Community Health Network

University of Indianapolis

FOURTH ANNUAL

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Indianapolis, Indiana

MAY 8, 2019

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Fourth Annual
Multidisciplinary Scholarly Activity
Symposium Proceedings
May 8, 2019

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SCHEDULE OF EVENTS

8:00 AM – 9:00 AM	Registration / Information Tables
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9:30 AM – 10:45 AM	Oral Presentations (1- 14)
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1:00 PM – 2:00 PM	Keynote Presentation: Tim Lineberry, MD *Joy in practice: How medical education, psychological safety and high functioning teams can move us forward.*
2:15 PM – 3:30 PM	Oral Presentations (15 – 29)
3:40 PM – 4:00 PM	Closing Remarks E. Ann Cunningham, DO Residency Program Director/ GME Community Health Network Evaluation Completions

KEYNOTE SPEAKER

DR. TIMOTHY LINEBERRY – ADVOCATE AURORA HEALTH

Dr. Tim Lineberry currently serves as System Vice President, Medical Staff, Advocate Aurora Health and as the Chief Medical Officer for Aurora Health Care Medical Group. Aurora Health Care Medical Group consists of over 1900 employed physicians and over 1000 advanced practice clinicians. Tim also co-leads the Clinician Well-Being efforts for AHCMG. Tim is a graduate of the GE - Health Management Academy Physician Fellows program, is a Certified Physician Executive and Clinical Adjunct Professor of Psychiatry at the University of Wisconsin School of Medicine and Public Health. Tim has been an invited member of the ACGME Clinician Well-Being Symposium for the past three years and has served as an advisor for the Alliance of Independent Academic Medical Centers for their national initiative on clinician well-being.

Dr. Lineberry spent eleven years at Mayo Clinic prior to joining Aurora in 2014. He was Medical Director of Mayo Clinic's Psychiatric Hospital and served as a vice-chair of the larger Mayo Clinic Hospital - Rochester practice from 2007-2014. Dr. Lineberry also served as vice-chair of education for psychiatry and psychology at Mayo Clinic leading up their residency training programs, fellowships, medical student education and continuing medical education programs.

Dr. Lineberry served 12 years in the Air Force prior to joining Mayo Clinic and left service as a Lieutenant Colonel. Tim's research focus has been on pragmatic suicide risk assessment and prevention - particularly in adolescents and young adults. Beginning with his work in the Air Force's suicide prevention program in the 1990s, Tim has also been active in evidence-based efforts to reduce suicides at a population level. He is former secretary and board chair of the American Association of Suicidology and served as subject matter expert for the military suicide research program for the Army and Department of Defense from 2009-2014 helping establish and shape the over $100 million Department of Defense suicide prevention research program. He has also had a strong interest in improving patient education and medical education.

He is a board-certified psychiatrist and recognized as a Best Doctor for clinical expertise from 2007-2016, was awarded the Air Force Meritorious Service Medal, received the Psychiatry Residency Teacher of the Year award and the Innovation in Education Award from the Mayo School of Continuous Professional Development. Dr. Lineberry has received multiple national awards for work in developing patient education materials.

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ORAL PRESENTATIONS

O1 **Lateral ankle stability.** (Britney Roberts, DPM)

Background: Lateral ankle injuries are among the most common musculoskeletal injuries in the athletic population. Surgical treatment is usually very successful in alleviation of symptoms. Lately there has been a debate on whether open or arthroscopic procedure is optimal for repair of lateral ankle instability, so which one is optimal?

Purpose: To compare results of open versus arthroscopic repair of the lateral ankle ligaments

Methods: I reviewed articles comparing the open versus the arthroscopic method of lateral ankle stabilization and compared the data such as population, return to activity, complication rates, surgical duration and pain scores.

Results: Patients in the arthroscopic group had a slightly faster return to activity, lower complication rates and shorter duration of surgical time as compared to the open group. The learning curve for arthroscopic surgery was high and difficult to perform.

Conclusion: In conclusion, arthroscopic repair of the lateral collateral ligaments appear to have better outcomes, although the learning curve for this procedure is steep and difficult. It is important to evaluate the patient's goals and it is important for the surgeon to pick the procedure they feel they will have a better result with in their patient population and their surgical skills

O2 **Opioid prescribing, addiction and opioid abuse in the US and Indiana.** (Dmitry Arbuck, MD)

Introduction: Pain is a universal health problem that people have had to deal with since the birth of civilization. In the pursuit of pain control, opioids have become the default for pain management. By the early 2000s, excessive opioid use came to be associated with an increase in both morbidity and mortality and on October 26, 2017, President Trump declared the opioid crisis a national Public Health Emergency. Education about the opioid epidemic became a regulatory matter and many States, including Indiana, started to mandate opioid education as a prerequisite to prescribing controlled substances.

Objective: The opioid epidemic is comprised of multiple facets: geographic prevalence, prescribing and distribution patterns, levels of mortality and morbidity, societal considerations and implications, racial and educational perspectives, economic impact, and more. Prescribers, manufacturers, distributors, and insurers also play important roles in the problem/resolution. Opioid-related Continuing Medical Education (CME) has to address gaps in the prescriber's knowledge of the opioid epidemic, guide toward appropriate prescribing, address opioid abuse issues and inform of avenues of providing better patient care. There is a statewide need for access to opioid epidemic-related CME courses to fulfill the State of Indiana requirement for the prescribers' maintenance of their Control Substance Certification. This course fulfills this requirement.

Methods: An extensive literature review was conducted using PubMed, pain and psychiatric periodicals, the mainstream media, and government regulatory documents to compile comprehensive data on the state of the opioid epidemic in Indiana and throughout the United States. An exhaustive review of materials created/published between 2015 and 2018 using action research, ethnography, with an emphasis on archival research.

Results: A slide presentation to cover multiple aspects of the opioid epidemic was created to assist in opioid education and to fulfill the State of Indiana requirement for 2 CME hours review of Opioid Prescribing, Addiction and Opioid Abuse in the US and Indiana. An in-depth statistical data analysis

reflecting the various aspects of the opioid epidemic was assembled in an easily comprehensible format to allow listeners to acquire a broad understanding of the state of the opioid epidemic. Such knowledge will allow prescribers to reevaluate their prescribing habits and to become active participants in curbing the opioid epidemic.

O3 Undergraduate student nurse ACLS certification to improve practice transition and confidence.

(Cathy Miller, DNP, RN, CNE)

Purpose: The presentation synthesizes data on the impact of the in-class simulation experience. The specific area of interest is the ability of the nursing student to recognize and assess the deteriorating patient. It is through the swift acknowledgement of such life-threatening situations, that the development of code blue critical thinking can begin. In conjunction with simulation, a leveled code blue curriculum with the inclusion of an ACLS certification will facilitate student confidence for transition into clinical practice.
Methods: An exploratory, single group design with a convenience sample of 92 BSN senior nursing students enrolled in the 3-credit, seventh semester medical-surgical, didactic nursing course.
Variables: Variables included age, gender, race, exposure to code blue events in the clinical and work settings, and previous years of health care experience.
Procedures: The modified 12-item survey, Code Blue Self-Confidence, assessed participant code blue confidence pre/post intervention. A demographic survey was utilized to measure correlative data with code blue skill confidence.
Findings: Correlative findings revealed a significant improvement in student confidence with recognizing and intervening with the deteriorating patient to ensure swift implementation of code blue processes.
Recommendations: Recommendations are for a multi-site study to replicate the validity of the in-class simulation, leveled code blue curriculum, and ACLS certification to facilitate the undergraduate nursing students' transition into clinical practice.
Practice Implications: Nurse response times greatly impact patient outcomes in critical situations. The safe zone of a simulation environment versus clinical practice creates opportunities for students to transition from novice to beginner to competent, while able to make errors and glean reflective knowledge before managing the direct care of a critically ill patient. One critical skill is the ability of a new nurse to identify and quickly respond to the needs of a deteriorating patient. Patient outcomes are improved when nurses launch proficiently into practice.

O4 Interventions to improve work efficacy and decrease burnout of ambulatory care pharmacists.

(Jordan Clark, PharmD; Allen Antworth, PharmD, MBA, BCACP; Lauren Behrle, PharmD, BCACP; Megan Dorrell, PharmD, BCACP)

Introduction: As healthcare moves towards a quality based system and career burnout is a growing concern for employers, quality improvement becomes essential to ensure a high level of productivity with appropriate work-life balance. Provider burnout in primary care has been associated with medical errors, absenteeism, decrease in quality of patient care, and poor patient satisfaction. In current literature, evaluation of workflow is mainly completed with observation and interviews. These methods provide detailed information, but have limitations due to their time-consuming nature, human error, and bias.
Objectives: The objective of this study is to identify interventions to support ambulatory care pharmacists' (ACP) workflow and productivity through a survey, electronic medical record (EMR) system usage data, and value stream mapping, in order to improve patient care and decrease burnout.

Methods: A baseline survey will be provided to Community Health Network primary care ACP to assess personal perceptions of productivity, work-life balance, and burnout. Questions are rated using a 5-point Likert scale, multiple choice, or open-ended responses. One month of system usage data from a standardized EMR report will be used to evaluate baseline ACP workflow and time spent in the EMR to complete tasks. ACP will be provided their baseline system usage data and the average system usage data of their peers to encourage self-reflection and improvement of practice. ACP will be randomly selected for direct observation during a clinic day in order to create a current-state value stream map. The ability to identify and types of interventions by value stream mapping of ACP daily activities, survey results, and baseline system usage data to support ACP workflow and productivity will be reviewed. Pharmacists in specialty clinics, pharmacy residents, and study authors will be excluded from evaluation. Follow-up surveys and system usage data will be completed after interventions.
Results: To be presented at the Multidisciplinary Scholarly Activity Symposium.
Conclusion: To be presented at the Multidisciplinary Scholarly Activity Symposium.

O5 **Return to school-age competitive sports after an anterior cruciate ligament reconstruction using a contralateral patellar tendon graft.** (William Claussen, PT; Scott Bauman, PT, DPT; Sarah Eaton, PT, DPT, ATC)

Purpose/Hypothesis: Returning to sports after Anterior Cruciate Ligament Reconstruction (ACLR) can be difficult, and return rates as low as 44% have been reported. We hypothesized that patients would be able to return to the same or higher sport levels after ACLR using a contralateral patellar tendon graft (PTG) at a higher rate compared to previously reported studies.
Materials and Methods: Between 2009 and 2013, 120 school-age competitive athletes (level 9 twisting, pivoting, jumping sports) underwent ACLR using a contralateral PTG and were enrolled into this study (76 female, 44 male). Pre-operative therapy was performed to restore motion, normalize gait and resolve effusion. Post-operative rehabilitation emphasized the restoration of ACL knee motion and donor knee strength until equal motion and strength were achieved. Once knee symmetry was attained, patients increased strength to pre-operative level. Each patient progressed through rehabilitation to the return to their desired sport while being followed up for continued testing and subjective outcome measures for activity rating scales.
Results: Of the 120 athletes, 80% (96) were able to return to the same sport level or higher as measured by the activity rating scale. Females were able to get back to the same level or higher at a higher rate at 83% (63/76) compared to males at 75% (33/44). 100% of these athletes were able to transition back to the same sport at least at a recreational level.
Conclusions: Return to school-aged competitive level 9 sports following ACLR using a contralateral PTG can be achieved at a high rate for both male and female patients (80%). Dividing the goals of rehabilitation after surgery between both knees and through the use of a contralateral PTG factors into this high percentage as the patient has independent goals with each knee allowing for predictable outcomes.

O6 **Integrated care group visits: A team approach to managing opioid use disorders**. (Stephanie Case, PsyD)

Introduction: The opioid epidemic is moving much faster than healthcare has been able to meet its demands. The somewhat fragmented traditional method of the primary care physician managing medication assisted treatment, a rehabilitation center handling detox, extended inpatient treatment, or sober living, and long-term community services (e.g., Narcotics Anonymous) have been inadequate when facing a less than linear path of opioid addiction and use. These methods, although important to achieve recovery, might be missing the key component of communication between providers.

Hypothesis: Removing barriers to treatment (e.g., close follow up; providing group therapy; increasing accessibility to healthcare providers) will improve patient outcomes with treatment and reduce the amount of time spent in relapse.
Method: Our clinic has followed several pilots to treat the whole patient in one location, at one visit, to address various stages of opioid use disorder as a team. The integrated care group visits allow patients to check in with their physician, record vitals, refill prescriptions, and participate in a supportive and educational psychotherapy group. This method has allowed for improved communication and direct participation by mental health professionals, nursing, and physicians during a two in a half hour appointment twice per month.
Discussion: These types of visits remove the barrier of insufficient communication between providers, as each provider participates throughout the encounter. Moreover, the group provides a community in which the patient feels secure revealing relapse and additional need for resources that transcends beyond group visits to specifically target the non-linear path of opioid use and recovery.

O7 **Impact of Interprofessional Week on student perceptions of interprofessional education**. (Elizabeth Moore, PhD; Jennifer Carmack, DNP, RN; Kara Cecil, DrPH; Kathleen Hetzler, DNP, CNS, APRN; Jessica Jochum, PhD, LAT,ATC; Briyana Morrell, PhD(c), MSN, RN, CCRN-K; Alison Nichols, OTR; Jane Toon, DNP, RN)

Introduction: To help prepare health care students to collaborate as members of an interprofessional team, multiple health care professions at the University of Indianapolis collaborated to create an Interprofessional Education (IPE) Week. The IPE Week activities were designed to address interprofessional competencies that many of the health professions are required to cover in their courses to meet their profession's accreditation standards. Sixteen different IPE activities were offered including panel discussions, simulations, lectures, and experiential learning activities.
Objective: The primary objective of this study was to determine if participation in at least one IPE Week activity would increase student awareness and perceptions of IPE, as measured with the Student Perceptions of Interprofessional Clinical Education-Revised (SPICE-R) instrument.
Methods: Students from eight departments who participated in at least one IPE Week activity were eligible to be in the study. One week prior to IPE Week, students completed a demographic questionnaire (profession, gender, class status, prior participation in IPE activity) and the SPICE-R instrument. The week after IPE Week, students again completed the SPICE-R and indicated the IPE Week activities in which they participated.
Results: A total of 190 students completed both the pre-SPICE-R and the post-SPICE-R. Participants were from the following departments: athletic training (15.3%), nursing (42.1%), occupational therapy (26.8%), physical therapy (5.3%), public health (6.3%), and other (4.2%). The most attended activities were Breaking-Down Stereotypes (19.5%), Diabetes Escape Room (16.7%), and Emergency Care Simulation (14.3%). Because the data were not normally distributed medians are reported and were compared using non-parametric tests, Wilcoxon signed-ranks test for within group comparisons and the Mann-Whitney *U* test for between group comparisons. Significant median score increases were found for all SPICE-R items and all three factors ($p < .020$) measured. In general, students had significant increases in their perceptions of IPE regardless of profession, class status, gender, or prior participation in an IPE activity.
Discussion: Results suggest that IPE Week activities that include participation of a diverse group of health care students can have an impact on student perception of interprofessional teamwork and team-based practice, roles and responsibilities for collaborative practice, and patient outcomes

from collaborative practice as measured with the SPICE-R. These results align with past research on IPE which showed that students who participate in IPE activities had positive attitudes toward interprofessional learning and a deeper understanding of other professions' roles and responsibilities.

O8 **Owning nursing practice through collaboration with physicians: Decreasing episiotomy rates at Community Hospital South**. (Erin Drake, BSN; Jennifer Phelps, BSN; Stacy Griffin, BSN; Stephanie Tafflinger, BSN; Crystal Reynolds, BSN; Paula Kivett, MSN; Lisa Roe, ASN; Rainey Martin, MSN)

Background: Severe perineal lacerations (3rd and 4th degree lacerations) are associated with pelvic floor injuries, sexual dysfunction, fecal and urinary incontinence. The risk of 3rd and 4th degree lacerations is 4 times higher when an episiotomy is cut. A 2017 Cochrane Review of 11 RCTs found: 1) Restricted use of episiotomy in women when a normal non-operative vaginal delivery is anticipated decreases the risk of perineal trauma, 2) There is no evidence to support any benefits of routine use of episiotomy, 3) There is limited research on the benefits of episiotomy during an operative vaginal delivery. Anthem quality indicators include episiotomy rates, with rates <15% required for Anthem Blue Distinction. Failure to meet Anthem Blue Distinction may result in denial of coverage for procedures.
Objective(s): Decrease episiotomy rate at CHS from 22% (baseline 2016 rate) to 15% or less (Anthem benchmark) for 2018 annual rate, and to 12% or less (ACOG national average) for 2019 annual rate.
Method(s): Regional and individual provider episiotomy rates were shared with obstetricians at CHS, along with a review of Anthem metrics and practice recommendations from professional organizations. The Way We Improve format was used to organize and mobilize a team of bedside nurse champions to systematically educate, coach, and track evidence based nursing interventions to decrease overall perineal trauma and reduce the perceived need to cut an episiotomy. Specific interventions included interactive team day education on maternal position changes in first and second stage of labor, real time coaching and support of labor nurses on the "laboring down" nursing intervention in the second stage of labor, and auditing of use of and length of the "laboring down" technique.
Result(s): The 2016 episiotomy rate at CHS was 22%, in 2018 the rate dropped to 8.27%.

O9 **Metatarsal bracket: A case report and review**. (Anthony Rusher, DPM)

Longitudinal epiphyseal bracket (LEB), also known as "delta phalanx", is a rare anomaly of ossification most commonly encountered in the tubular bones of the hand and the feet. The true incidence and prevalence of the disorder is unknown as it has been described in conjunction with a myriad of conditions including: hallux varus, polydactyly, Rubenstein-Taybi syndrome, diastrophic dwarfism, Apert's syndrome, syndactyly, ulnar and cleft hands, and tibial hemimelia. It is characterized by an anomalous physis which creates a secondary ossification point along the shaft of a phalanx, metatarsal or metacarpal. This accessory ossification point, brackets the longitudinal growth of the tubular bone, such that it results in a short, trapezoidal shape to the affected bone. In the phalanges of the hands this leads to clinodactyly, and in the metatarsals it manifests as hallux varus. Historically, surgical intervention entailed corrective osteotomies to address the deformed bone. Contemporary authors agree that physiolysis is imperative to allow longitudinal growth of the affected bone to resume. A 5 year old female presented to clinic with her parents who were concerned about her shortened hallux. She was diagnosed with LEB and underwent physiolysis along with single stage lengthening through osteotomy and fibular strut allograft. At 9 weeks, the graft was integrating and the patient was pain free with improved hallux alignment.

O10 **Clinical outcomes associated with the use of phenobarbital in patients with alcohol withdrawal syndrome**. (Jennifer Niehoff, PharmD; Sarah Cocke, PharmD, BCPS; Giulia Dickinson, PharmD, BCCP, BCPS)

Purpose: In patients with alcohol withdrawal syndrome, there is limited data to support the addition of phenobarbital to symptom-triggered benzodiazepine therapy, or standard of care. Furthermore, there is limited data to guide the dosing of phenobarbital for this indication. Within Community Health Network, phenobarbital is used in a nonstandardized fashion for the treatment of alcohol withdrawal syndrome. It is unknown whether the addition of phenobarbital leads to improved clinical outcomes.

Objectives: The primary objective of this study is to compare time to resolution of symptoms between patients that received standard of care in comparison to standard of care plus phenobarbital.

Methods: This study was a retrospective, observational chart review of patients who had a "General Adult Alcohol Withdrawal Focused" order set placed and received doses of lorazepam with or without phenobarbital. The primary endpoint, time to symptom resolution, was evaluated by comparing time to CIWA-Ar scores less than or equal to ten between the two groups. To compare differences in clinical outcomes between the two groups, endpoints such as hospital length of stay, intensive care unit length of stay, incidence of mechanical ventilation, and increase in level of care were collected. Data was compared between patients who received standard of care with or without phenobarbital. In an attempt to minimize confounding, study participants were matched using Charlson Comorbidity Index (CCI).

Results: Data collection for this study is on-going. Results will be presented at the Multidisciplinary Scholarly Activity Symposium.

Conclusion: The conclusion of this study will be presented at the Multidisciplinary Scholarly Activity Symposium.

O11 **Using data for operational improvement.** (Ryan Wilson, MSW, LCSW)

Introduction: Operational Leaders are responsible for the effectiveness of the operational and clinical processes within their departments. However, whereas business and clinical data are often prevalent, operational process data can be difficult to obtain, validate, analyze, and apply. This data though reveals the success or failure of processes and departments and is therefore critical to obtain if operations leaders are to maximize their decision-making capabilities.

Objectives: The primary objective of this presentation is to share the analytic techniques and tools, as well as the underlying philosophies, used by the operations leaders of the Community Behavioral Health Crisis and Access departments to greatly increase both efficiency and effectiveness of these departments with the hopes that the ideas presented may be helpful to others.

Methods: From 2016 through 2018, both the Crisis and Access departments underwent numerous process improvement initiatives aimed at increasing operational efficiency, clinical quality, and staff satisfaction. Each key initiative required the acquisition and analysis of data. Through the course of these projects, the operational leaders of these departments used and developed several data analysis and visualization techniques that allowed them to make informed decisions about how to improve processes and monitor the effectiveness of the changes. Data analysis was primarily done in Microsoft Excel and the some specific techniques used were control charts, mapping and visualization of staffing data, and heat charts for patient volume and throughput times. Whatever the technique applied, the purpose was always to gain a clearer understanding of the departments to inform decision-making.

