout TRI, create and revise a new streamlined process and related tool to better and more efficiently admit new patients without compromising nursing care to other patients.

Relevance: The current admission process is lengthy, scattered, and not standardized. Many LTLT patients require a thorough head-to-toe assessment upon admission. As such, important patient data have been missed. A new admission process was created to standardize patient assessments, reduce paperwork and duplicate information gathering, and improve overall patient care.

Methods & Analysis: An environmental scan of current admission processes in Toronto's LTLT programs was done. Within TRI's LTLT program, an interprofessional team was questioned about their individual admission assessment process. Based on the answers given, a standardized nursing admission form and a checklist of admission nursing tasks were created. The form and the checklist were reviewed and approved by the LTLT resource nurse, educators, professional practice leaders, and other clinical staff and administration. The form was implemented on the unit for trialing and feedback from floor nurses. The form and checklist were revised to include their feedback and the revised forms were implemented on the unit.

Study Sample or Initiative Scope: This project focused on inpatient adult rehabilitation patients and nurses that admitted these patients.

Findings: A new clinical documentation tool and checklist was created for the nurses based on patient-centred care, interprofessional collaboration, and standards of appropriate nursing documentation.

Discussion: This project demonstrated the necessity for a streamlined nursing admission process that reduces duplication of information gathering within the interprofessional team. It demonstrates that a standardized tool improves compliance with necessary documentation, improves greater information exchange between nurses, and helps novice nurses build their admission assessment skills.

Conclusions: Next steps are to finalize the contents on the standardized nursing admission form and the checklist, evaluate the effectiveness of the tools qualitatively and quantitatively, determine the impact the tools have on nurses and patient experiences, and prepare the form for systems design in preparation for computerized documentation.