Results: In the Crisis Department, Caregiver Engagement scores improved from 69% in 2015 to 94% in 2017 (n~50) and the score remained high at 91% in 2018. Emergency Department Behavioral Health patient median Arrival-to-Disposition Time decreased from 212 minutes in 2017 to 123 minutes in 2018

(despite an Assessment volume increase of 12.7%). Crisis and Access combined to meet 6 out of 6 quality metric targets for year 2018. Also, for fiscal year 2018, Crisis and Access departments came in under budget for the year.
Conclusion: Though other factors such as supportive Executive Leadership, additional FTE resources, and highly skilled teams have definitely contributed to this success, the operational data techniques employed by the leaders of the Crisis and Access departments have been a driving factor to the highly successful performance of these two departments.

O12 **The Way We Improve- delirium recognition in older adults who are hospitalized outside of an ICU environment**. (Margaret Campbell, MSN; George El-Hoyek, MD, MBA, CMD; Kimberly Moran, MSN, AGNP-BC; Heather Allie, BSN, RN-BC, GRN; Erin Wire, MSW, LSW; Darami Daniels, MS, RN; Molly Locke, PharmD; Teasa Thompson, MPH; Courtney Hagen, BS; Lindsay Wahl, PMP; Mark Pfeifer, BA)

Introduction: Early identification of older adults who experience delirium in the hospital environment is a key factor for the reduction of harmful events and poor outcomes that can arise in this vulnerable population. Screening for delirium on medical-surgical units within Community Health Network (CHNw) has not been well established.
Objective(s): The primary objective of this project was to increase the utilization of the CAM-Simple assessment for identifying delirium in older adults on the Medical, Renal, Oncology unit at Community North Hospital from 0% to 80%.
Method(s): This was a process improvement project utilizing The Way We Improve Framework at CHNw. The primary endpoint was completion rates of the CAM (simple) screening tool. Older adults are defined as individuals age 65 and older. 4 working groups were established; Care Connect optimizations workgroup, education workgroup, nursing care plan workgroup, and provider order set & exclusion criteria workgroup.
Result(s): This project started 11.14.18 and will continue for 90 days until 02.14.19. Further data analysis will be available at that time. Through January 29, 2019, completion rates were 85.5%.
Conclusion(s): An objective screening tool for delirium, the CAM (simple) assessment, allows nurses at the bedside to recognize delirium in a standardized manner. Further expansion of the CAM (simple) assessment tool is recommended on med-surg units at CHNw hospitals utilizing TWWI framework. Further research is needed to review additional impacts of utilizing the CAM (simple) assessment including the length of stay, readmission rate, overall cost, and mortality rates of patients who were known to experience delirium.

O13 **Outcomes of neonates born to mothers with opioid use disorder.** (Jafreen Sadeque, MD, MS; Sandra Pena, MD; Melody Jordahl-Iafrato, MD; Suyog Kamatkar, MD, MS, Epi

Introduction: Medication assisted therapy (MAT) is used to treat opioid use disorder, a public health emergency. However, few studies compare effects of gestational MAT on neonates.
Objectives: To identify how in utero exposure to methadone, buprenorphine, or no MAT affects neonatal hospitalization length and pharmacotherapy requirements to treat neonatal abstinence syndrome (NAS).
Methods: This is a retrospective chart review of 156 mother-neonate dyads admitted to Community Health Network over 24 months. Subjects were identified by electronic medical record query for opioid-positive maternal or neonatal urine drug screens, opioid-positive neonatal cord blood, maternal MAT enrollment, or NAS diagnosis. Mothers without opioid use disorder were excluded. Data were collected on maternal MAT program enrollment (if any), neonatal hospitalization length, NAS treatment type and length, and potential correlates. Correlates included demographics; maternal use of tobacco, illicit

drugs, or SSRI; gestational age; neonatal biometrics; and others. One-way analysis of variance was performed.
Results: 42 neonates were born to mothers not in MAT antepartum (non-MAT group), 46 to mothers treated with methadone (methadone group), and 68 to mothers treated with buprenorphine (buprenorphine group). Neonatal hospitalization lengths averaged 21, 26, and 16 days for non-MAT, methadone, and buprenorphine groups, respectively (p=0.0064). Neonates requiring opioid to treat NAS were 86%, 70%, and 48% in non-MAT, methadone, and buprenorphine groups, respectively (p=0.00011). Neonates requiring two opioids were 7%, 7%, and 0% in non-MAT, methadone, and buprenorphine groups, respectively, while those requiring phenobarbital were 17%, 9%, and 11% in the groups, respectively. Pharmacotherapy duration for NAS averaged 17, 15, and 8 days in non-MAT, methadone, and buprenorphine groups (p=0.0012). Analysis on potential correlates is pending.
Conclusions: Managing gestational opioid use disorder with buprenorphine yields shorter neonatal hospitalizations and NAS pharmacotherapy duration compared to methadone or no MAT. Further research is needed to determine which maternal treatment minimizes neonatal effects.

O14 Introduction of longitudinal teams to teach quality improvement in a family medicine residency patient centered medical home

. (Rachel Shockley, DO; Jennifer Collins, PharmD; Jaymin Patel, DO; Wenjie Zhang, DO; Nicole Schmitt, DO; Kaitlyn Wong, RD; Julie Stenger, RN, BSN; Vanessa Blake, MA; Shimicka Roland, MA; Lisa Polen, Admin Assistant)

Introduction: The Accreditation Council for Graduate Medical Education requires family medicine residents to participate in interprofessional quality improvement activities. Multidisciplinary longitudinal teams were created at a family medicine residency. The goal was to improve diabetic quality metrics, to have 80% of the clinic's diabetic patients achieve a hemoglobin A1C less than 8%.
Methods: A prospective observational study design and Lean Six Sigma methodology guided the interventions. A multidisciplinary team with a pharmacist, dietitian, social worker, nurse, manager and physician obtained a Lean Six Sigma yellow belt. The percentage of patients with a hemoglobin A1C above 8% was measured. If any patient no longer received primary care from one of our clinic's physicians, they were removed from the clinic list. A medical assistant contacted any patients who were overdue for follow-up and schedules an appointment with their provider and with the pharmacist and dietitian for medication adjustments and lifestyle changes if their A1C was above 8%. The percentage of patients with hemoglobin A1C levels below 8% was assessed monthly. This project will continue over the academic year or until we reach and sustain our goal.
Results: The initial goal was improving percentage of patients with a hemoglobin A1C less than 8% from 45% to 80% over a 6-month time period. The percentage of patients meeting this goal was 44.6% at baseline, followed by 45.0% at month two when the first intervention was implemented, 47.7% at month three, and 51.7% at month four.
Discussion: The project is in progress. The first intervention resulted in a 7.1% improvement from baseline. We hope for continued improvement and to achieve the goal. Another goal is teaching quality improvement to residents utilizing a novel approach to improving hemoglobin A1C levels. Ideally, residents will use these skills moving forward and implement quality improvements later in their careers.

O15 Effect of knee range of motion on return to full quadriceps strength at 1 year post-op following anterior cruciate ligament reconstruction with contralateral patellar tendon graft change.

(Sarah Eaton, PT, DPT, ATC; William Claussen, PT; Scot Bauman, PT, DPT)

Purpose/Hypothesis: Quadriceps strength deficits are common following ACL reconstruction. Many rehabilitation programs suggest inter-limb differences should be less than 10% before returning to

sports, but many patients never achieve this. Lack of full knee extension has been shown to play a role in deficits such as quad weakness; however, limited data looking at the long-term implications exists. We hypothesize that patients with normal ROM at 1-year post-op would have greater mean quad strength and strength, to within 10% of the opposite limb, than those with abnormal ROM.
Materials/Methods: From 1988-2012, 978 patients underwent primary ACL reconstruction with contralateral PTG and completed 1-year post-operative testing. Using the IKDC scoring system, patients were categorized into a normal group and an abnormal group based on ROM. The normal group included patients with knee extension within 2° and flexion within 5° of the non-involved knee while the abnormal group consisted of patients lacking normal extension and/or flexion. Quadriceps strength was evaluated using Cybex testing at 180°/sec and 60°/sec.
Results: Out of 978 patients, 87 had abnormal ROM and 891 had normal ROM. 60% of patients with normal ROM had symmetrical strength within 10% between knees versus 47.2% with abnormal ROM (P=0.033) with testing at 60°/sec. When looking at mean quad strength, the normal ROM group was 105.6% versus 101.4% in the abnormal ROM group (P=0.04) at 60°/sec. At 180°/sec, the mean was 100.9% in the normal ROM group compared with 97.3% in the abnormal ROM group (P=0.021).
Conclusions: At 1 year post-op, patients with normal ROM had statistically significantly greater quad strength, as well as side-to-side strength within 10% than those with abnormal ROM. Patients who do not obtain normal ROM have decreased likelihood of obtaining full quad strength at 1-year post-op compared to those that do obtain normal ROM after ACL reconstruction.

O16 Standard versus high-dose enoxaparin for venous thromboembolism prophylaxis in morbidly obese patients

. (Emily Jones, PharmD; Tracy Costello, PharmD, BCPS; Eric Lis, PharmD, BCPS)

Introduction: Currently there are no FDA-approved thromboprophylaxis dose adjustments for obese patients. Although the Chest Guidelines and additional literature support the notion to increase prophylactic doses of enoxaparin in obese patients, there is no consensus on dosing or the weight, body mass index (BMI), or BMI threshold to use.
Objectives: The primary objective of this study is to evaluate the incidence of venous thromboembolism and bleeding events in morbidly obese patients with a BMI of 40 kilograms per meter squared (kg/m2) or greater who received either high-dose thromboprophylaxis enoxaparin 40 milligrams twice daily subcutaneously versus standard dose thromboprophylaxis enoxaparin 40 milligrams once daily or 30 milligrams twice daily subcutaneously.
Methods: This is a retrospective chart review. Patients aged 18 to 89 years who were admitted to an inpatient service at one of three pre-defined community hospitals between January 1, 2014 and June 30, 2018 will be reviewed for eligibility in the study. To be included, a patient must have a BMI of 40 kg/m2 or greater, admitted for 48 hours or longer, received either high-dose or standard-dose enoxaparin for thromboprophylaxis, and were not receiving hemodialysis, continuous renal replacement therapy, or have a creatinine clearance less than 30 milliliters per minute. The primary outcome is incidence of venous thromboembolism and bleeding events, which will be gathered via International Classification of Diseases tenth revision codes. Secondary outcome measures include type of venous thromboembolism and severity of bleeding, which will be determined by manually reviewing the patients' chart and using the major and minor bleeding criteria, as well as length of stay for those patients who experienced a venous thromboembolism or bleeding event versus those who did not.

O17 **Impact of procalcitonin use on duration of antibiotic therapy in patients with community-acquired pneumonia**. (Haley Smith, PharmD; Eileen Rohrbach, PharmD, BCPS; Brittany Copeland, PharmD, BCPS)

Introduction: Procalcitonin (PCT) is a precursor hormone of calcitonin that is upregulated in response to bacterial infection. It is approved by the Food and Drug Administration for use to guide antibiotic therapy in sepsis and lower respiratory tract infections. Within Community Health Network (CHNw) the use of PCT has increased over the past two years due to rapid availability of results. Antibiotic prescribing and PCT ordering practices have yet to be formally studied in community acquired pneumonia (CAP) within CHNw. It is important to understand its utilization, impact on duration of antibiotic therapy, and effect on patient outcomes to optimize use.

Methods: A retrospective chart review was conducted via the electronic medical record of patients admitted to Community Hospital North, East, and South with an admitting diagnosis of CAP. Patients admitted from November 2016 - January 2017 without a PCT drawn and from November 2017 – January 2018 with a PCT drawn within 24 hours of admission were randomly selected for inclusion. Patients with comorbidities or medications that may falsely elevate PCT were excluded. The first primary objective was to evaluate duration of antibiotic use (in days of therapy) in patients with CAP prior to and after the rapid availability of PCT within CHNw. The second primary objective was to evaluate provider antibiotic ordering practices after the rapid availability of PCT at CHNw. Patients with an initial positive PCT (≥ 0.25 mcg/ml) who had antibiotic therapy discontinued within 24 hours of a subsequent negative result were compared with patients who did not have antibiotics discontinued within 24 hours of a subsequent negative result.

Results: Results are pending and will be completed prior to April 2019.

O18 **Caregiving and attachment dysregulation: The effects of pathological mourning.** (Steffani Kizziar, MA; Carol George, PhD)

Introduction: Intergenerational transmission of attachment experience, especially trauma, is often the foundation of developmental and mental health problems. Attachment theory and research helps us understand the nature of the generational impact of incomplete, “pathological,” mourning in the primary caregiver. Attachment research has demonstrated the connection between maternal representations of childhood attachment and children’s attachment. These correspondences are statistically significant but not perfect. There is a paucity of research into how pathological mourning impacts expected patterns of transmission (beyond the unresolved-dysregulated relationship). Contemporary attachment theory suggests that the caregiving system is the way station between mothers’ and children’s attachment. It is crucial for providers to understand the pathways by which transmission of unintegrated maternal trauma impacts children’s attachment.

Objectives: This study is the first in the field of attachment to examine intergenerational transmission of maternal attachment in the context of the caregiving system as the transmission waystation and explores attachment “mismatches” (between mother and child) in the context of Bowlby’s model of pathological mourning.

Methods: Mothers (N = 97: Mage = 37.76 years) of 4-5 year-old-children (N = 97; Mage = 58.30 months; 55.7% girls) from diverse backgrounds participated in a laboratory study on the development of caregiving. Adult attachment (secure, dismissing, preoccupied, unresolved) and pathological mourning (failed mourning, preoccupied with personal suffering, chronic unresolved mourning) were assessed using the Adult Attachment Projective Picture System; child attachment (secure, avoidant, resistant, disorganized) was assessed using the Attachment Doll Play Assessment; caregiving groups associated with the four child attachment groups) was assessed from observations of mother-child interaction with an infant doll that cries.

Results: Hypothesis 1 predicted that maternal attachment would be significantly associated with children's attachment except for mothers in the pathological mourning groups. Hypothesis 1 was supported. Hypothesis 2 predicted that pathological mourning would be associated with disturbances in caregiving behavior. Hypothesis 2 was supported. There were significant group differences on: sensitivity, heightened (over-involved), abdication (turning away), and delight.
Conclusions: This study affirmed that maternal caregiving is the process by which transmission takes place and that pathological mourning disrupts predicted associations from maternal to children's attachment patterns. The results show that current attachment models that focus exclusively on the transmission of attachment without considering the role of trauma on the caregiving system are incomplete. Treatment of dyads at risk would benefit from precise descriptions of the type of mourning and caregiving elucidated in this study.

O19 How do performance test measurements of high school athletes released to return to play following lower extremity injury compare to pre-season baseline scores?

(Ellen Hornett, SPT; Haley Lehman, ATS; Briana Leonard, SPT; Brooke Stevenson, ATS; Ed Jones, PT, DHSc; Jessica Jochum, PhD, LAT, ATC; Meghan Partenheimer, MS, LAT, ATC)

Introduction: Functional performance tests have been used to assess components of sport performance and to determine readiness for return to play following injury. The Y-balance test, and single-limb hop tests are commonly used in this decision. There is little evidence comparing baseline scores on these tests to post-injury scores for return to play decisions across sports with lower extremity injury in the adolescent athletic population.
Objectives: The primary objective of this study is to compare scores from functional performance tests (T-test for agility, Y-Balance test, and single-limb hop tests) at the time of release to return to sport following an injury to pre-season baseline scores.
Methods: This is a prospective repeated-measures study of varsity athletes at two Indianapolis-area high schools. Demographic data and score for each of the following tests were recorded during a single testing session prior to the start of the athletic season: T-test for agility, Y-Balance test, and a series of single-leg hop tests. Athletic trainers employed at the schools then conducted injury surveillance during their respective sports season. In those participants sustaining an injury during the season, scores were re-measured at the time of release to return to play. Following Shapiro-Wilk test for normality of the data, paired sample t-tests will be used to evaluate differences between scores recorded in the pre-season testing and the scores recorded at the time of release to return to sport for each participant. If data is not normally distributed, non-parametric testing will be completed to describe these between-group differences.
Results: To date, 13 (10 male, 3 female) participants of the 235 total athletes in the study have sustained a lower extremity injury by protocol definition. Injury surveillance will continue through March 2019 (completion of winter sport seasons). Descriptive statistics will be share as well as a comparison of pre-season measures and RTP measures to identify trends.
Conclusion: Results of the study will be discussed in the context of current literature on the topic.

O20 Intrapleural alteplase (tPA) and dornase alfa (DNase) for the treatment of pleural effusions and empyema

. (Amber Ooley, PharmD; Kellianne Webb, PharmD, BCPS; Alexander Cairns, PharmD)

Introduction: Complicated parapneumonic effusions and empyema are complications of pleural infections that do not resolve with antibiotic therapy alone. In recent years, physicians within Community Health Network have been increasing utilization of intrapleural therapies via chest tube, most notably the combination of alteplase (tPA) and dornase alfa, as an alternative to thoracic surgery.

Objectives: The primary objective of this study is to compare the rates of treatment success in patients who received only intrapleural tPA compared to those who received intrapleural tPA and dornase alfa combination therapy. Secondary objectives include the incidence of adverse events and comparison of efficacy differences between different administration schedules.
Methods: A retrospective chart review was conducted on patients who received a dose of either intrapleural tPA or the combination of intrapleural tPA and dornase alfa between August 1, 2012 and July 31, 2018. The following data was collected: patient age, sex, hospital location, diagnosis, medication order information, administration schedule, days of therapy, presence of positive pleural fluid culture, cumulative chest tube output prior to therapy and up to 72 hours after therapy, occurrence of adverse drug reactions, surgical referral, overall outcome, and length of stay information. Treatment success was defined as resolution on radiographic imaging without the need for surgical intervention during that admission.
Results: Seventy-five patients were included, in 77 encounters. Of 50 patients who received intrapleural tPA alone, 14 (28%) met the pre-specified definition of treatment success; of 27 patients who received combination therapy, 17 (63%) met the definition. Eight patients experienced adverse events related to drug administration. Statistical analysis for this study is ongoing.
Conclusion: Intrapleural combination therapy with both tPA and dornase alfa appears to be more efficacious than intrapleural tPA alone for treatment of pleural effusions and empyema. Statistical analysis is ongoing.

O21 **Escape from diabetes.** (Jessica Jochum, PhD, LAT, ATC; Jennifer Carmack, DNP, RN; Jane Toon, DNP, RN; Elizabeth Moore, PhD)

Introduction: Research shows that interprofessional education (IPE) activities that involve problem solving in the context of patient care that requires cooperation and communication among the professions is most effective. An effective activity to meet interprofessional competencies is the use of escape rooms. There are many benefits to using escape rooms in education including promoting problem-solving, teamwork, and creativity. It is reported that the most successful escape room teams are made up of members of diverse backgrounds.
Objectives: 1. To determine if participation has an impact on student attitudes toward interprofessional teams and team approach to care and improves student knowledge. 2. To explore student perceptions of the experience.
Methods: This interprofessional escape room activity partnered nursing and athletic training (AT) students together to solve three complex puzzles to apply their knowledge of diabetes management and escape the room. A variety of puzzle types and diabetic topics were used to elicit student engagement. These puzzles included: glucometer readings, hyperglycemic/hypoglycemic symptoms and treatment, carbohydrate counting, patient education, insulin administration, and patient evaluation. To evaluate the impact of the activity students completed pre-test and post-test Student Perceptions of Interprofessional Clinical Education–Revised (SPICE-R) tool, which is a validated tool. They also completed pre-test and post-test diabetes knowledge assessment (DKA) questionnaire that was developed by the investigators to include questions both professions could answer related to diabetes and the puzzles included in this escape room.
Results: For the DKA, the nursing students scored significantly higher than the AT students. There was a significant improvement in scores for the AT students, but not for the nursing students. The SPICE-R pre-test and post-test scores showed a statistically significant difference in all subscales among both professions; Teamwork (.013), Roles/Responsibilities (.001), Patient Outcomes (<.001).
Conclusion: DKA scores may have had no significant improvement in nursing because the senior nursing students have had more experience caring for patients with diabetes and thus had higher

scores in the pre-test with no room for growth. The statistical significance with the SPICE-R could be related to the fact that this escape room did a great job at connecting each puzzle to aspects of interprofessional collaboration such as, learning to work in teams, defining roles within those teams, and realizing the effects on patient outcomes. The improvement in SPICE-R scores and the subjective feedback from the students after the activity show that this escape room was a success at allowing students to work as a team.

O22 Changes in microvascular oxygenation & total hemoglobin concentration during neuromuscular electrical stimulation.

(Karisa Brown, SPT; Alex Reel, SPT; Tommy Dishion, SPT; Crystal Blair, SPT; Brett Ortman, SPT; Trent Cayot, PhD, EP-C; James Bellew, PT, EdD)

Introduction: Efficacy of NMES is predicated on eliciting sufficient muscular force to promote increases in muscle strength. Previous studies have shown differences in elicited muscle force among NMES waveforms. Near-infrared spectroscopy (NIRS) is a non-invasive method of assessing physiological changes (i.e. changes in oxygen used by the muscle (SmO2) and blood volume ([THC])) that occur during muscle contraction. The use of NIRS during electrically elicited muscle contractions can offer novel information on the physiological changes in skeletal muscle with different NMES waveforms.

Objectives: To compare SmO2, [THC] and muscle force during NMES-elicited contractions of the quadriceps using three commonly used therapeutic electrical waveforms.

Methods and Data Analyses: Russian, VMS®, and VMS-burst® waveforms were used to measure maximal elicited isometric force (MEIF) of the quadriceps during ten 10sec contractions with 20sec between repetitions. NIRS was used to assess SmO2 and [THC] during each contraction. Normality of all the dependent variables were tested using the Shapiro-Wilk test. One-way repeated measures analysis of variance (ANOVA) was used to determine the effect of the NMES waveforms on MEIF and SmO2 data. Because [THC] data did not meet criteria for normality, one-way repeated measures ANOVA on ranks was used to determine the effect of NMES on the [THC].

Results: Significant main effects were identified for MEIF ($p<0.001$) and SmO2 ($p=0.001$) but not THC ($p=0.627$). VMS-burst (285 ± 143 N, $p < 0.001$) and VMS (220 ± 146 N, $p = 0.009$) yielded significantly greater MEIF than Russian (102 ± 80 N). Furthermore, both VMS-burst (-43.3 ± 20.1%, $p = 0.005$) and VMS (-44.0 ± 18.0%, $p = 0.003$) resulted in significantly greater oxygen use (SmO2) than Russian (-24.6 ± 18.4%).

Conclusions: Greater oxygen use and muscle force were elicited with the VMS-burst and VMS waveforms vs Russian current. These findings offer new evidence to guide clinical decision making when selecting an NMES waveform for increasing muscle activation and strength.

O23 Rehabilitation and outcomes following a patellar tendon repair using a Dall-Miles cable: A retrospective case study.

(Scot Bauman, PT, DPT)

Background/Purpose: Patellar tendon ruptures are rare, affecting less than 0.5% of the US population annually. In order to regain function of the extensor mechanism, surgery to repair the tear is necessary. To avoid immobilization, repair with augmentation is preferred; however, time to return to desired function was lengthy. Using a Dall-Miles cable protects the repair and allows for early mobilization, leading to earlier limb symmetry and return of function. The purpose of this study was to assess rehabilitation/outcomes after a patellar tendon repair using a Dall-Miles cable.

Case Description: The patient was a 35-year-old male. Before surgery, he performed rehabilitation to maximize range of motion (ROM) and decrease swelling. Thirteen days after his injury, he underwent patellar tendon repair using a Dall-Miles cable. Rehabilitation in the clinic started one week post-operatively with goals of full extension, maximized flexion, swelling reduction, and normal leg

control/gait. Once he attained these goals, surgery was performed to remove the cable and he continued rehabilitation with goals of attaining symmetric ROM/strength.
Results: After the patellar tendon repair, the patient attained symmetric extension at 2 weeks, normal straight leg raise at 3 weeks, discontinued the immobilizer at 3 weeks, initiated strength exercises at 4 weeks, active heel lift at 6 weeks, and maximum flexion as allowed by the cable at 8 weeks. After the cable removal surgery, he attained symmetric extension by day 3, symmetric flexion and no joint effusion at 4 weeks, nearly normal quadriceps strength at 8 weeks when measured by the isokinetic strength tests (77-81%), initiated jogging program at 8 weeks, symmetric quadriceps muscle strength (100-103%) at 4 months and maintained this at 8 months.
Discussion: A patellar tendon repair using a Dall-Miles cable allows for early ROM/strength exercises, leading to an early return of limb symmetry and desired activity levels.

O24 Use of warfarin versus direct oral anticoagulants in obese individuals for the treatment of venous thromboembolism

. (Connor Hummel, PharmD; Sandi Lemon, PharmD, BCPS, BCCCP; Matthew Mishler, PharmD, BCPS)

Introduction: Venous thromboembolism (VTE) is a blood clot that originates in a vein and has two subtypes: deep vein thrombosis and pulmonary embolism. Current oral anticoagulation therapy includes warfarin or a direct oral anticoagulant (DOAC). DOACs are increasingly being utilized due to their fixed dosing, limited dietary and medication interactions, and lack of routine monitoring. Providers are selecting DOACs over warfarin in obese individuals despite limited clinical data supporting their efficacy and safety in this population.
Objectives: The primary objective of this study was to evaluate the rate of VTE recurrence in obese individuals treated with warfarin compared to a DOAC. The secondary objectives of this study were to evaluate the rate of major bleeding in obese individuals treated with warfarin compared to a DOAC and to evaluate the proportion of individuals who received appropriate parenteral bridging anticoagulation (when applicable).
Methods: A retrospective chart review evaluating patients > 100 kg receiving warfarin and those receiving a DOAC for treatment of initial VTE. DOACs included in this study were apixaban (Eliquis™), dabigatran (Pradaxa™), edoxaban (Savaysa™), and rivaroxaban (Xarelto™). Initial VTE was defined as no prior history of VTE (deep vein thrombosis or pulmonary embolism). Excluded patients were those on chronic anticoagulation prior to initial VTE and those on warfarin for initial VTE with an INR goal different than 2-3. Additionally patients receiving either hemodialysis or continuous renal replacement therapy were excluded. Recurrent VTE was defined as VTE occurring ≤ 6 months following initial VTE, and the International Society on Thrombosis & Haemostasis' definition of major bleeding was used.

O25 The effect of body mass index on functional outcomes following total knee arthroplasty.

(Rachel Krupski, PT, DPT)

Purpose/Hypothesis: Previous studies exist which show that patients with high BMI, experience worse functional outcomes than non-obese patients following a total knee arthroplasty. One study we reviewed defines high BMI as ≥30. Previously investigated outcomes include both patient-reported measures such as the Western Ontario and McMaster Universities Osteoarthritis index (WOMAC) and Oxford Knee Score, as well as functional outcomes such as walking distance and Timed-Up and Go (TUG) test. The purpose of this study was to determine how BMI affected strength, TUG test, and subjective surveys in our patient population. This determination will aid in the decision making process when assessing if a patient is a candidate for surgery.
Materials/Methods: Data was retrospectively reviewed from our existing patient database. Patients were divided into four study groups based on the World Health Organization's classifications for BMI

(18.5-24.9 Normal, 25.0-29.9 Overweight, 30.0-39.9 Obese, >40 Morbidly Obese). At 1 year postoperatively, 299 patients were evaluated (21 Normal, 73 Overweight, 147 Obese, 58 Morbidly Obese). Clinical evaluations analyzed included quadriceps muscle strength measured on an isokinetic strength test, the Knee Injury and Osteoarthritis Outcome Score (KOOS), and TUG functional measure. Isokinetic strength scores were recorded as a calculated percentage of strength compared to the non-involved knee with knee symmetry being the goal.
Results: No statistically significant differences were noted between quadriceps strength on the 120°/sec (P=.2994) or 180°/sec (P=.3279) isokinetic strength test across the four BMI groups. There was no statistically significant difference between the four BMI groups for mean KOOS sub-scores including pain (P=.7930), symptoms (P=.2781), activities of daily living (P=.4756), sport (P=.0622), and quality of life (P=.8681). The morbidly obese group (BMI>40) had a statistically significantly slower mean TUG time (7.3 seconds) compared with the other 3 BMI groups, which were 6.7 seconds for both normal and obese groups and 6.8 seconds for the overweight group (P=.0022)
Conclusion: The results of this study showed that, at 1 year after TKA surgery, there was no statistically significant difference in quadriceps strength or KOOS subjective scores based on BMI. The TUG test showed that the morbidly obese group was slower than the other BMI groups. The results in our patient population do support the previous conclusion that obese patients do worse functionally following a TKA. We conclude that patients should not be excluded from a TKA surgery solely based on BMI.

O26 Use of a student-driven centralized service to improve medication adherence rates.

(Brad Carqueville, PharmD; Kathryn Pelkey, PharmD, BCACP; Megan Dorrell, PharmD, BCACP)

Introduction: For many chronic disease states, a lack of adherence can lead to worsening of the associated condition, increased morbidity and mortality, and increased overall healthcare spending. Additionally, adherence is one of the factors affecting reimbursement rates from the Center for Medicare and Medicaid Services (CMS) and commercial payers. CMS provides Star Ratings based on both the overall and individual scores that represent quality and performance, with higher ratings being associated with higher rates of reimbursement. As such, there is both a patient care and financial incentive for a healthcare network to improve medication adherence rates.
Objective: The objective of this study is to evaluate the impact of a student-driven centralized adherence-call service on patient care, adherence rates, star ratings, reimbursement, and pharmacist workflow.
Methods: A prospective study will determine the impact of a student-driven adherence call service by pharmacy students on ambulatory care rotations with Community Health Network. Patients are included in the study if they are identified by payers as being overdue for a refill on a medication measured by the CMS Star Ratings system (i.e. hypertension, diabetes, and statin medications). Students will make calls from patient lists provided weekly by payers, tracking their outreach and number of interventions made to show the impact on patient care. They will also track the hours made making calls. Adherence rates are generated by payers and are shared with the network. These rates as well as the final Star Ratings will be compared and matched from the year prior to initiation of call service to the months after the initiation of the service.
Results: To be presented at the Multidisciplinary Scholarly Activity Symposium
Conclusion: To be presented at the Multidisciplinary Scholarly Activity Symposium

O27 **The use of physical performance testing to predict lower extremity musculoskeletal injury in high school athletes**. (Austin Kiel, SPT; Claire Moorman, ATS; Jacob Roop, SPT; Victoria Schaefer, SPT; Ed Jones, Pt, DHSc; Jessica Jochum, PhD, LAT, ATC; Meghan Partenheimer, MS, LAT, ATC)

Introduction: Various functional tests and injury screens exist to assess lower extremity function and symmetry including the Functional Movement Screen (FMS), T-test for agility, Y-Balance, and single leg hop tests. However, there is limited evidence for the utility of these test scores and values and to capture measurements of symmetry in strength, power and agility to reliably predict lower extremity musculoskeletal injury in the high school athletic population across sports and gender.

Objectives: The primary objective of this research study is to examine functional performance tests including the T-test for agility, Y-Balance test, and various hop tests to determine if their utility to predict lower extremity musculoskeletal injury risk for the high school athletic population.

Methods: The study design for this project is a prospective longitudinal cohort of varsity athletes at two Indianapolis-area high schools. Demographic data and scores for each of the following tests were recorded during a single testing session prior to the start of the athletic season: T-test for agility, Y-Balance test, and a series of single leg hop tests. Athletic Trainers employed at the high schools then conducted injury surveillance and maintained records regarding participants' injuries during their respective sports season. Following Shapiro-Wilk test for normality of the data, injured and non-injured groups will be analyzed for differences between-groups using independent sample t-tests analyzed at the $p<0.05$ alpha priori level. If data is not normally distributed, non-parametric testing will be completed to describe these between group differences. If the study is not sufficiently powered, data collection will continue and trends will be described.

Results: Of 235 participants in the study, 13 sustained a lower extremity injury by protocol definition to date. Descriptive statistics of these injured athletes (10 male, 3 female) will be available once data collection is complete. Injury surveillance will continue through March 2019 (completion of the winter sport seasons). Results pending data collection and analysis.

Conclusion: Results of the study will be discussed in the context of current literature on the topic.

O28 **Case study: Thrombotic/hemorrhagic stroke in the setting of von Willebrand disease.** (Kyle Gehres, DO)

Von Willebrand disease is the most common inherited bleeding disorder, affecting one percent of the population. This condition has been shown to be protective for thrombotic conditions, such as strokes and acute coronary syndromes. Our patient with von Willebrand disease conversely was found to have an ischemic and hemorrhagic cerebellar stroke, a finding requiring delicate management. A 44 year-old Asian female with a medical history of von Willebrand disease and hypertension presented with a four-day history of headache. It was associated with vertigo, nausea, and unsteady gait. On examination, she was afebrile with a blood pressure of 188/102. She had left arm weakness and right finger-to-nose ataxia. Her labs showed a leukocytosis of 14.2 k/mm3. An MRI with and without contrast revealed a moderate-sized acute and sub-acute infarct involving the inferior and medial right cerebellar hemisphere. Neurology ordered a CTA head and neck with contrast, which showed an occluded distal right vertebral artery and thrombus in distal left vertebral artery. Given her high risk of bleeding, rectal aspirin was used alone without heparin. A subsequent CT head without contrast showed tonsillar herniation. Neurosurgery refrained from decompression surgery. She continued to have a severe headache. Repeat MRI without contrast showed enlargement of the cerebellar infarction with increased mass effect and a new petechial-type hemorrhage. Fortunately, her headache improved after adding IV steroids to her narcotic regimen. Two additional head CTs showed stability of her infarction. She was tapered off her IV steroids/narcotics and transferred to acute rehab. Management of thrombotic and hemorrhagic strokes in those with von Willebrand disease is tricky and less standardized. Thrombolysis

and dual anti-platelet therapy are usually contraindicated. Conservative therapy, used in our patient, is often unsatisfactory. Alternative options include intravascular mechanical intervention or von Willebrand factor replacement with subsequent thrombolysis. In general, treatment strategies are individualized.

O29 **HPV: Easy as 1-2-3**. (Jafreen Sadeque, MD, MS; Sandra Pena, MD, Blane Riley, DO, Sarah Spurgeon, MD)

Introduction: HPV vaccines can prevent 28,000 cancers annually. Indiana has the fourth lowest HPV vaccination rate and could fail to achieve the Healthy People 2020 goal to have 80% of adolescents complete the vaccination series.

Objective: To increase HPV vaccination rates via simple provider-focused interventions.

Methods: This was a quality improvement project to increase HPV vaccination rates in a family medicine residency clinic (FMC). A lecture on HPV disease, barriers to vaccination, five evidence-based steps to increase vaccination rates, and vaccination logistics was presented to clinical and non-clinical staff ("intervention"). The clinic was surveyed pre- and post-intervention to assess attitudes towards and knowledge regarding HPV disease and vaccination. Six months later, provider reminders were introduced via abbreviated lecture, electronic medical record (EMR) macros, and posters. Patient data was gathered in monthly intervals for the year before and after the initial intervention. Number of HPV vaccines administered at FMC was identified via Children and Hoosier Indiana Registry Program, and number of physician visits by non-pregnant 9- through 26-year-olds was determined via EMR query. Ratio of these two values will be referred to as the "vaccination-to-visit-ratio." Chi square analysis was performed.

Results: Pre- and post-intervention surveys had 59 and 53 respondents, respectively. Attitudes toward HPV vaccination improved 4%-27%, but this was not statistically significant (p=0.07 to 0.20). Knowledge on HPV-related disease increased 1.6- to 3.7-fold (p= 1.58x10^-10 to 1.58x10^-3). Comfort recommending the HPV vaccine increased 1.9-fold (OR= 4.91) (p=0.00231). Vaccination-to-visit-ratio increased from 11.8% (351:2982) during the one-year pre-intervention period to 14.7% (379:2578) in the one-year post-intervention period (OR= 1.29, 95% CI 1.11-1.51) (p= 0.00125).

Conclusions: Simple, provider-focused interventions can improve HPV vaccination rates in a residency clinic. Further study may be performed on efficacy of other methods such as patient-focused interventions.

POSTER PRESENTATIONS

Atypical NMS on Clozapine

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Introduction

The diagnostic issues for neuroleptic malignant syndrome (NMS) have been discussed extensively and several proposals have been made. Figure 1 shows a summary of the criteria for NMS according to an international consensus study using the Delphi Method[1].

Many of the reports describing NMS with atypical antipsychotics do not strictly meet the diagnostic criteria for NMS. Given this variability of presentation with atypical antipsychotic-induced NMS, the syndrome has been referred to as atypical NMS.

It can be challenging but crucial to recognize atypical NMS and differentiate it from other diagnoses with similar presentations.

Case Presentation

A 36 year old male with history of schizoaffective disorder and multiple suicide attempts presented to the psychiatric unit after several suicide attempts and refusal to take his medications. He presented as flat and withdrawn with concrete thought processes, thought blocking, and appeared to be responding to internal stimuli. His medications included aripiprazole extended release injection and valproic acid, which were both continued.

Due to a suicide attempt during the hospitalization and labile affect, lithium 300mg twice daily was started and he subsequently reported a slightly better mood. However, two days later, clozapine 25mg nightly was added and titrated up due to mood congruent auditory hallucinations. Seven days later, with clozapine at 150mg nightly, he had a second suicide attempt, barricading himself in his room, and was given two olanzapine IM injections, 5mg then 10mg, within 24 hours.

His agitation continued and, over the next 48 hours, began having episodes of urinary incontinence, fluctuating mental status changes, a fever of 104.6^{0}F and HR of 142bpm. His BP was 99/52mmHg and he had no signs of rigidity, hyperreflexia, or clonus. All psychiatric medications were discontinued and he was transferred to the medical ICU.

Case Presentation

Labs/Imaging: blood glucose, blood cultures, blood cell count, venous blood gas, serum electrolytes, liver and renal function, lactic acid, procalcitonin, thyroid stimulating hormone, urinalysis and urine culture, ammonia, magnesium, folate and vitamin B12, respiratory viral panel, troponin I and CK-mb, valproic acid and lithium levels, inflammatory markers, and syphilis and HIV antibody reactivity as well as chest x-ray and head CT.

This medical workup was unremarkable for a cause of the patient's presentation. Of note, his CK was measured 4 times, all being within normal limits.

The patient was given a 10 day course of dantrolene. After he was medically stabilized and transferred back to the psychiatric unit, he was restarted on valproic acid 500mg bid and quetiapine 25mg nightly with slow titration to a final dose of 300mg. Over the next 3 weeks, his psychiatric symptoms improved and he was able to be discharged.

Figure 1:

DSM-5 (Typical NMS)	***Atypical NMS***
Essential Criteria • Exposure to Dopamine antagonist or dopamine agonist withdrawal, within past 72 hours Clinical features • Hyperthermia (>100.4^{0}F on at least 2 occasions, orally) • Rigidity • Reduced or fluctuating levels of consciousness • Sympathetic nervous system lability, defined as at least 2 of the following: o BP elevation or fluctuation o Urinary incontinence o Diaphoresis • Hypermetabolism, defined as HR increase and RR increase Laboratory features: • CK elevation (at least 4x upper limit of normal) Exclusion Criteria • Negative work-up for infectious, toxic, metabolic, and neurological causes	No recognized diagnostic criteria have been established. May include any combination of the listed criteria without meeting diagnostic criteria for typical NMS. Temperature elevation, muscular rigidity and/or elevated CPK may not be present or present to a lesser extent.

Discussion

This case highlights the diagnostic dilemma of atypical NMS and the holes in our current understanding of the mechanisms behind its development. While atypical NMS is becoming more accepted, there is no current consensus on its diagnostic criteria.

There are differences in the presentations of NMS depending on the inducing atypical antipsychotic. NMS due to clozapine is known to present uncharacteristically with less extrapyramidal symptoms[2]. It has also been observed that autonomic dysfunction, including fecal or urinary incontinence, nausea, and vomiting as well as hyperpyrexia and tachycardia are the first symptoms to appear in clozapine-induced NMS[3]. Although there are minimal reports of normal CK with NMS, it may be possible in the absence of rigidity or with low body weight.

The differential diagnosis for our patient includes malignant catatonia, delirious mania, and heat stroke as well as serotonin syndrome. NMS is considered by many to be a form of malignant catatonia, therefore our patient may have been experiencing malignant catatonia with early development into NMS after receiving additional dopamine blocking agents. Due to the overlap and non-classic presentation, many of these diagnoses cannot be completely ruled out. Side effects or toxicity of clozapine should also be considered, as symptoms can overlap with NMS including fever, tachycardia, muscle stiffness, and delirium.

Lastly, polypharmacy was likely a major factor in the development of atypical NMS for this case. Additional studies may help to further investigate the potential increased risk and various manifestations of atypical NMS with polypharmacy.

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Full Knee Range of Motion: The Key to Knee Rehabilitation

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Introduction

- Many rehabilitation programs exist that emphasize the importance of strength in improving outcomes following knee problems or surgery
- Conversely, few studies exist that demonstrate the importance of achieving symmetrical knee Range of Motion (ROM) for maximizing successful outcomes of treatment for knee conditions.
- Regardless of condition or diagnosis, ROM is critical to the overall outcome.

Objective

- This presentation establishes the importance of achieving symmetrical ROM, particularly extension, in patients' long-term outcomes for non-operative or operative knees (Fig. 1 and Fig 2).

(Fig.1)

(Fig. 2)

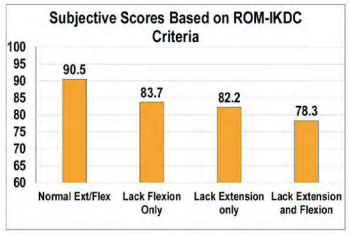
Evaluations of Knee Extension (Fig. 1) and Flexion (Fig. 2)

Methods

- We examined data from three different studies to determine consistency of patient outcomes based on ROM.
- The rehabilitation program was consistent regardless of knee diagnosis and surgical vs. non-surgical intervention.
- Emphasis was placed on achieving full extension first, then flexion followed by strength.
- A minimum 20-year post-ACL reconstruction study reviewed objective data of ROM, radiographs and subjective surveys.
- The non-operative osteoarthritis and total knee arthroplasty (TKA) studies compared ROM measurements and Knee Osteoarthritis Outcome Score (KOOS) scores.
- Once symmetry was attained, each patient was progressed back into their respective sport. Follow-up visits were done for ROM, strength testing, and subjective measures.

Results

- In the ACL study, there was a significant decrease in subjective scores when ROM deficits were present. (Fig. 3)



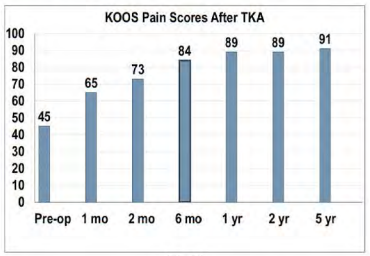
(Fig. 3)

- ROM loss significantly increased the odds of developing OA in the long-term.
- In the non-operative OA study, there was improvement in ROM despite the degree of OA present; 71% improved with extension and 58% improved with flexion.
- Overall arc of motion significantly improved with treatment. (Fig. 4)

Group	Initial	1 mon	3 mon	1 year
Unilateral	114	125*	128*	124*
Bilateral-Left Knee	112	118*	120*	116*
Bilateral-Right knee	113	119*	120*	115*

* Statistically significantly improved from initial evaluation (Fig. 4)

- Of 396 patients, only 24.4% went on to have TKA.
- In TKA patients, KOOS scores significantly improved with surgery. (Fig. 5)



(Fig. 5)

- In TKA patients, at 1 year post-surgery, the percentage with KOOS scores within normal range was 93% for pain, 84% for symptoms, 96% for activities of daily living, 91% for sport, and 90% for quality of life.

Conclusions

- Improving ROM deficits before concentrating on other rehabilitation goals is KEY to achieving any strength or functional goal.
- The rehabilitation program shown in these three studies is used with all patients at the Shelbourne Knee Center whether surgery was indicated.

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OPIOID Culture Change in Orthopedics

MeChelle Vance, MBA,MSSL, REEG/EPT, CNIM, CLTM[1]; Kani Phalakornkule, MS, MIS[2]; Steve Sexson, MD[3]; Kim Sharp, BSN, RN-BC[4]

Introduction

Every day, more than 130 people in the United States die after overdosing on opioids.

The current culture expectation of opioid use as the primary treatment for acute and chronic pain has created an opioid epidemic.

Prescription opioid drugs contribute to 40% of all US opioid overdose deaths.

The increase in opioid prescription medication corresponds to an increase in opioid diversion to nonmedical users as well as a resurgence in heroin use.

To tackle this critical health issue, all physicians, should be accountable for their direct or indirect contributions to the epidemic.

The Orthopedic physicians are determined to approach the epidemic by addressing the use, misuse and abuse of opioids, through leveraging data architecture and analytics through a comprehensive approach to study prescribing patters, as well as prescribing practices of each provider, creating a practice based opioid use consensus.

Method

Data abstraction was performed from the EMR for narcotic prescriptions. 2,876 patients and 84 prescribers included in the study

The population is defined as adult patients undergoing selected orthopedic procedures between Jan 1st, 2017 to Dec 31st 2018, at Community Health Network, acute care facilities.

27 medications are defined as narcotic, based on the grouper in the EMR system. Four Narcotic medications were in the 95% percentiles
(i.e. Hydrocodone/acetaminophen; Oxycodone HCl/acetaminophen; tramadol HCl and Oxycodone HCl) .

Visualization implemented utilizing QlikView for examining trend and frequency data. The time-series and frequency analysis were implemented in order to track any change in narcotic pills prescribed by providers and by narcotic types.

A one-tailed T-Test was used to test the hypothesis of a decrease in narcotic prescribed between 2017-2018, focusing on four medications.

The statistic result was significant at t-value = 1.8 (p-value = 0.42523) Therefore, the study concludes that there was a statistical decrease in narcotic prescriptions in selected outpatient procedures at the 95% confidence level.

Limitation:
The study only included the prescription in pills or tablets in analysis. The ability to calculating MME is required for transforming the amount of pill ordered to a true value of opioid usage.

Results

137,546 fewer opioid pills prescribed in just six-months, projected to be 275,092 fewer opioid pills annually

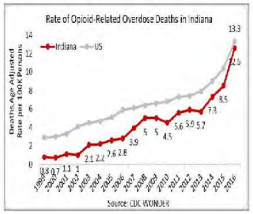
35% relative reduction in the average number of opioid pills prescribed

Nine less opioid pills, on average, per prescription written

Conclusion

Visualization and analysis of current prescribing habits, provided insight for the orthopedic physicians, to align with evidence based practice and initiate interventions to reduce the number of pills prescribed.

This has driven a decrease the number of pills prescribed by 35%.



Return of Bilateral Quadriceps Muscle Strength After Anterior Cruciate Ligament Reconstruction Using a Contralateral Patellar Tendon Graft

William Claussen, PT, Sarah Eaton, PT, DPT, ATC, LAT, Scot Bauman, PT, DPT,
Shelbourne Knee Center at Community Hospital East, Indianapolis, IN

Introduction

- Return of quadriceps muscle strength after anterior cruciate ligament (ACL) reconstruction can be difficult
- Patients often do not return to pre-injury level of function due to quadriceps weakness
- Many ideas exist for restoring quadriceps strength, but there is no consensus on how to achieve that goal

Purpose

- The purpose of this study was to determine if restoring full knee range of motion (ROM) would allow the return of full quadriceps strength following ACL surgery

Hypothesis

- We hypothesized that restoring full ACL knee ROM would allow the return of full quadriceps strength, and using a patellar tendon graft (PTG) from the contralateral knee would facilitate return of quadriceps strength in both knees

(Harvest of Patellar Tendon)

Methods

Between 2009 and 2013, 217 patients underwent primary ACL reconstruction in the same clinic using a PTG from the contralateral knee, and were enrolled in the study

- Before surgery, ROM and strength (isokinetic testing at 60˚/second) were measured bilaterally
- The pre-operative non-involved knee ROM and strength values were recorded as the baseline normal values for each patient
- Rehab goals postoperatively were divided between knees
- The ACL knee focus was to restore full extension (fig. 1) followed by flexion (fig. 2)

Figure 1

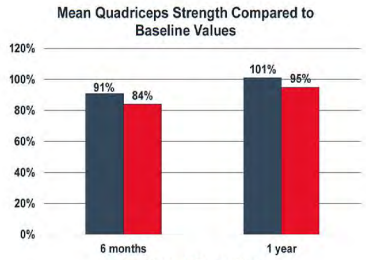
Figure 2

- The donor knee focus was to restore tendon strength through low load, high repetition exercise

- Once knees were symmetric for ROM and strength, patients progressed to pre-op values for strength bilaterally, and returned to pre injury levels of activity
- Strength and ROM were recorded bilaterally at 1 month, 2 months, 3 months, 6 months and 1 year postoperatively. IKDC criteria for normal ROM compared to opposite knee was used

Results

- Full ACL knee extension was restored early (98% were normal at 1 month), and maintained at 1 year post-op (100% were normal)
- ACL knee flexion compared to normal returned more gradually over the first year as expected (17% at 1 month, 85% at 6 months, 94% at 1 year)
- Combined normal extension and flexion compared to opposite knee was achieved in 94% of the patients by 1 year post-op.
- Quadriceps strength in both knees also returned over the first postoperative year
- Compared to preoperative baseline values, mean ACL knee quadriceps strength was 91% by 6 months (CI: 88, 94) and 101% by 1 year (CI: 98, 104). Donor knee strength compared to baseline was 84% by 6 months (CI: 81, 87) and 95% by 1 year (CI: 92, 97). (fig. 3)



(Figure 3)

Conclusions

- Return of quadriceps muscle strength after ACL reconstruction is possible
- With focus on return of ROM prior to return of strength, patients were able to restore ACL knee quadriceps strength to preoperative baseline values within the first year after surgery
- Dividing rehabilitation goals between knees also allows the donor site quadriceps strength to return during the first postoperative year
- Using a contralateral PTG provides a predictable return to normal ROM and strength in both knees after surgery.

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Rehabilitation and outcomes following a patellar tendon repair using a Dall-Miles Cable: a retrospective case study

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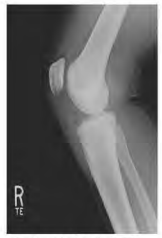
Introduction

- Patellar tendon ruptures are rare injuries, affecting less than 0.5% of the US population annually. To regain function of the extensor mechanism, surgery to repair the tear is necessary with many techniques used, both with and without augmentation.
- Repair without augmentation often requires immobilization, and with the detriments that this causes along with the benefits of early mobilization, augmentation to protect the repair and avoid immobilization can be beneficial.
- Different methods have been found to have good outcomes, however time needed to attain limb symmetry and return to desired function was lengthy.
- Using a stronger Dall-Miles cable avoids the detriments of immobilization by protecting the repair and allowing for aggressive mobilization early, leading to earlier limb symmetry and return of function when compared to previous studies.

Radiograph of normal patellar tendon height (lateral view)



Radiograph of patellar tendon rupture (lateral view)

Purpose

- The purpose of this study was to assess rehabilitation/outcomes after a patellar tendon repair using a Dall-Miles cable.

Case Description

- The patient was a 35-year-old male, recreational athlete who sustained a right patellar tendon rupture while playing basketball and landing from a jump. Before surgery, he was seen in therapy to maximize range of motion (ROM) and decrease swelling.
- Thirteen days after his injury, he underwent a patellar tendon repair with a Dall-Miles cable followed by bed rest with bathroom privileges.
- The patient spent one week wearing an immobilizer when walking until leg control was normal.
- Rehabilitation in the clinic started one week post-operative with goals of full extension, maximized flexion as allowed by the cable, swelling reduction, normal leg control, and normal gait.
- Once he attained these goals, he underwent another surgery to remove the cable (3 months post-operative).
- He went through another period of bed rest followed by rehabilitation with goals of attaining symmetric ROM/strength before getting back into running.

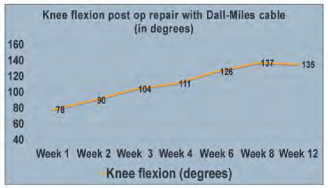
Treatment Schedule Post-op Repair With Dall-Miles Cable

	CPM stretch	Heel Slide	Quad set	Wall slide	Flexion hang	Active seated knee extension	Towel stretch	Straight leg raise	Low impact exercise	Step up	Step down	Single leg press	Weighted knee extension
Day 1-6	X	X	X										
1 Week	X	X	X										
2 Week		X	X	X		X							
3 Week		X			X	X	X	X					
4 Week		X				X	X	X	X	X		X	X
6 Week		X					X		X	X	X	X	X
8 Week		X					X		X	X	X	X	X
12 Week		X					X		X	X	X	X	X

Outcomes

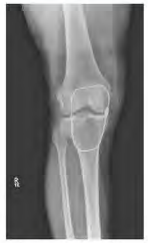
After the repair, the patient attained:

- symmetric extension at 2 weeks (10 degrees of hyperextension)
- active knee extension/straight leg raise at 3 weeks
- discontinued the immobilizer at 3 weeks
- initiated strength exercises at 4 weeks
- active heel lift at 6 weeks
- maximum flexion as allowed by the cable at 8 weeks (137 degrees)

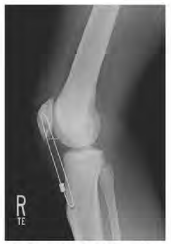


After the cable removal surgery the patient attained:

- symmetric extension at post-operative day 3 (12 degrees of hyperextension)
- symmetric flexion at 4 weeks (148)
- no joint effusion at 4 weeks
- nearly normal quadriceps strength measured on the isokinetic strength test at 8 weeks (180 deg/sec: 77%; 120 deg/sec: 81%)
- jogging program at 8 weeks
- symmetric quadriceps muscle strength on isokinetic test at 4 months (180 deg/sec: 103%; 120 deg/sec: 100%)
- maintenance of symmetric quadriceps muscle strength on both isokinetic speeds at 8 months



Radiograph of Dall-Miles cable (AP view)



Radiograph of Dall-Miles cable (lateral view)

Radiograph of patellar tendon height after cable removal (lateral view)

Discussion

- A patellar tendon repair using a Dall-Miles cable allows for aggressive rehabilitation through early ROM and strength exercises, leading to an early return of limb symmetry and an early return to desire activity levels.

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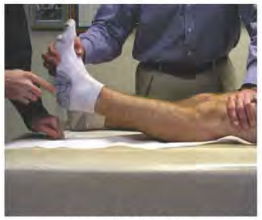
Effect of Knee Range of Motion on Return to Full Quadriceps strength at 1 year Post-op After Anterior Cruciate Ligament Reconstruction with Contralateral Patellar Tendon Graft

Sarah Eaton, PT, DPT, ATC, LAT | William Claussen, PT | Scot Bauman, PT, DPT
Shelbourne Knee Center at Community Hospital East, Indianapolis, IN

Introduction/Purpose

- Quadriceps strength deficits are common after anterior cruciate ligament (ACL) reconstruction.
- Many criterion-based rehabilitation programs suggest between-limb differences should be no more than 10% before return to sport, but many patients never achieve this goal.



(Range of Motion Exam)

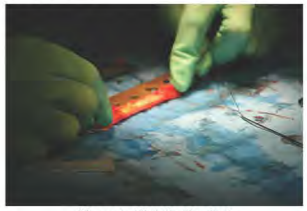
- While some suggest the underlying mechanisms for persistent quad weakness are currently unclear, range of motion (ROM) is one factor often overlooked.
- Lack of full knee extension has been shown to play a role in functional deficits such as quad weakness, but there is limited data looking at the long-term implications of this.

Hypothesis

- Patients with normal ROM at 1 year post-op would have quad strength to within 10% of opposite limb compared to patients with abnormal ROM.

Methods

- From 1988-2012, 978 patients underwent primary ACL reconstruction with contralateral PTG and completed 1-year post-op testing.



(Harvested Patellar Tendon)

- Patients excluded from the study included those who underwent bilateral ACL reconstruction, revision ACL reconstruction, or showed radiographic evidence of osteoarthritis (OA) at the time of surgery.
- Using the International Knee Documentation Committee (IKDC) scoring system, patients were categorized into two groups based on ROM measurements, normal and abnormal. (Figure 1)

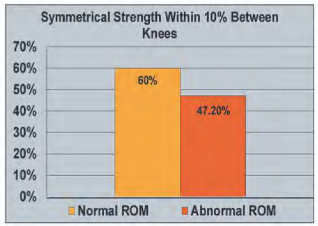
IKDC ROM Classification	
Normal Extension	Within 2° of Opposite Knee
Normal Flexion	Within 5° of Opposite Knee
Abnormal	Lack of normal extension/flexion

(Figure 1)

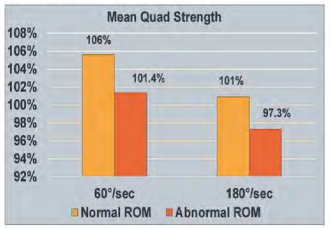
- Quad strength was evaluated using Cybex isokinetic dynamometer testing at 180°/sec and 60°/sec.

Results

- Out of 978 patients, 87 had abnormal ROM and 891 had normal ROM.
- Isokinetic testing at 60°/sec showed that patients who had normal ROM had a higher rate of strength within 10% between knees than patients who had abnormal ROM (*P*=.033)



- When looking at mean quad strength at 60°/sec, the normal ROM group was 105.6% versus 101.4% in the abnormal ROM group (P=0.04).
- For quad strength at 180°/sec, the mean was 100.9% in the normal ROM group compared with 97.3% in the abnormal ROM group (P=0.021).



Conclusions

- At 1 year post-op, patients with normal ROM had statistically significantly greater quad strength and more patients had side-to-side strength within 10% than those with abnormal ROM.
- It is suggested that patients who do not obtain normal ROM have decreased likelihood of obtaining full quad strength at 1-year post-op compared to those that do obtain normal ROM after ACL reconstruction.

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A Closer Look: Social Media's Effects and Special Consideration on Body Dysmorphic Disorder

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Areef S. Kassam, M.D., M.P.A., Jendayi Olabisi M.D., P.S.M.
Community Health Network, Indianapolis, IN

Aim

To describe social media's impact as it relates to Body Dysmorphic Disorder along with special considerations in coordination of care for providers to being mindful of risk factors for unnecessary cosmetic surgery.

Background

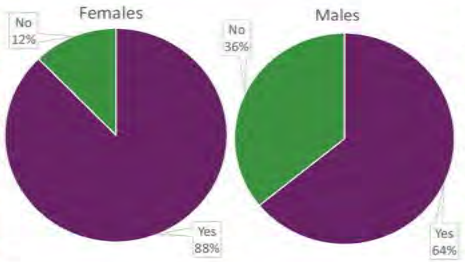
Body Dysmorphic Disorder (BDD) is characterized by perceived defects in body image resulting in impaired social ad occupational functioning. It is estimated to affect 1.7-2.4% of the general population, though likely even more prevalent, as people with this disorder are reluctant to reveal their symptoms.[1] While previously considered a Somatoform Disorder, DSM 5 now classifies BDD as an Obsessive-Compulsive and Related Disorders.[2] Factors that contribute to the development of BDD include social media and bullying. There is evidence that heightened use of social media correlates with a higher level of body dissatisfaction.[3] Due to varying biopsychosocial factors, it is important to utilize a interdisciplinary approach in screening and management.

Clinical Presentation

Individuals with BDD rarely present for psychiatric care and most often present seeking cosmetic procedures. Across medical settings, the most frequently encountered clinical features include excessive preoccupation with skin, hair, and facial appearance. Individuals consider themselves to be 'ugly' or 'deformed'. The associated thoughts are most often obsessional, time-consuming, and difficult to control. Although symptoms are experienced as distressing individuals often lack insight regarding perceived flaws and corrective behaviors.

Studies have estimated up to 40 percent of patients with BDD lack insight and appear delusional.[5] The excessive preoccupation leads to repetitive behaviors to alleviate perceived flaws. These can include excessive grooming, makeup, and frequently cosmetic procedures.

Figure 1: Do You Compare Your Body to Images You See In The Media? [5]



Discussion

Selfies have become a powerful phenomenon driving young adults to spend excessive amounts of times pre-occupied with their body image. Social media creates a platform for image alteration as well as increases self-comparison to perceived idyllic body features. This has been shown to drive individuals to develop stronger body dissatisfaction and higher likelihood of development of Body Dysmorphic Disorder.

These individuals often resort to body-altering procedures including cosmetic enhancement surgeries to improve their perceived defects. Cosmetic procedures most often do not lead to an improvement in symptoms. It has been suggested that preoperative psychiatric screenings should be routine in cosmetic surgery practices.[6]

Less than 28% of individuals undergoing cosmetic surgery are happy with their results, and without appropriate education and screening, this trend will likely continue to increase.[4] An interdisciplinary approach is paramount to appropriately coordinate care and provide improved outcomes.

Additionally these patients are often at high risk for suicide with studies estimating that up to 70 percent have had suicidal ideation attributed primarily to BDD, and up to 38 percent have attempted suicide.

Conclusion

Social media utilization will likely continue to increase prevalence of Body Dysmorphic Disorder, and early screening and intervention is necessary to prevent unsuccessful non-psychiatric interventions.

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The use of videoconferencing for involuntary commitment hearings in a community-based hospital

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Community Health Network, Indianapolis, IN

Aim

The aim of this case presentation is to illustrate effectiveness of the use of telepsychiatry for an involuntary commitment hearing, particularly in consideration of cost, patient safety, patient rights, and patient dignity.

Introduction

The use of videoconferencing for psychiatric commitment hearings is not a novel concept; however, there has been resistance to its widespread adoption. Tele-commitment was deemed constitutional in 1993 and approved by the American Psychiatric Association in 1998. Since then there has been little data outlining a typical case or assessing critical advantages and disadvantages to the process. Recently, Community Hospital North Behavioral Health Pavilion implemented use of videoconferencing for involuntary commitment hearings in conjunction with the Marion County Probate Court. In this article we describe a case where videoconferencing was used, serving as an example of potential advantages including cost, patient safety and patient dignity.

Case Presentation

A 54-year-old female with long standing history of schizoaffective disorder, depressed type, and multiple medical comorbidities was hospitalized secondary to grave disability on an emergency detention order. The patient experienced persecutory, grandiose, and paranoid delusions along with depressive symptoms. She neglected self-care and hygiene despite prompts from staff. She was noncompliant with treatment of her psychiatric and medical conditions. A petition for involuntary commitment was initiated due to grave disability, and the patient requested to be physically present in court. There were logistic barriers to accommodate this request as the patient was bed-bound with a BMI of 87. Ultimately, there was only one bariatric ambulance service which would accommodate transport, which would cost the hospital system over $10,000 as well as prove difficult to coordinate with the court's schedule. After a few days of coordination, it was decided due to patient safety and the probate court's scheduling that videoconferencing services were permitted to be utilized.

The hearing was held via videoconference where the patient was conferencing with lawyer at bedside and the treatment team from a separate conference room within the hospital. A 90-day temporary commitment was granted. Paliperidone palmitate was utilized for psychotic symptoms, and by the time of discharge her thought process was more organized and delusions were attenuated in nature but still present.

Discussion

This case is about the use of tele-conferencing for involuntary commitment hearing in a community-based hospital, and considerations of cost, patient safety, patient rights, and patient dignity are important factors of the case.

- **Cost**: specialized bariatric ambulance was needed due to patient's body habitus. Even in cases when standard transportation methods are utilized, there is significant cost to the hospital system per patient.

Discussion Cont.

- **Resources:** Additionally, the administrative/logistical burden rests on the hospital which further requires more hospital resources to accommodate the busy schedule of the probate court. However, videoconferencing is a significantly lesser burden on the hospital staff and resources after the initial purchase and setup of equipment and software.
- **Safety:** patients undergoing a hearing for involuntary commitment are often agitated, refusing treatment and thus more prone to harming themselves and others. Transportation to the court means temporarily removing a patient from a safer hospital environment to a less predictable environment without medical supervision and interventions available.
- **Preserving dignity:** often patients are transported in handcuffs and enter the courtroom this way. While it may be used for patient and officer safety, the patient is made to feel as though they are a criminal despite the hearing not being criminal in nature. Presenting to court and before a judge in this manner paints their mental illness in a negative light and can further negatively portray the patient's illness.

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Return to school-age competitive sports after an anterior cruciate ligament reconstruction using a contralateral patellar tendon graft

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Shelbourne Knee Center at Community Hospital East, Indianapolis, IN

Introduction

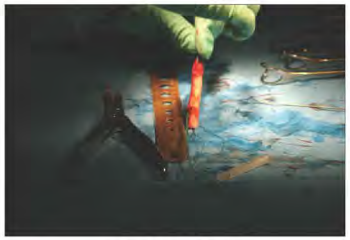
- Anterior cruciate ligament (ACL) tear is a common injury in sports
- Surgery and rehabilitation is often required for patients to return to desired level of activity after an ACL tear
- Return to sports to the same or higher level after ACL reconstruction can be difficult, and reported rates of return are as low as 44%
- Factors including ROM and strength asymmetries, poor functional testing and inadequate psychological readiness can contribute to a patient's inability to return to sport at the same or higher level

Purpose

- The purpose of this study was to assess the rates at which patients return to the same level or higher, in particular, higher level sports and activities

Hypothesis

- We hypothesized that patients would be able to return to the same or higher levels of sports after an ACL reconstruction using a contralateral patellar tendon graft (PTG) at a higher rate compared to previously reported studies



(Patellar Tendon Harvest)

Methods

Between 2009 and 2013, 120 school-age competitive athletes (level 9, twisting, pivoting, jumping sports) underwent an ACL reconstruction using a contralateral PTG were enrolled into the study (76 female, 44 male)

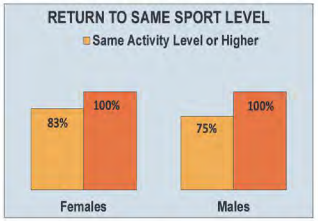
- Prior to surgery, each patient was seen in the rehabilitation department with goals of having symmetric ROM, minimal swelling, normal gait mechanics, and adequate strength/leg control
  - Goals for rehabilitation after surgery were divided between the ACL knee and graft donor knee
    - ACL knee focusing on attaining full ROM and swelling reduction
    - Donor knee rehab focused on low intensity, high repetition strengthening exercises for tendon regeneration
- These rehabilitation principles were followed until symmetry between the knees was attained as measured by goniometric measurement for ROM, quadriceps muscle strength on the Cybex isokinetic test measured at 180 and 60 degrees per second, isometric single leg press, and single leg hop for distance

(Cybex Isokinetic Test)

- Once symmetry was attained, each patient was progressed back into the sport they were getting back to while following up for continued testing and subjective outcome measures for activity rating scales

Results

- Of the 120 level 9 athletes, 80% (96) were able to get back to the same level or higher as measured by the activity rating scale.
- Females were able to get back to the same level or higher at a higher rate at 83% (63/76) compared to males at 75% (33/44).
- 100% of these athletes were able to get back to the same sport at least at a recreational level



Conclusions

- Return to school-aged competitive level 9 sports following an ACLR using a contralateral PTG can be attained at a high rate for both male and female patients (80%)
- Dividing the goals of rehabilitation after surgery between two knees through a contralateral PTG is a factor to this high percentage, as the patient has independent goals with each knee allowing for predictable outcomes
- Restoring symmetry following an ACLR can lead to high return to sport rates, which can be predictably done using a contralateral PTG

Community Health Network

SHELBOURNE KNEE CENTER

The "Poor Man's Methadone": A Case Study Highlighting a Unique Rationale for Misuse of Loperamide

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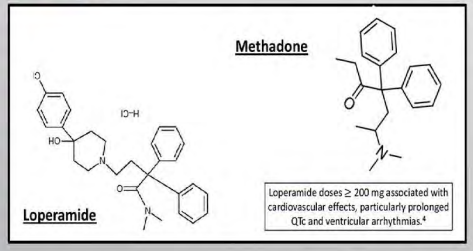
Community Health Network

Introduction

Loperamide serves as an opioid agonist in the GI tract and is known as a safe and effective treatment for diarrhea. However, reports from recent years have documented the prevalence of its misuse and abuse in patients attempting to ease symptoms of opioid withdrawal or to attain a euphoric "high". Loperamide has even received the unofficial title of the "Poor Man's Methadone".[1]

This unsettling trend of misuse has resulted in worrisome health consequences including dysrhythmias.[2] By working directly with manufacturers and distributors, the FDA has subsequently placed restrictions on the amount of drug packaged for OTC sales to encourage safe and appropriate use.[3]

Despite concerns for misuse and associated side effects, limited research has addressed the utilization, efficacy, potential benefits and pitfalls of loperamide use in the management of chronic pain, specifically.



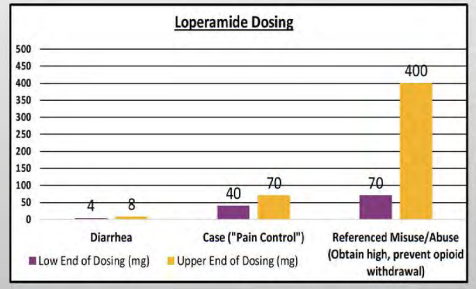
Loperamide doses ≥ 200 mg associated with cardiovascular effects, particularly prolonged QTc and ventricular arrhythmias.[4]

Case Presentation

A 39-year-old male with a past psychiatric history of major depressive disorder, chronic pain, and opioid use disorder presented to an inpatient psychiatric facility with suicidal thoughts and worsening depression.

The patient also reported exacerbation of his chronic pain which was unrelieved by NSAIDs. He had been prescribed opioids up until a loss of insurance the previous year.

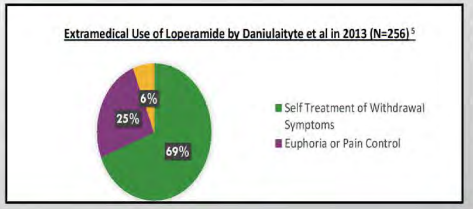
The patient found an article online citing "The Poor Man's Methadone" and began using loperamide 40-70 mg daily to control his pain. He denied use to manage withdrawal symptoms or to maintain a "high."



Discussion

Limited evidence exists for loperamide in self-treatment of chronic pain, but as one study indicates, misuse of loperamide for pain control is promoted on internet sites.[5] Just as obtaining euphoria, pain control would rely on crossing the blood-brain barrier, which does not occur at usual doses. Concomitant use of quinidine, a P-glycoprotein inhibitor, increases circulating levels of loperamide and subsequently has potential "morphine-like effects".

Future areas of investigation could study whether extreme dosages of loperamide increase flux across the blood-brain barrier, thus inducing increased analgesic properties. Furthermore, studies on self-reported use of loperamide for pain control in opioid users with a chronic pain component could be completed.



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Successful Paliperidone Treatment Following Reversible Risperidone Induced Neutropenia

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Community Health Network, Indianapolis, IN

Aim

The primary objective of this case study is to determine if the long acting injection paliperidone, a metabolite of risperidone with a very similar chemical structure, is safe to use in a patient who had neutropenia induced by risperidone.

Introduction

Risperidone (Risperdal®) carries a warning of potential blood dyscrasias, including neutropenia. Neutropenia is typically defined by an absolute neutrophil count (ANC) of <1500/uL, and this puts patients at high risk for opportunistic infections. Currently, there is no standard practice for management of patients who have risperidone induced neutropenia. While there have been case reports of varying success with switching antipsychotic medications or re-trialing risperidone following neutropenia, none have shown subsequent successful trial of the long acting injectable, paliperidone palmitate (Invega Sustenna ®).

Case Presentation

An 18-year-old African American female with a history of schizophrenia without other medical co-morbidities or medications was admitted to the inpatient psychiatric unit for psychosis. The patient had ANC of 1.88 prior to starting the initial dose of risperidone, with plans to titrate up over the next several days to reach therapeutic effect. The next day the dose of risperidone was increased and ANC fell to 0.98. The trend continued over the next 2 days, with increasing dose of risperidone and decreasing ANC, which 0.62. At this time, risperidone was stopped due to concern for low ANC and the patient was started on olanzapine as an alternative treatment. Two days later, ANC was noted to have increased to 1.45. The patient was discharged on olanzapine after improvement in symptoms, however, she was re-admitted 7 days later due to symptoms returning, likely due to medication non-adherence at home

On this following admission, ANC was found to be 1.38 initially. With the goal of a LAI in mind for efficacy on medication but poor adherence outside the hospital, the patient was started on oral paliperidone which was titrated up for 5 days with daily monitoring of ANC. During this oral paliperidone titration, her ANC was largely unchanged from admission. Due to acceptable levels of tolerability on oral form of paliperidone, the two initiation doses of long acting paliperidone palmitate injection were administered and her ANC was noted to be 1.62. The patient had improvements of symptoms and was able to be discharged from the hospital without complications.

Figure 1: Timeline of Events

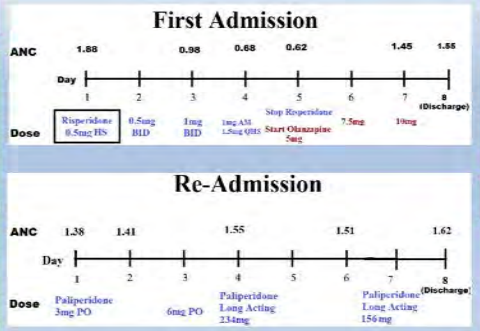
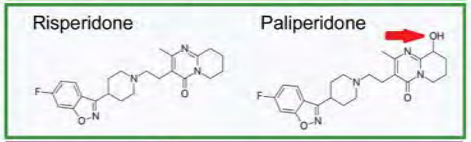


Figure 2. Structure of Risperidone and Paliperidone



Discussion

Based on literary review, there are a number of case reports showing risperidone as a cause of neutropenia with inconsistent results when discontinuing risperidone and trialing other antipsychotics. This case is noteworthy as it illustrates a situation where risperidone induced neutropenia improved to baseline after switching to olanzapine and eventually paliperidone in both its oral and long acting injectable forms. This is relevant to clinical practice as it addresses a situation where a patient had efficacy with risperidone despite the adverse reaction of neutropenia and ultimately needed a long-acting injectable for improved adherence. Because paliperidone is the active metabolite of risperidone with only slight differences in its chemical structure, it has been proposed to act in a very similar pathway. Given this fact, it was noteworthy that paliperidone did not lead to a recurrence of neutropenia. Determining the potential of successful treatment with long-acting paliperidone following antipsychotic induced-neutropenia would be an area of further clinical and psychopharmacologic research.

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Determining Content Validity of *My "Safe and Sound" Plan*, A Fall Risk Self-Assessment Workbook

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University of Indianapolis
School of Occupational Therapy

Purpose

The purpose of this study was to determine the content validity of the *My "Safe and Sound" Plan* (Howard, 2016) workbook through review by a panel of experts who are occupational and physical therapy practitioners.

Introduction

- Falls are a leading cause of injury in adults aged 65 and older. Extrinsic fall risk factors include lack of adequate lighting, rugs and clutter in pathways, and type of footwear. Intrinsic risk factors include muscle weakness and reduced functional mobility, certain medical conditions and medications, low vision, inactivity, and fear of falling.
- Current falls prevention interventions include education-based, individual and group exercise-based, and multidisciplinary, but a consistent method has yet to be identified.
- Clinicians must establish effective therapist-client communication in order for falls prevention interventions to be effective.
- Little has been done in the clinical setting to address evidence-based strategies for reducing falls.

Workbook Handout

Methods

Step 1: Study approved as *exempt*.	**Step 2:** Two local facilities agreed to participate.	**Step 3:** OT/PT practitioners recruited.	**Step 4:** Paper surveys distributed.
Step 5: Five surveys returned.	**Step 6:** SPSS entry to analyze IRA and CVI.	**Step 7:** IRA calculated for clarity, representativeness.	**Step 8:** CVI calculated for representativeness.

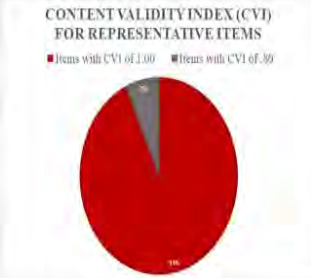
Results

Participant Characteristics

Characteristic	n(%)
Content Experts (Outpatient Setting, 11-30 Years of Experience [mean=20])	
Occupational Therapists (OTs)	3(60%)
Physical Therapists (PTs)	2(40%)
Primary Diagnoses Seen:	
Orthopedic	1(20%)
Neurologic	4(80%)
Vestibular	4(80%)
Proprioceptive	3(60%)
Visual	2(40%)
Multifactorial	2(40%)
Frequent Falls	3(60%)
Current Fall Risk Education Method:	
Handout	2(40%)
In-Class	1(20%)
In-Clinic Practice	5(100%)

Interrater Agreement (IRA) for Entire Measure

	Total Number of Items	Items with 100% IRA with Dichotomous Variables	IRA Score
Clarity	29	25	.862
Representativeness	29	29	1.00



Discussion

- Workbook demonstrated content validity and interrater agreement
- Workbook Changes: Primary investigator edited workbook to allow for more individualization of the materials.
- Clarity of Items: Two items did not have IRA for clarity; this was due to practitioner misunderstanding about the definition of "clarity."
- Implications for Practice: Clients need to desire to change, and further research could examine other types of validity
- Limitations: Time delay between recruitment and data collection, small sample size, results based on practitioners perspective, lack of defining key terms, minimal detail of diagnoses, and only one type of validity was analyzed.

Conclusion

Consulting a panel of experts, investigators found that the *My "Safe and Sound" Plan* (Howard, 2016) workbook demonstrated content validity and IRA. Further research using the updated version of the workbook could address other types of validity, since the present study only examined content validity. Using a tool that is valid and effective in clinical and home settings will allow clients to achieve the best outcomes for reducing fall risks.

References

Available upon request.

Acknowledgements

We would like to thank Janette Hensleigh, Beth Ann Walker, and our participating hospitals, Community Health Network and Columbus Regional Health.

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Delayed onset of bupropion-induced urticaria

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Community Health Network, Indianapolis, IN

Aim

- **To increase awareness of the phenomenon of a delayed onset of bupropion-induced urticaria**
- **To emphasize the importance of consistently monitoring patients for adverse side effects of bupropion**
- **To determine management of bupropion-induced urticaria**

Introduction

Bupropion, a norepinephrine and dopamine reuptake inhibitor, is commonly used to treat depressive disorders. Potential adverse side effects include serious allergic reactions such as urticaria, angioedema, erythema multiforme, Steven-Johnson syndrome, and anaphylactic shock. However, these allergic reactions are not commonly reported with bupropion. To date, there are only case reports and one large-scale study describing bupropion-induced allergic reactions, and a delayed onset of an allergic reaction was associated with a significant majority of these cases. Some studies have hypothesized that allergic reactions from bupropion may be underreported due to patients possibly receiving care for these allergic reactions from other physicians or hospitals.

Urticaria. https://healevate.com/got-hives-got-rid-good/

Case Presentation

A 17-year old male was admitted to a psychiatric inpatient unit for suicidal ideations. He had no previous psychiatric hospitalizations. While hospitalized, he was started on bupropion for depressive symptoms. He had never taken antidepressants prior to this. The patient was discharged four days later and was compliant with bupropion after discharge. Eighteen days after the patient had started bupropion he presented to the medical emergency department (ED) for urticaria. Upon presentation, he complained of multiple episodes of urticaria on his bilateral upper and lower extremities which were not relieved by diphenhydramine. The patient denied other new recent exposures to substances.

Over the span of four days, he had two ED visits and one primary care physician visit in which he received two doses of epinephrine and prednisone for several days before his urticaria alleviated.

The patient denied a history of allergic reactions to medications but reported having severe urticarial reactions to mangos. After he discontinued bupropion, he was started on Lexapro which he tolerated well for two months.

Timeline of Events

Discussion

To date, there is only one large-scale study assessing the delayed onset of urticaria associated with bupropion use in patients with depressive disorders. This study found that urticaria occurred significantly more in days 15-28 compared to days 1-14 after starting bupropion and that it occurred significantly more often in male subjects under 40 years of age compared to an older population. It also found that individuals with a history of urticaria are more prone to developing urticaria with bupropion use. Similarly to this large-scale study, this case report describes a young male patient with a history of urticaria who developed urticaria eighteen days after initiating bupropion use.

The mechanism of urticaria is thought to be associated with histamine and other mediators being released from mast cells and basophils. The higher occurrence of bupropion-induced urticaria in younger patients may be explained by immunosenescence which is an age-related decline in immune function. Studies have shown that mast cell development and the number of dermal mast cells decline through the aging process. However, the mechanism of bupropion-induced urticaria is unknown. Researchers have hypothesized that urticaria may be related to the structure of bupropion which is chemically similar to amfepramone. Amfepramone is a selective norepinephrine releasing agent. Norepinephrine may play an important role in adrenergic urticaria which is a form of neurogenic reaction triggered mainly by stress.

This emphasizes the importance of consistently monitoring patients for adverse medication side effects of bupropion and serves to promote awareness among clinicians of the delayed phenomenon of allergic reactions associated with bupropion use. In addition, the patient's initial refractoriness to treatment for urticaria highlights the need for further evaluation into why initial treatment was ineffective.

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"We" for Wellness

Kathy Zoppi, DIO, PhD, Jesse Clark, DO, Stephanie Nader, LCSW, Ann Cunningham, DO, Chris Basom, DO, Joanna Edwards, MD, Blane Riley, DO, Telycia Johnson, DO, Christine Hopp, DO, and Britney Roberts, DPM. Community Health Network, Indianapolis, IN

NI VI Meeting #4 Tucson, AZ March 2019

INTRODUCTION: Background

- Community Health Network recently started a medical group center for physician well-being and joined the AIAMC National Wellness Initiative. Our institution is harnessing collaborative relationships with key stakeholders to implement initiatives for wellness on an institutional level.
- The AIAMC National Initiative GME group has a goal of identifying key factors in resident and faculty burnout, having a GME-wide systemic wellness intervention, and supporting individual residency program Wellness initiatives.

Aim/Purpose/Objectives

Community Health Network has a goal of **decreasing resident burnout** as measured by the Wayne State University Resident Wellness Scale (RWS) by 5% from our baseline of 3.59 to 3.77 **over a period of 9 months** by giving residents **a half day of dedicated wellness time** along with all of the other residents at their level of training throughout the network to choose between an institutionally organized event or personal time dedicated to wellness in the fall, and another half day in the spring. We are also **encouraging program specific Wellness initiatives** within each of our residency programs.

Date	Event
January 2018	ACGME Resident and Faculty Survey administered
May 2018	Results received from ACGME Survey
July 2018	Baseline RWS to all residents
Aug/Sept 2018	Intervention 1 (PGY3: 8/23/18, PGY2: 9/6/18, PGY1: 9/20/18)
December 2018	Post-Intervention 1 RWS Survey
January 2019	ACGME Resident and Faculty Survey administered
February 2019	Intervention 2 (PGY3: 2/1/19, PGY2: 2/15/19, PGY1: 2/22/19)
March 2019	Post-Intervention 2 RWS Survey
May 2019	Results received from ACGME Survey

METHODS: Measures/Metrics

- Residents will be surveyed using the 10-item Wayne State Resident Wellness Scale (RWS) and the annual ACGME Survey to monitor impact on wellbeing.
- RWS resident data is de-identified by the research coordinator, and all other investigators are blinded to the participants' data.
- Results were analyzed using a single factor ANOVA.

METHODS: Interventions/Changes

- GME systemic intervention:
  - Residents across the network are given one dedicated half day for wellness in the fall and spring. On this day, they choose to engage in an organized wellness activity sessions OR a personal wellness activity of their choice.
  - A small number of residents unavailable for these standardized days (night float) will have an individually selected Wellness half day immediately following the night float rotation.
  - If a resident is on vacation during this half day, they will not have to take this half day from allotted vacation time.
- IRB Submission:
  - Project submitted to and accepted by IRB 07/2018.

Discussion: Barriers & Strategies

Barriers

- Current challenges and strategies
  - Support from fellow residents and preceptors/faculty for residents having time off
  - Scheduling GME wide AIAMC planning meetings
- Next Steps
  - See timeline
  - Expanding program to address faculty wellness
  - Further developing and supporting program specific Wellness Initiatives

RESULTS: Resident Wellness Surveys

	07/2018		12/2018		
Group	N	Avg Score	N	Avg Score	Change 07/2018-12/2018
Results by PGY class					
PGY1	13	3.51	11	3.51	0 (p = 0.402158)
PGY2	18	3.62	16	3.82	+0.20 (p = 0.022897)
PGY3	13	3.61	10	3.97	+0.36 (p = 0.00326)
Fellow	1	NA	0	NA	NA (insufficient sample size)
Results by Residency program					
East Family Medicine	25	3.40	22	3.66	+0.26 (p = 0.000502)
South Family Medicine	9	3.97	5	4.12	+0.15 (p = 0.838167)
Podiatry	5	3.72	5	4.02	+0.05 (p = 0.150607)
Psychiatry	5	3.68	5	3.62	-0.06 (p = 1)
Proctology	0	NA	0	NA	NA (insufficient sample size)
Hospitalist	1	NA	0	NA	NA (insufficient sample size)
Results by Gender					
Male	18	3.61	15	3.72	+0.11 (p = 0.018038)
Female	24	3.56	21	3.79	+0.23 (p = 0.014027)
Prefer not to answer	3	NA	1	NA	NA (insufficient sample size)

Discussion: Key Findings

Key Findings

- Overall slight improvement in scores from July to December 2018
- Residents preferred to have time alone for personal life activity rather than group activity when give choice
- Resident buy in was improved with focus on wellness, not burnout, and action instead of talking.
- Listening to what residents actually wanted, not what we thought they needed.
- Resident wellness officer was selected as part of resident council




Attitudes, Models of Addiction, and Sentencing in Drug Cases

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University of Indianapolis & Florida Gulf Coast University

Abstract

In our society, millions of people are addicted to illicit substances and some find themselves committing crimes due to their addiction. Because drug addiction and crime are on the rise, models of addiction (brain disease model vs. choice model) have become widely debated. The brain disease model of addiction describes how an addict's brain changes, inhibiting their ability to control their behavior, while the choice model focuses on the choice to use drugs. Although the BDMA has empirical support, community attitudes have not accepted the notion that the individual suffering from addiction is guided by biology rather than choice. The present study investigates attitudes towards addict offenders and models of addiction within the mock juror arena, studying how these attitudes affect sentencing of a mock defendant. The participants were randomly assigned to one of six conditions, varying two sources of addiction (pain medication versus problematic childhood) and three expert testimonies on models of addiction (e.g., disease model versus choice model versus control). In these conditions, the mock jurors were asked to read the mock offender's addiction history, complete the Attitudes Towards Alcohol and Drug Abusers Questionnaire, and then sentence the mock juror based on their personal attitudes towards the information provided in the offender's history. The results partially supported our hypotheses, showing the relative importance of attitudes, expert testimony, and attributions of responsibility.

Background

- The link between addiction and criminal behavior is revealed in previous studies showing a positive correlation between drug abuse, delinquency, and propensity for violence
- Part of the scientific community support the brain disease model of addiction (BDMA), while the others critically oppose this hypothesis (Volkow & Koob, 2015). Although the BDMA establishes a plausible explanation for the loathsome condition, community attitudes have not accepted the notion that the individual suffering from addiction is not guided by choice, rather the attributed to lack of willpower.
- A lack of studies exist on how attitudes or knowledge about the causes of addiction affect jurors' decisions. Drug intoxication or addiction would not be a defense to justify a 'not guilty' decision, but it could be relevant to sentencing. A few previous articles describe an increase in criticism from the community when an addict offender, who was under the influence during the commission of the crime, uses his addiction to defend themselves in court (Gebelein, 2000; Sweitzer, 1997).
- There are only a few studies about jurors' reactions to the causes of addiction. This study uses a rather more severe crime, with the defendant committing armed robbery and attempted murder to fund his addiction.

Objectives

- **RQ1**: How do mock jurors react to different models of addiction that relate to criminal behavior? Our hypothesis states: mock jurors will perceive the defendant as more responsible, and will sentence the defendant to a harsher punishment, when expert testimony is not presented than when testimony about either model of addiction is presented. Also, jurors will perceive the defendant as more responsible, and will sentence the defendant to a harsher punishment, when expert testimony about the choice model is presented than when only expert testimony about the Disease Model is presented.
- **RQ2**: Will the source of addiction (pain medication vs. problematic childhood) affect mock jurors' decisions? We hypothesize that jurors will perceive the defendant as more responsible, and will sentence the defendant to a harsher punishment, when the addiction comes from a problematic childhood than when it comes from pain medications.
- **RQ3**: Will the mock jurors attitudes about drug addiction relate to the severity of punishment towards to defendant? We hypothesize that mock jurors' negative attitudes toward addiction and addicted offenders will be related to perceptions of more responsibility and more severe punishments

Method

Participants:

- The participants in this study consisted of 102 Florida Gulf Coast University undergraduate psychology students (73.5% women; *M* age = 19.2 years; 70.0% Caucasian/White). Each student received course credit, or extra credit, for participation in the study. Participation was voluntary and participants were treated in accordance with the ethical standards of the APA.

Design:

- This study had a 3 (expert testimony: BDMA vs. BDMA + choice vs. control) by 2 (pain medication vs. problematic childhood) between-subjects factorial design.

Procedures:

- All data was collected through a website, hosted on Dr. O'Neil's faculty account. The entire study took between 30 and 60 minutes to complete. The first page of the study gave participants general instructions and provided the text of the consent form.
- The first questionnaire the participants encountered was constructed from three separate questionnaires measuring various attitudes towards addiction, causes, and effects of the disorder (Broadus & Evans, 2014; Goodstadt, Cook, Magid, & Gruson, 1978; EURAD, 2016). This measure was a 25-item questionnaire which measured responses in a 9-point Likert scale format, ranging from 1 (*Strongly Agree*) to 9 (*Strongly Disagree*).
- After the questionnaire, the participants read the defendant's background, which either reflected a disordered childhood or an injury requiring pain medications, both of which lead to drug addiction.
- All participants read the same crime--the robbery of a convenience store, during which the defendant shoots, but does not kill, the clerk. After the description of the crime, they read one of three things: expert testimony about the brain disease model of addiction, expert testimony about the brain disease model of addiction plus conflicting expert testimony about choice model of addiction, or no expert testimony at all. Following the reading, the participants answered various questions about their perceptions of the responsibility, volition of the defendant, and the level of credibility of the expert testimony.
- On the next web page, participants read pattern jury instructions (from Virginia) about how to determine a sentence. Participants entered a sentence and answered a few questions about the instructions and their punishment.
- Finally, the next web page asked the participants to enter their demographic information, and then go to the final web page on which they read debriefing information and entered their name and student ID number to receive course credit.

Results

- Sentencing decisions were analyzed using linear regression. The first model with only the manipulated variables found no significant main effects, however, there was an interaction between source of addiction and the presence of expert testimony focused on brain disease model ($\beta = -0.22, p = 0.047$). The other interaction was not significant ($\beta = 0.16, p = 0.135$).
- As shown in the Table below, when the source of the defendant's addiction was a problematic childhood, the BDMA testimony increased sentence length. In contrast, when the source of the defendant's addiction was pain medications after surgery, the BDMA decreased sentence length.
- The second model added four attitude measures and interaction terms between attitudes and manipulations.
- Jurors who had more negative attitudes towards drug addicts, gave longer sentences ($\beta = 0.21, p = .048$).
- Jurors who agreed more that addiction has various causes gave shorter sentences ($\beta = -0.25, p = .015$).
- Of the 12 interactions, two were marginally significant.
- As shown in the Figure 1, as jurors agreed more that addiction causes neurological changes, they were influenced less by the BDMA testimony ($\beta = 0.20, p = .082$). As shown in Figure 2, as jurors agreed more that addiction is a choice, they were influenced less by the presence of expert testimony of the choice model ($\beta = -0.21, p = .072$).
- In another linear regression analyzing ratings of the defendant's responsibility for the crime, the only significant effect was that jurors who agreed more that addiction has various causes rated the defendant as less responsible ($\beta = -0.23, p = .027$).

Sentence in Years

	Problematic Childhood	Injury Pain Meds
No expert	11.15	14.59
BDMA	12.40	11.05
BDMA + Choice	12.31	13.76

Figure 1. Interaction between Attitudes about Brain Disease and Expert Testimony

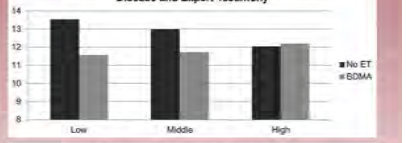
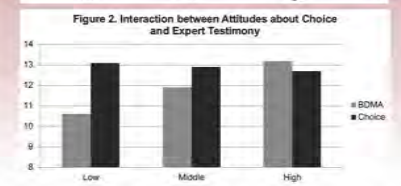


Figure 2. Interaction between Attitudes about Choice and Expert Testimony



Discussion

- This study showcases attitudes toward addiction and addict offenders, and the way these beliefs related to sentencing the addict. Participants' negative attitudes towards addiction weighed heavily on sentencing, but beliefs about different causes of addiction also appeared in several results. Both interactions showed that attitudes changed how jurors reacted to expert testimony, such that the testimony was only effective when it counteracted existing. Changing erroneous beliefs is an appropriate goal of expert testimony, but no one model of addiction is uniformly supported.
- A problematic childhood that led to a history of behavioral problems and drug use overrode the effectiveness of expert testimony. Jurors who were exposed to expert testimony focused on brain disease model of addiction sentenced the defendant to shorter sentences only when the defendant had an injury that led to the addiction to pain medication. In contrast, although the interaction was not significant, it appears that the jurors sentenced the defendant to longer when hearing the competing expert from the State testify that addiction is a choice. Additionally, the longest sentences occurred when no expert testimony was presented, suggesting the jurors took into account the expert testimony.
- The present study's limitations in terms of sample size and generalizability taking into account the average age of the participants was 19 years old. More data will be collected to give more power to test all relevant interactions.

For more information, please contact Tara Costigan at costigant@uindy.edu

THE INFLUENCE OF THE CHAKRAS ON DISORDERED EATING PATTERNS AMONG COLLEGE-AGED WOMEN

Rosemary Hale, MA.& Nicole Taylor, PhD

Introduction

- Chakras = energy centers in the human body, situated vertically up the spine and associated with the autonomic nervous system.
  - The goal-directed activity of each chakra promotes growth and increased self awareness/consciousness.
  - Move from physical/external world focus to internal, then spiritual
  - Health problems can arise from: low or blocked chakra energy, an imbalance of energy between chakras, or an overcompensating chakra.
- Self-Discrepancy Theory
  - Actual self , ought ("should") self, and ideal self
  - Self-discrepancies motivate actions to reduce discrepancy and resulting negative emotion
  - Actual-Ought self-discrepancies lead to agitation-related emotions (e.g. anxiety)
  - Actual-Ideal self-discrepancies lead to dejection-related emotions (e.g. depression)
- Disordered Eating Patterns
  - Disordered eating attitudes and behaviors often start with emotional struggles, and maladaptive emotional regulation.
  - Females and adolescents are more vulnerable to both self-discrepancies and disordered eating.
  - Anorexia/restricting pattern: actual-ought self-discrepancies
  - Bulimia/binge-purge pattern: actual-ideal self-discrepancies

Methods

- 284 females 18-25 years old ($\bar{x}$ = 19.95, 78.2% White)
- 8 online questionnaires
  - Chaka Energy Inventory: new 91-item measure of chakra energy
  - Contour Drawing Rating Scale: body-image self-discrepancies
  - EAT-26 (Dieting and Bulimia/Food Preoccupation subscales): disordered eating attitudes and behaviors, anorexia symptoms and bulimia symptoms
  - Five reliable, valid measures to assess content validity of CEI: Social Connectedness Scale, Indecisiveness Scale, Rosenberg Self-Esteem Scale, Heartland Forgiveness Scale, Ego-Resilience Scale

Hypotheses

- Seven chakra scales of CEI predicted to have good internal reliability and validity, and be moderately correlated with one another
- It was hypothesized that specific chakra energy imbalances would predict anorexia-type and bulimia-type disordered eating patterns via actual-ought and actual-ideal body image discrepancies in non-clinical sample
  - Chaka subscales 1, 2, and 3 would predict greater Dieting, mediated by actual-ought body-image discrepancies
  - Chakra subscales 3, 4, and 5 would predict greater Bulimia/Food Preoccupation, mediated by actual-ideal body-image discrepancies

Results

- 84.2% scored below clinical cutoff on EAT-26
- Preliminary validity and reliability for the CEI
  - All chakra scales had fair/good reliability (α = .65 - .86)
  - Item-to-full scale correlations varied as expected
  - Average inter-item correlation of each scale ranged from .13 to .29
  - Chakra scales significantly correlated with one another
  - Chakra scales significantly correlated with theoretically-linked constructs
- Chakras, Self-Discrepancies, and Disordered Eating
  - Average of chakras 1, 2, and 3, and actual-ought discrepancies predicted Dieting (R^2 = .18), and actual-ought discrepancies was a significant mediator
  - Average of chakras 3, 4, and 5, and actual-ideal discrepancies predicted Bulimia/Food Preoccupation (R^2 = .17), and actual-ideal discrepancies was a significant mediator
  - Actual-ideal discrepancies and chakra 3 were significant unique predictors of both Dieting and total EAT-26
  - Actual-ought discrepancies no longer significantly predicted Dieting when actual-ideal discrepancies were included in the model

Discussion

- Preliminary validity and reliability of CEI supported
  - Distinct constructs, good internal reliability, good convergent validity
- Chakra imbalance has both direct and indirect effect on disordered eating attitudes and behaviors, but chakra three is especially influential
- Support for self-discrepancies mediating influence of chakras on disordered eating patterns.
- Evidence that actual-ideal discrepancies may consist of and include actual-ought discrepancies
- Knowing a client's chakra energy levels can guide treatment
  - Carl Roger's person-centered approach = distress is caused by incongruence in self-concept. Self-discrepancies tend to decline with successful psychotherapeutic intervention, and chakra energy imbalance can be conceptualized as an incongruence in the self
  - Reduce affective distress by reducing chakra incongruence
- Limitations
  - Present study did not attempt to account for numerous additional variables that likely influence the relationships between chakra energy, self-discrepancies, and eating behavior. (e.g. depression, anxiety)
  - Small range of scores on EAT-26 and CDRS (nonclinical)
- Recommendations
  - Continue analyzing the chakra scales of the CEI to further establish its reliability and validity (e.g Factor Analysis)
  - Explore chakra relationships with affective states
  - Investigate chakra-guided therapeutic interventions (energetic congruence)
  - Use measures/populations that produce larger ranges to help unpack the complexity of these relationships
  - Imbalance in the lower three chakras (anxiety) may have a stronger influence on the etiology of disordered eating patterns, while unhealthy energy in the higher chakras (depression) may be more related to the maintenance

Gynecomastia Associated With Citalopram

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Aim

Our objective is to describe a case where Citalopram used in the treatment of anxiety disorder resulted in gynecomastia and the pathophysiology behind this reaction.

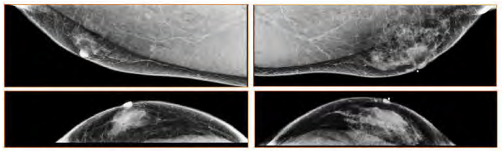
Introduction

Citalopram increases the effects of serotonin (5HT) in the central nervous system by inhibiting the reuptake of 5HT. Both *in vitro* and *in vivo* studies have demonstrated that citalopram also effects norepinephrine (NE) and dopamine (DA) reuptake. [FDA] There have been several reports regarding the development of gynecomastia in patients on SSRIs and SNRIs. [5,7,8] To our knowledge this is the first case report regarding the development of gynecomastia in a patient taking citalopram. The exact mechanisms behind the growth of breast tissue in relation to SSRI use is still unclear. SSRI use has been associated with hyperprolactinemia[2, 9] and perturbations of the hypothalamic-pituitary-testis (HPT) axis[6]. The development of gynecomastia in relation to SSRI use is likely multifactorial and requires further investigation.

Case Presentation

- 44 year old Caucasian male with history of alcohol use, generalized anxiety disorder
- Started on Celexa at 10mg daily during inpatient stay for alcoholic pancreatitis
- Dose was increased to 20mg daily by PCP which controlled anxiety symptoms
- After five months of treatment, he presented back to PCP complaining of nipple pain with palpable mass, decreased libido, and erectile dysfunction
- Mammogram (figure 1, below) showed bilateral gynecomastia; labs within normal limits including TSH, Testosterone, CMP
- Patient was referred to Psychiatry and by the time of consult appointment, the dosage was down to 10mg which resulted in improvement
- Citalopram was discontinued, and Escitalopram was started at 10mg daily
- At the one month follow up, he reported that his gynecomastia resolved, breast pain decreased, and libido increased

Figure 1: Bilateral Mammogram



FINDINGS: A bilateral digital diagnostic mammogram was performed. Computer-aided detection was utilized. There is benign glandular tissue behind the nipples on both sides. This finding is most pronounced on the right side. There are no masses, suspicious microcalcifications, or areas of architectural distortion. Skin thickness is normal.

Discussion

Gynecomastia in patient's taking SSRIs can be attributed to disturbances of the hypothalamic-pituitary-testis (HPT) axis resulting in an increase in the estrogen-to-testosterone ratio. Although the etiology is still unclear regarding how this class of medications causes this effect, there have been studies which show that patient's taking SSRIs have significantly lower levels of LH, FSH, and testosterone in comparison to healthy patients not taking SSRIs. The gynecomastia improved when Citalopram was discontinued.

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Slow your Role: How Slowing Clozapine Titration Can Prevent Recurrent NMS

Rohn Nahmias OMS-IV, David Pison DO, Areef Kassam MD MPA, Dennis Anderson MD

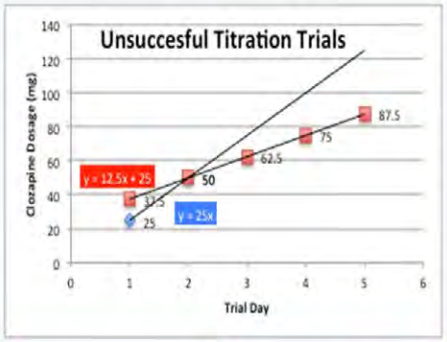
Introduction

Neuroleptic Malignant Syndrome (NMS) is a serious adverse reaction of antipsychotics classically manifesting with symptoms of mental status changes, muscle rigidity, fever and autonomic dysfunction; while atypical NMS is defined by missing one or many of these cardinal features at initial presentation. **Recurrent NMS** is reported as a rare but significant aspect of antipsychotic use, with re-challenging a patient after an adequate drug suspension being the only means of symptomatic control and patient treatment. **Clozapine** is an atypical anti-psychotic that was approved by the FDA in 1989 for treatment resistant schizophrenia, whose mechanism of action is to antagonize D2 receptors in the mesolimbic pathway and 5-HT2A receptors in the frontal cortex.

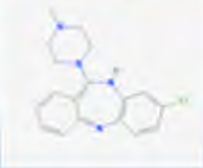
This case describes a patient with history of recurrent, atypical NMS with multiple antipsychotic trials who was successfully treated with slowed titration of clozapine.

Case Presentation

Ms. D. was a 57-year-old Caucasian female with a past psychiatric history of schizoaffective disorder bipolar type and unspecified anxiety disorder. She presented to the psychiatric unit with cognitive blunting, poverty of thought content, looseness of associations, and inability to respond to questions with meaningful responses. In addition, patient presented with medical symptoms including rigidity, acute rhabdomyolysis, and elevated LFTs. She was transferred to the inpatient medical unit for stabilization. After acute stabilization, she was transferred back to the psychiatric unit for treatment. A thorough review of the patient's history revealed the patient had prior episodes of atypical NMS with trials of multiple typical and atypical antipsychotics at therapeutic doses and with clinically appropriate titration schedules (Table 1). These trials included clozapine, known to have decreased likelihood of NMS symptoms. The patient was stabilized during admission, but she later decompensated requiring re-admission in the months following. At that time, clozapine was reinstituted at very low doses and with a slower titration schedule.

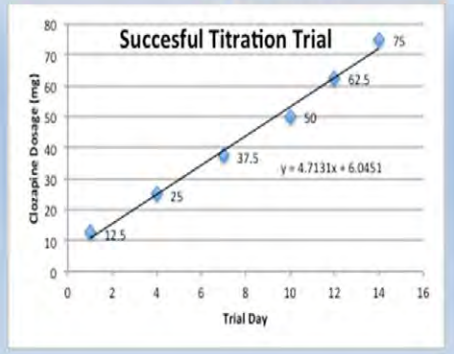


Clozapine



Antipsychotics Trialed Before Clozapine:

- Quetiapine
- Lurasidone
- Olanzapine
- Asenapine
- Aripiprazole
- Aripiprazole maintenna
- Paliperidone
- Paliperidone palmitate
- Iloperidone



Case Continued

This approach was successful in ameliorating the patient's symptoms and without recurrence of NMS. In this poster, we discuss the importance of identifying atypical NMS in patients treated with typical and atypical antipsychotics, and propose that successful treatment of these patients may be possible with slower and gradual titration of clozapine.

Discussion

Recurrent NMS does occur despite clinically appropriate use of antipsychotics at therapeutic doses. In order to combat symptoms of the patient's underlying psychotic disorder and still avoid NMS recurrence, this patient was re-challenged with clozapine at a slower up **titration rate of 4.7 mg per day.** With this method of medication administration, the patient's psychotic symptoms were lessened and there have been no further episodes of typical or atypical NMS. These findings can be used in clinical practice for those patients who have been trialed on multiple antipsychotics with recurrent NMS or NMS-like symptoms, despite the use of medications known to have less likelihood of NMS, such as clozapine.

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Transitioning from Methadone to Naltrexone in a Stable Patient in Recovery

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Aim

To describe a case of safe transition from methadone to naltrexone intramuscular injection in order to allow future providers to have an example of a means to make a similar transition

Introduction

Among treatment modalities for opioid use disorders, buprenorphine, methadone, and naltrexone are currently the most utilized pharmacological modalities. Each has its own advantages and challenges, and transitioning between them can be a daunting task for the patient and their provider. In making these transitions, medication pharmacokinetics, social considerations, and patient preferences ought to be taken into consideration. This case report discusses a patient with opioid use disorder who was safely transitioned from daily methadone to monthly naltrexone intramuscular injection to allow for sobriety in a more convenient setting. The case report represents the modality used for a safe but atypical transition between agents, and the advantageous role a multidisciplinary team played in patient care.

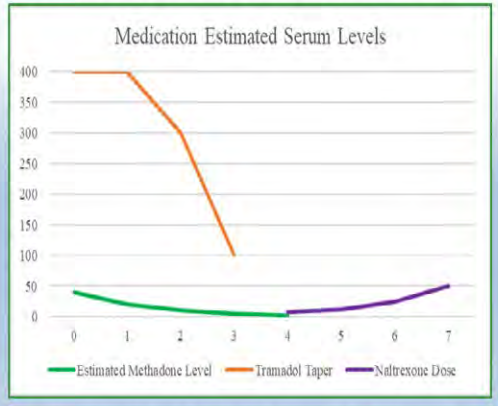
Case Presentation

Mr. P. was a 20-year-old Caucasian male who presented to our inpatient psychiatric pavilion with a past psychiatric history of opiate use disorder and a chief complaint of "I want to get off daily methadone for college". He reported that he has been stable on methadone for roughly a year and a half, visiting a methadone clinic in the city in which he currently lives, with daily dosages of 66mg daily. Patient reported his substance use history began at age 15 when he began to experiment with marijuana. Soon after, he began to use hydrocodone prescription pain medication and alcohol, becoming a daily consumer of both at age 16. He reported a lack of finances being the chief reason for his transition to heroin at age 17, and start intravenous heroin use after only a few months of intranasal consumption. He reported the greatest quantity of heroin he used was about 2 grams per day. Upon admission, he reported he had weaned to 40mg of methadone daily.

Further evaluation of Mr. P's social history showed he was a high school graduate, currently working as a manager at a fast food chain. He was living at home with his parents, and he paid them monthly rent. He stated that his father is a horticulturist for the city in which he lives, and he planned to follow in his father's footsteps. In order to accomplish this, he applied to and was accepted to an out of state community college that offered a degree in horticulture. He stated that although he had been stable on methadone and felt that remaining on methadone could be considered, his options would be limited in a college setting. After considering both buprenorphine and naltrexone, he felt naltrexone would be the best option to allow him the freedom to maintain his sobriety and attend school.

Of note, patient reported a medical history positive for hospitalization in January 2017 for bilateral pulmonary septic emboli with cavitation. This was due to MRSA bacteremia secondary to intravenous drug use. During his hospitalization he developed severe endocarditis and empyema. He then required cardiothoracic surgery to repair but not replace his tricuspid and pulmonic valves in addition to intravenous antibiotics for six weeks. He reported an additional hospitalization two months after his initial presentation due to growth of Klebsiella pneumonia.

Upon admission to our psychiatric facility, Mr. P was restarted on home venlafaxine and quetiapine. After discussion with all members of the treatment, it was determined that patient would be transitioned from Methadone to Naltrexone, then to a long-acting naltrexone injection. Patient was initially placed on 4 day tramadol taper to support detoxification off Methadone. Due to significant history and risk for severe detoxification, 24-hour nursing was necessary for thorough evaluation and motivational interviewing. After four days of supportive detoxification, patient was placed on an extended rapid detoxification with initiation dose of 2mg of naltrexone every hour for 4 doses, then transition to 12.5mg, 25mg, and 50mg once per day on subsequent days. His detoxification concluded with administration of long-acting injectable naltrexone on day of discharge, supported by nursing teach-back on medication education.. Patient was to follow up with his local mental health center for medication and counseling and would transition to a new provider near to his out-of-state community college.



The above image demonstrates estimated serum levels of opioid receptor binding agents during Mr. P's admission, including methadone level estimated by half-life.

Discussion

This case represents the challenge in making a medication conversion from methadone, with a long half life, to naltrexone and long-acting injectable naltrexone. By addressing withdrawal symptoms through a multidisciplinary treatment strategy, as well as allowing for an extended withdrawal, the patient was able to safely transition. All psychiatric cases require the careful evaluation of a patient through a biopsychosocial model, and in this consideration the patient's interests and requests ought to be a primary concern. After all, a treatment plan is only as successful as its adherence.

In addition, the case highlights the necessity of a strong treatment team in the care of a challenging dual diagnosis patient. The treatment of Mr. P required coordination of a large treatment team under the leadership of a primary psychiatrist with consultation of an addiction-trained internal medicine specialist. However, it must be emphasized that the care given to the patient by his nursing team and care support team allowed for the patient to be motivated through his withdrawal symptoms, and allow his care to be evaluated during the entirety of his admission. Finally, the patient did benefit from additional consultation from pharmacy and social work teams to coordinate medication and follow up care.

Finally, the case exemplifies the need to tailor any treatment plan to the patient themselves. Mr. P, while young and otherwise healthy, but had significant medical comorbidities requiring acute monitoring and close management. The inpatient psychiatric facility's standard of care was modified to meet the needs of the patient, and with successful outcomes allows for an appropriate mechanism for the treatment of similar patients.

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Short-term Functional and Gait Impairments Persist for 6-Months Following Subtotal Plantar Fasciotomy – A Case Study

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Introduction

Plantar fibromatosis or Ledderhose's Disease is a rare foot disorder affecting the superficial plantar aponeurosis.[1] While the etiology of the condition is unclear, clinical manifestations include formation of encapsulated nodules on the plantar foot causing pain and swelling in the foot which can lead to walking disability.[2]

Various treatments have been proposed for this condition[3] including subtotal plantar fasciotomy for excision of the nodule.[4,5] While some outcomes have been reported in the literature regarding recurrence rates, long-term functional outcomes[6], and patient satisfaction[7], no literature was found describing changes to gait, short-term functional recovery, or time to return to pre-morbid gait following this surgery.

Purpose

The purpose of this case report is to describe functional outcomes and temporospatial changes to gait of a 54-yo female undergoing this procedure for treatment of plantar fibromatosis.

Case Description

This case study describes a 54-yo female with a 12-month history of plantar fibromatosis and declining function despite conservative management. The patient underwent subtotal plantar fasciotomy and fibroma excision for treatment. Self-reported function was measured using the Foot and Ankle Ability Measure (FAAM). The subject also underwent instrumented gait analysis, where three-dimensional kinematic data was collected at 100 Hz using a 10-camera Vicon™ motion analysis system (Vicon, Oxford, England) and ground reaction forces were collected at 1,000 Hz using two AMTI™ force plates (AMTI Inc., Watertown, MA). Outcomes were measured prior to surgery and at 6-week intervals for 6 months following surgery. We hypothesized that temporospatial characteristics such as gait speed and double limb support as well as self-reported function would fully return to pre-surgical levels within 4 months of surgery.

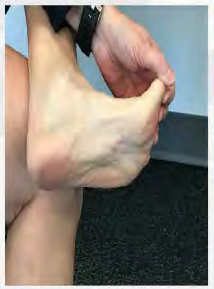

Figure 1: Plantar nodules prior to surgery

Figure 2: Plantar foot 6 months post surgery

Outcomes

Measure	Pre-surgery	6 weeks	3 months	5 months	6 months
FAAM ADL	92.86	50	84.52	93.75	91.67
FAAM Sport	91.67	3.57	58.33	75.00	91.67
FAAM ADL%	90%	30%	80%	85%	90%
FAAM Sport %	90%	10%	60%	70%	90%

Figure 3: FAAM functional outcome scores

As seen in Figure 3, functional scores had a sharp decline following surgery at 6-week follow-up with progressive improvement in function as measured by the FAAM. At the 3 and 5-month follow-ups, ADL subscale scores had not returned to pre-surgery levels. At 6 months, FAAM scores had returned to near pre-surgery functional levels on the ADL and sports subscales as well as the global ratings of function.

Figure 4: Gait Speed Outcomes

Figure 5: Time spent in double limb support

Instrumented gait analysis demonstrated a similar pattern to the self-reported functional measures. Gait speed demonstrated a marked limitation at the 6-week follow up period followed by gradual improvement. At the 6-month follow-up period, while functional improvements returned to their prior levels, temporospatial parameters of gait including gait speed and double limb stance time had still not returned to pre-surgery levels. This is represented in Figure 4 and Figure 5.

Discussion

This case study measured the short-term functional outcomes and temporospatial measures of gait following subtotal plantar fasciotomy for plantar fibromatosis. While no prior studies were found comparing these outcomes, the findings suggest that normal function and gait may not return as quickly as expected without intervention. Further research is warranted to determine if therapeutic intervention can facilitate improvements in function and gait more quickly following surgery in this population.

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Community Health Network

Implementation of an Environmental Scan to Assess Cancer Genetic Services at Community Health Network

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[1]Community Health Network, [2]The University of Texas MD Anderson Cancer Center

Background

Community Health Network (CHN) is a certified member of the MD Anderson Cancer Network, which allows for collaboration in quality improvement (QI) projects and patient care.

The MD Anderson Cancer Center (MDACC) Cancer Prevention and Control Platform is leading a pilot QI dissemination initiative to increase referrals and access to cancer genetic counseling and genetic testing to select MD Anderson Cancer Network member health systems including Community Health Network.

The initiative primarily targets patients who meet national genetic testing criteria and are considered most at-risk to have a mutation in either the *BRCA1* or *BRCA2* genes, specifically patients with high-grade, non-mucinous epithelial ovarian, fallopian tube, and primary peritoneal cancers (HGOC) and those with triple-negative breast cancer (TNBC).

Since 2012, the National Comprehensive Cancer Network (NCCN) guidelines[3] recommend genetic counseling (GC) and *BRCA1/BRCA2* germline genetic testing (GT) for **all** patients with:
- All invasive epithelial, non-mucinous ovarian cancer
- All TNBC diagnosed ≤60 years of age

Genetic test results inform cancer treatment (ex. PARP inhibitors), cancer prevention and screening, and cancer risks for relatives. However, in the United States, only:
- 12-50% of patients with ovarian cancer
- 34-60% of patients with breast cancer

who meet NCCN criteria are referred for GC/GT[4-9].

Quality Improvement Project Aims

Increase rates of recommendation, referral, GC, GT among patients with OC and TNBC to 4x baseline, or at least 80% following 3 years of quality improvement (QI) activity.

Quality Improvement Project Methods

Dissemination and Implementation Planning Using an Environmental Scan

What is an environmental scan?
- Mixed methods tool to collect information, identify risks and opportunities[11-12]

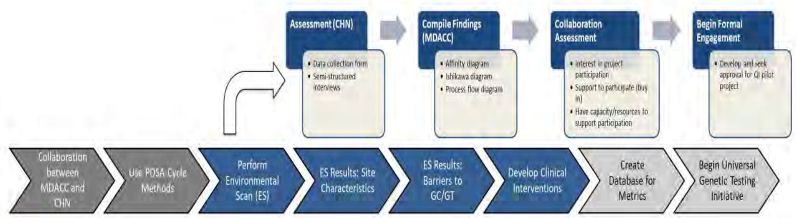
Why is it a useful approach?
- Flexible, rapid, low-cost, comprehensive
- Captures information from levels of the environment: U.S./state policy, health system, oncology care, genetics services, clinical resources

How was it performed?
- Data collection tool (Word document) completed by CHN team and semi-structured telephone interview between CHN and MDACC teams
- Data summarized by MDACC in Affinity, Ishikawa, and Process Flow Diagrams to identify barriers opportunities, and capacity for QI activities

Framework: The Model for Improvement
- Quality Improvement (QI) = flexible, continual learning + quantify intervention activities and outcomes

Applying Evidence-Based Practice
- MD Anderson experience[13-14] and literature review of QI interventions

Processes and Results


Assessment (CHN)
• Data collection form
• Semi-structured interviews
Compile Findings (MDACC)
• Affinity diagram
• Ishikawa diagram
• Process flow diagram
Collaboration Assessment
• Interest in project participation
• Support to participate (buy in)
• Have capacity/resources to support participation
Begin Formal Engagement
• Develop and seek approval for QI pilot project
Collaboration between MDACC and CHN
Use PDSA Cycle Methods
Perform Environmental Scan (ES)
ES Results: Site Characteristics
ES Results: Barriers to GC/GT
Develop Clinical Interventions
Create Database for Metrics
Begin Universal Genetic Testing Initiative

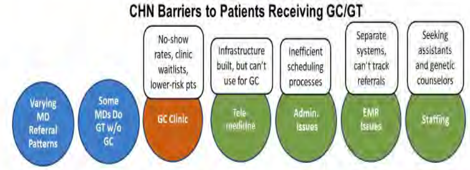
Environmental Scan Components


• Community Health Network Needs Assessment
• Other hospitals in region that offer cancer services, including GC
Healthcare System
• Structure (i.e. number and location of hospitals that diagnose/treat cancer)
• Resources (i.e. IRB, cancer/tumor registry, schedulers, IT, admin staff)
Oncology Services
• Patient care services (i.e. cancer screening, high-risk patient care, specialty services)
• Physician referral and GT practices
Genetic Counseling Services
• Referral and scheduling processes
• Clinic structure and workflow
• Genetic Counselor roles/tasks
• Technology use and IT support

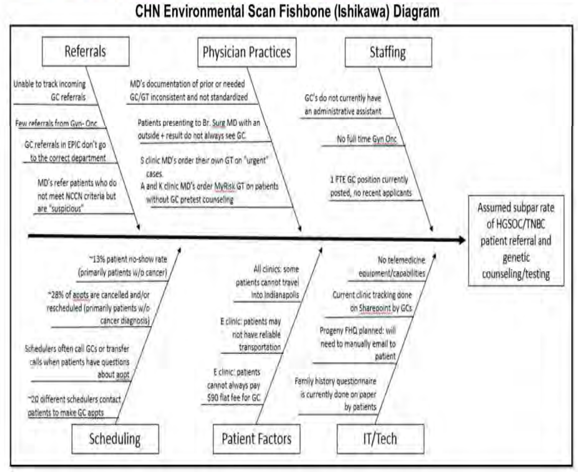
Environmental Scan Results: CHN Characteristics as of June 2016

Healthcare system name abbreviation	CHN
Geographic (state) location	Indiana
Certified member hospital locations	5
Cumulative hospital beds	1594
Certified oncology physicians	38
Surgery	16
Medical oncology	10
Radiation oncology	7
Number of GC clinic locations	4
Number of full time genetic counselors	2.8
% Certified genetic counselors	100%
% Licensed genetic counselors	100%

Environmental Scan Results: CHN Barriers to Patients Receiving GC/GT


Varying MD Referral Patterns
Some MDs Do GT w/o GC
GC Clinic
No-show rates, clinic waitlists, lower-risk pts
Tele medicine
Infrastructure built, but can't use for GC
Admin. Issues
Inefficient scheduling processes
EMR Issues
Separate systems, can't track referrals
Staffing
Seeking assistants and genetic counselors

CHN Environmental Scan Fishbone (Ishikawa) Diagram


Referrals
Unable to track incoming GC referrals
Few referrals from Gyn- Onc
GC referrals in EPIC don't go to the correct department
MD's refer patients who do not meet NCCN criteria but are "suspicious"
Physician Practices
MD's documentation of prior or needed GC/GT inconsistent and not standardized
Patients presenting to Br. Surg MD with an outside + result do not always see GC
S clinic MD's order their own GT on "urgent" cases.
A and K clinic MD's order MyRisk GT on patients without GC pretest counseling
Staffing
GC's do not currently have an administrative assistant
No full time Gyn Onc
1 FTE GC position currently posted, no recent applicants
Assumed subpar rate of HGSOC/TNBC patient referral and genetic counseling/testing
~13% patient no-show rate (primarily patients w/o cancer)
~28% of appts are cancelled and/or rescheduled (primarily patients w/o cancer diagnosis)
Schedulers often call GCs or transfer calls when patients have questions about appt
~20 different schedulers contact patients to make GC appts
Scheduling
All clinics: some patients cannot travel into Indianapolis
E clinic: patients may not have reliable transportation
E clinic: patients cannot always pay $90 flat fee for GC
Patient Factors
No telemedicine equipment/capabilities
Current clinic tracking done on Sharepoint by GCs
Progeny FHQ planned: will need to manually email to patient
Family history questionnaire is currently done on paper by patients
IT/Tech

Conclusion

The environmental scan was used to collect information about complex and varied care delivery processes across multiple health systems, including CHN. The ES identified unique strengths and weaknesses in processes and workflows at CHN and informed quality improvement activities to increase patient receipt of guideline-recommended cancer genetic services. Barriers were identified which may impact the rates of GC/GT at CHN, including:

- Inconsistencies within CHN oncology services and physician referral/testing practices
- Work flow within CHN genetic counseling services and clinical structure
- Structure and resources provided by the healthcare system, including staffing and technical gaps

Clinical interventions were brainstormed following the ES and have been implemented to address specific barriers to patients receiving standard of care GC/GT, and integrate within CHN processes.

Future directions:
- Begin data collection and metric reporting in REDCap database (Fall 2017-current)
- Launch clinical interventions (Fall 2017 – current)
- Assess progress over time (3 years total)
- Expand initiative to include Lynch syndrome, other hereditary cancer predisposition, and other sites

Acknowledgements

This initiative was supported by The University of Texas MD Anderson Cancer Center Moon Shots Program™ and the Cancer Prevention and Control Platform.

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THE UNIVERSITY OF TEXAS MD Anderson ~~Cancer~~ Center
Making Cancer History®

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Interstitial Cystitis (IC) Hope Study

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UNIVERSITY of INDIANAPOLIS.

Study Purpose

The purpose of this study is to both:

1. Examine the relationships between physical health, mental health, disease severity, pain interference, and sexual function/satisfaction in people living with interstitial cystitis (IC)
2. Better understand the experiences of people living with IC who self-report levels of physical and mental health similar to that of the general population

Background

- IC is a chronic condition defined as, "an unpleasant sensation (pain, pressure, discomfort) perceived to be related to the urinary bladder, associated with lower urinary tract symptoms of more than 6 weeks duration, in the absence of infection or other identifiable causes" (Hanno & Dmochowski, 2009, p. 285).
- IC can have a significant impact on:
  - Health-related quality of life
  - Daily activities
  - Psychosocial outcomes
  - Disability
  - Sleep
  - Sexual health
  - Social engagement

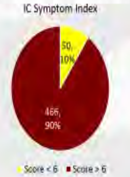
Methods

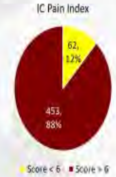
- Sequential explanatory mixed methodological design:
  - Phase 1: Quantitative (cross-sectional survey)
  - Phase 2: Qualitative (case study)
- Approved by University of Indianapolis Institutional Review Board

Results – Quantitative Phase

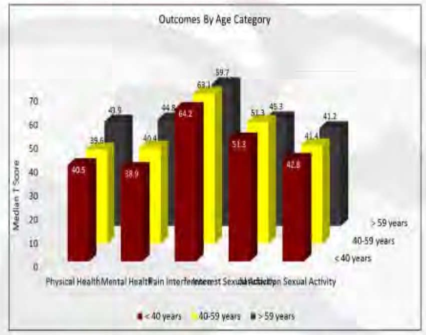
Table 1. Demographics (N = 560)

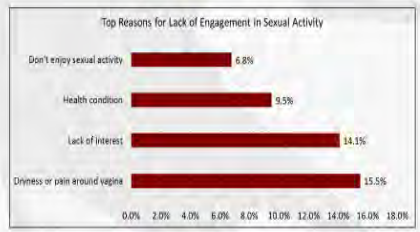
Characteristic	
Median Age (years)	51.0
Gender (% female)	94.2
Race (% White)	94.1
Ethnicity (% non-Hispanic or Latinx)	95.3
Marital Status (% married)	61.4
Education (% college graduate)	62.6
Employment (%)	
Full-time	34.2
Retired	19.1
Unable to work	17.0
Median Time Living with IC (years)	12.8

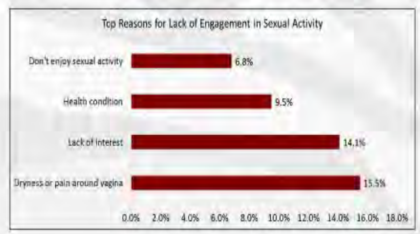




Results – Quantitative Phase







Conclusions

- As compared to the general population, IC patients tend to have:
  - Lower physical and mental health, as well as sexual satisfaction,
  - Higher pain interference in daily activities, and
  - Similar interest in sexual activity.
- IC patients 60 years of age and older tend to have higher physical and mental health, as well as lower pain interference in daily activities, as compared to those less than 40 years of age
- Pain is reported as a factor in engaging in sexual activity (with or without a partner)
- Potential for interprofessional collaboration in the treatment of IC patients (e.g., urologists, urogynecologists, primary care providers, physical therapists, pharmacists, and mental health providers)

Limitations

- Cross-sectional data collection results in data at only one point in time
- Potential for respondent bias
- Sample obtained from the Interstitial Cystitis Association's database

Next Steps

- Analyze qualitative data from phase 2 of the study

Acknowledgements

- InQuery Grant Collaborative, University of Indianapolis, Indianapolis, IN
- Interstitial Cystitis Association, McLean, VA

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Strength and Resilience: Gerontological Implications of Body Image among Older Women of Color

Lisa Borrero, PhD; Wanda Watts, MSW, JD, LCSW; Ashley Bauman, BA

Background

The multidimensional social concept of body image, particularly regarding women, has become embedded as a cultural touchstone reflecting the complex nature of how women's bodies are perceived. For older women, the concept of body image can be more complex due to the societal assumption that women's bodies should not age (McCormick, 2008).

As women age, although they continue to experience body dissatisfaction, they often place less emphasis on appearance. As a result, older women can be less self-conscious about how they look (Homan & Boyatzis, 2009) and any dissatisfaction is less apt to be tied to negative evaluation of self and identity (Liechty, 2012). Alternatively, in older age, body image tends to be more associated with valuation of health, such as being free from chronic illness, and associated less with others' perceptions of their bodies (Liechty, 2012).

Although body image has been widely explored within a variety of disciplines, older women, especially those of color, are rarely the focus. Additionally, the use of qualitative approaches to understand body image is largely lacking within current literature.

Purpose

The purpose of this study was to understand, from an in-depth qualitative perspective, how older women of color feel about their bodies.

Participants

Study participants, recruited through purposive convenience sampling, included five women aged 60-69 who identified as women of color, specifically African American.

Method

Study Design: This was a small, information-rich qualitative study utilizing a phenomenological methodology.

Data Collection:

- Individual interviews were utilized to elicit in-depth information about the participants' experiences and perceptions related to their body image.
- Photo elicitation, a data collection method incorporating visual information in the form of photographs, and personal journaling were incorporated as tools to further inform and deepen the participants' interview contributions.

Data Analysis: Interview data was audio recorded and transcribed verbatim. Transcripts were coded individually by the three researchers, followed by collective code comparison and theme development.

Results

Results revealed a largely positive body image having been cultivated over time. As older women, participants rejected the notion of perceiving their worth via physical appearance. Instead, their body image is part of an integrated sense of self strongly tied to ***family, faith, community, and helping others***. Key to this self-concept is a steadfast ***resilience*** developed over a lifetime of joys and losses.

Body Image and Resilience: *"I've come to the conclusion it is what it is, and I'm just gonna do what makes me happy. If I need to lose ten pounds, I'll lose ten pounds, if I don't, no big deal. I still got clothes in every size (laughs). I just go pull out what fit and keep it moving."*

"You know, I done got older…it's like every year it's a change in your body, and I have accepted that as it is and just kept on going because you see people have got so many worse things…And I'm just thankful this is it and just take it and go with it and try not to let it change my day."

Family: *"I still believe that families are the foundation for everything that happens. No family is perfect. Every family is dysfunctional. It's how you deal with the dysfunction that makes it. Because if you don't have the commonality of love in that family, then the people in it never know what love is."*

Faith: *"…the church is very, very special. And this is where I have my joy, peace and happiness at. And I love the people there and I love the pastor."*

Community/Helping Others: *"Even when I go to volunteer at the school, I like to present myself a particular way because I feel that these kids don't see African American women put together. So I always try to go looking as nice as I can, my hair together, smelling like I can so that they don't have a stereotype; their perception is changed."*

Discussion

Themes revealed are consistent with key gerontological concepts such as the life course approach, resilience of older women, socioemotional selectivity theory, and ecological models.

Specifically, participants' stories illustrate the importance of acknowledging contextual factors and personal connections developed over a lifetime when considering the role body image serves in the self-concept of older adults, particularly women of color.

Future research would be well served to focus more deeply on how family and community influence the meaning of aging for older women of color; explore the consequences for other relationships; and how work, leisure, and future goals play a part.

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Registered Nurse Preceptor's Perception of Usability of an Online Orientation Competency Center

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Sharrilyn Schultz MA, BSN, RN-BC| Senior Education Specialist

INTRODUCTION

- Since 1989, Community Health Network's competency assessment program included paper documentation of new hire orientation and individual competency. The program was task oriented and based on technical skills of the nurse.
- Research into online competency programs revealed the need to assess competency on behaviors of the new nurse to determine ability for independent practice. (McNamara, Lavigne, & Martin, 2016).
- Clinical education developed an online documentation method for competency assessment utilizes the methods of Donna Wright and combining the knowledge of Relationship Based Care experts, Clinical Education and Learning Management.

ONLINE COMPETENCY CENTER

- MyLearning as platform
- All orientees
  - Complete a self-assessment
  - Evaluated on Core Expected Behaviors
    - Based on Relationship Based Care Model
    - Examples: Caring & Healing Environment, Leadership, Communication & Teamwork
  - Evaluated on basic nursing skills

INDIVIDUALIZED ORIENTATION

- Competencies specific to specialty
- Competencies specific to unit
- Specific needs for Maternity, NICU, BHS, Cath Lab, Pediatrics
- Orientation guides to be completed in 1st 6 months

RESEARCH PLAN

Research Question

- In Registered Nurse preceptors in an acute care hospital system, what is the perception of usability of the Online Nursing Competency Center orientation documentation?

Research Design

- Using a Descriptive survey (cross-sectional) design, preceptors who completed training on the documentation system and had an orientee, were given a survey at the completion of the orientation.

Subjects

- Target population was Registered Nurse (RN) preceptors who utilized the online orientation documentation system.

Criteria

- *Inclusion* : Registered Nurse Preceptors, Completion of Online Nursing Competency Center Training, 1st experience with using the online system, and completion of documentation on orientee.
- *Exclusion*: Preceptors who have not completed training, more than one experience using the online system, greater than 1 month after orientee completion.

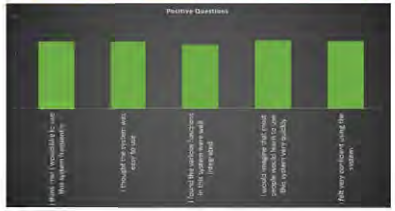
STUDY PROCEDURES

- Survey created using the System Usability Scale, which has been shown to be a reliable tool with valid results (Brooke, 1986).
- Preceptor was assigned the survey through Learning Management System for completion.
- Overall score calculation:
  - Odd questions: Score -1
  - Even Questions: 5- Score
  - Multiply the sum of the scores by 2.5
  - SUS scores have a range of 0 to 100
  - From the individual score, the mean was taken to get an overall rating of usability for the system. A score of above 68 is considered above average.

SURVEY RESULTS

- Overall 63.79, indicating a below average score

Demographics					
AGE		Gender		Degree	
20-29	19	Male	8	ASN	11
30-39	17	Female	48	BSN	43
40-49	10			MSN	2
50-59	8				
>60	2				



OPPORTUNITIES

- Translating paper to the online format.
- Learning Management System workflow (i.e. requesting preceptors, no way to select multiple competencies for request)
- Survey results and feedback have been taken to SuccessFactors.

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POLYARTHRITIS AS A PRESENTING SIGN OF LUNG CANCER

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INTRODUCTION

Rheumatologic manifestations as part of a paraneoplastic syndrome are rare. This case demonstrates a female patient who presents with polyarthritis of unclear etiology 4 months prior to diagnosis of lung cancer. This clinical presentation is a paraneoplastic syndrome known as hypertrophic pulmonary osteoarthropathy (HPO).

It is characterized by :

- Joint pain and swelling
- Clubbing
- Pain in the extremities

The pathogenesis is not well understood. Some theories involve malignancy induced hormones, antibodies, peptides, and cytotoxic lymphocytes. These mediators induce the rheumatic symptoms described above as part of a paraneoplastic syndrome. The pain in the extremities is due to periostitis of the long bone that may be seen on bone scintigraphy.

Greater than 70% of HPO cases are associated with lung cancer. The incidence of HPO is 0.74%-4.5% in all lung cancers. This report will illustrate an example of an unusual clinical sign of malignancy which initially appeared as a symptom with unclear etiology and not usually associated with malignancy.

CASE PRESENTATION

A 57 year old Caucasian female first presented to the office with complaint of bilateral knee swelling, pain and warmth. She had no significant past medical history other than current cigarette use and a 42 pack-year smoking history. Bilateral knee x-rays did not reveal any joint deformities or narrowing. Initial rheumatologic work up was negative for rheumatoid arthritis, lyme disease, and lupus. However, the inflammatory markers were elevated. Physical exam demonstrated a thin woman with bilateral knee swelling and warmth, no organomegaly noted on exam.

Before a rheumatology evaluation was arranged, the patient returned with hemoptysis. A computed tomography (CT) scan of the chest demonstrated a large well-circumscribed 6.2 cm spiculated soft tissue mass in the right upper lobe, most consistent with carcinoma. Also noted were two small 0.5 cm lung nodules, borderline enlarged mediastinal adenopathy, and right hilar adenopathy. Metastatic disease was present in the upper abdomen.

- IR biopsy of right upper lobe mass revealed poorly-differentiated NSCLC. EGFR, ALK, ROS1, and BRAF negative with PD-L1 proportion score of 2%.
- IR biopsy of adrenal mass revealed metastatic carcinoma
- Biopsy of oral cavity: metastatic carcinoma consistent with lung primary

In summary, this patient has a working diagnosis of Stage IVB (T4N0M1c) poorly differentiated metastatic NSCLC emanating from the right upper lobe, right adrenal metastasis and a fungating oral lesion.

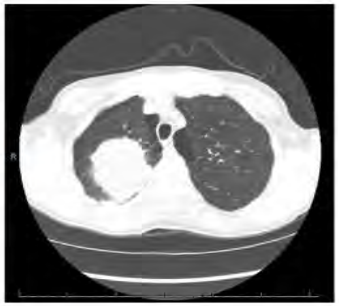
- She is being treated with pembrolizumab/pemetrexed/carboplatinum and radiation.
- We do not have a documented weight prior to her initial visit, but she has continued to lose 8 pounds over the course of 3 months during her investigation.
- This is an ongoing case.

INVESTIGATIONS

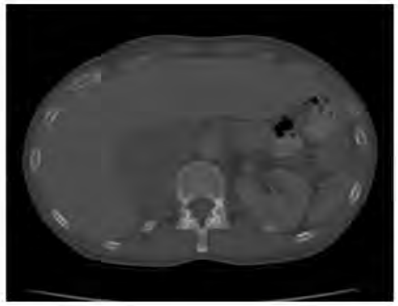
LAB STUDIES:

- WBC: 12.6 (3.2-11.0 K/CUMM)
- Neutrophils: 8.06 (1.30-6.00 K/CUMM)
- Monocytes (absolute): 1.27 (0.00-1.00 K/CUMM)
- Platelets 467 (150-450 K/CUMM)
- ESR: 45 (0-30 MM/HR)
- CRP: 7.9 (0.1-0.8)
- Rheumatoid Factor, CCP Antibody IgG, DNA Antibody DS, ANA screen, and Lyme disease (borrelia spp) DNA, QL, blood were all negative.

IMAGING:



CT lung: Large well-circumscribed 6.2 cm soft tissue mass In the right upper lobe of the lungs. The borders are slightly speculated.



CT abdomen: 8.2 cm soft tissue mass emanating from right adrenal gland.

DISCUSSION

There have been other reported cases of HPO demonstrating similar clinical findings and are most often associated with lung cancer, specifically non-small cell lung cancer (NSCLC). Out of the NSCLC subtypes, adenocarcinoma predominates at >50% of cases. Some present before a malignant tumor could be detected on imaging, while others occur after diagnosis. Risk factors for HPO were similar to risk factors for lung cancer. Treating underlying cancer is the most effective therapy for paraneopastic syndromes. Considering malignancy within the differential for unexplained polyarthritis may lead a clinician to catching it early in the course. This logic may be held true to all paraneoplastic syndromes.

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A case of cerebral venous sinus thrombosis in a patient with IBD

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BACKGROUND

- Headaches – among the top 10 presenting complaints in outpatient settings
- **Cerebral Venous Thrombosis (CVT):** A thrombus in the cerebral venous system leading to neurologic deficits or elevated intracranial pressure; an uncommon form of stroke affecting younger patients
- INCIDENCE: 1.32 per 100,000 person years
  - Female to male ratio of 3:1. Higher in females between ages 31-50 years – approx. 2.78 per 100,000 person years

CASE PRESENTATION

- **CASE:** A 33 year old female who presents to the office with right-sided posterior headache that has been worsening since onset two days ago. She has attempted over-the-counter analgesics without any significant improvement in her pain. She denies any neurologic symptoms, vision changes, etc. Patient reports nausea at times that has been worsening along with her headache. No recent illnesses or systemic symptoms.
- **MEDICAL HISTORY:** Ulcerative colitis. No surgical history.
- **MEDICATIONS:** oral contraceptive pills, ibuprofen prn
- **PROGRESSION:** Patient was prescribed diclofenac with instructions to follow-up if headache does not improve. She presented to the emergency department the next day with worsening of her headache and nausea; she was found to have an occlusive thrombus in her right transverse and sigmoid sinuses.

DIAGNOSIS

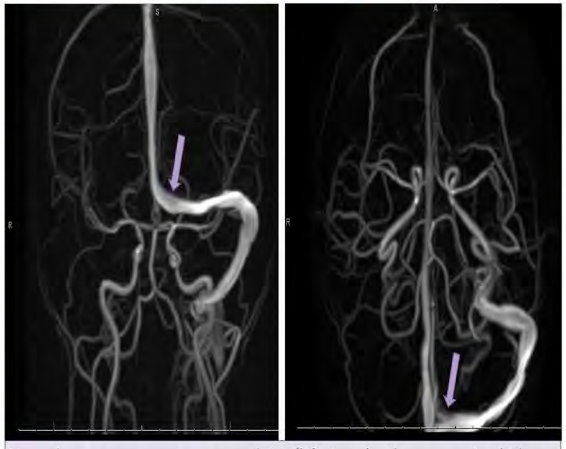
- Index of suspicion elevated in patients with: new onset headache, headache with changing features, neurologic deficits, signs of increased intracranial pressure
- **American Heart Association/American Stroke Association gu idelines**
  - Blood count, metabolic panel, prothrombin time/partial thromboplastin time
  - May use D-Dimer to rule out thrombus
  - May image patient who presents with signs of idiopathic intracranial hypertension to rule out thrombus
  - May image patient who presents with atypical headache to rule out thrombus
  - Plain CT or MRI not sufficient to rule out cerebral venous thrombus
  - Screen for prothrombic conditions – labs recommended 2-4 weeks after finishing anticoagulation therapy

PRESENTING SYMPTOMS

- ELEVATED INRACRANIAL PRESSURE SIGNS: headache (88%), papilledema (28%), vision loss (13%)
  - FOCAL SIGNS: focal paresis (37%), seizures (39%)
  - MULTIFOCAL SIGNS: mental status changes (22%)

RISK FACTORS

- Thrombophilia – congenital or acquired
- Pregnancy and puerperium
- Malignancy
- Head trauma
- Drugs
  - Oral contraceptives
  - Hormone replacement
  - Glucocorticoids
- Autoimmune disease
  - Inflammatory bowel disease
  - Systemic lupus erythematosus



Magnetic resonance venogram – coronal view (left picture) and transverse view (right picture) showing an occlusive thrombus in the right transverse and sigmoid sinuses. Arrows pointing to left transverse sinus, with lack of blood flow on the right.

TREATMENT

- Anticoagulation – vitamin K antagonist recommended after initial heparin therapy regardless of presence of intracranial hemorrhage.
  - Provoked incidence with transient risk factor, duration of 3-6 months
  - Unprovoked incidence, duration of 6-12 months; if recurrent, recommend lifelong anticoagulation
- Consider acetazolamide in patients with signs of elevated intracranial pressure, particularly with vision changes
- Consider antiepileptic medications in patients with seizure
- If mass effect is severe, may consider decompressive hemicraniectomy
- Improved outcomes and mortality rate observed in patients admitted to stroke units
- Pregnancy – low molecular weight heparin
  - Duration – throughout the pregnancy + 6 weeks postpartum, minimum of 6 months

CONCLUSION

- Recurrence
  - Another CVT – approximately 6.5% annual risk
  - VTE after CVT – approximately 3.5-4% annual risk
- Mortality rate – 3-15% in acute phase
  - Poor prognosis with:
    - Patient factors – age >37, male sex
    - Symptoms – encephalopathy, coma, seizures
    - Imaging findings – intracerebral hemorrhage, involvement of straight sinus, venous infarction
    - Risk factors – cancer, CNS infection, hereditary thrombophilia

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Multimodal Pain Management for Cesarean Section Delivery: A Retrospective Review

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Kanitha Phalakornkule, MIS, MS ; Anthony Sanders, MD; Kaleigh Bachus, BSN, RNC-OB

Community Health Network

Background /Purpose

- Increased rates of opioid prescribing in the last 2 decades have contributed to increased rates of opioid dependency (Indiana Prescription Drug Abuse Prevention Task Force, 2016)
- Treatment of pain with opioid monotherapy should be replaced with the implementation of multimodal pain management (Joint Commission, 2012)
- Non-pharmacologic interventions such as early ambulation, early discontinuation of urinary catheters and early intake of oral fluids and solids can facilitate enhanced recovery after surgery (ERAS) and lead to decreased length of stay (Deniau et al., 2016)

Hypothesis

- The implementation of multimodal non-opioid pain management decreases postoperative pain scores and opioid administration to obstetric patients undergoing cesarean section procedure as compared to patients receiving traditional opioid pain management.

Study Design

- Retrospective chart review of all patients with cesarean section at Community Hospital East from January 1, 2017 through May 1, 2018

Control Group

Intra-op pain medications:
- Spinal or epidural opiate

Standard postpartum pain management:
- No scheduled pain medications
- As needed non-opiates for mild pain
- As needed opiates for moderate and severe pain

Multimodal Group

Intra-op pain medications:
- Spinal or epidural opiate (low-dose)
- Surgical field or TAP block

Multimodal postpartum orderset:
- Scheduled non-opiates (acetaminophen, NSAIDs, gabapentin)
- As needed opiates for moderate and severe pain

Mixed Treatment Group

Utilization of surgical field or TAP block with traditional opioid monotherapy

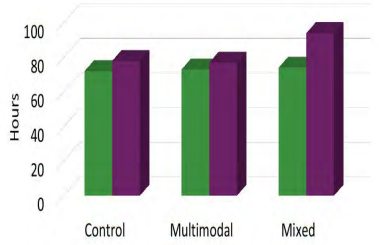
Utilization of multimodal postpartum orderset without surgical field TAP block

- Control group received stand and non-pharmacologic postpartum intervention, including ambulation at 8-16 hours, solid foods at 12-24 hours, and removal of indwelling urinary catheter at 12-24 hours.
- Multimodal group also included early ambulation, solid foods, and removal of indwelling urinary catheter at 4, 6, and 8 hours post-delivery, respectively.

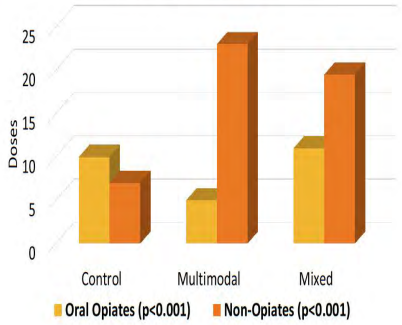
Results

Background Information	Control Group n = 185	Multimodal Group n = 65	Mixed Treatment n = 16
Primary Cesarean, n (%)	80 (43.2%)	22 (33.8%)	6 (37.5%)
Medication Assisted Therapy prior to delivery, n (%)	5 (2.7%)	6 (9.2%)	6 (37.5%)
Type of anesthesia, n (%)			
Spinal	116 (62.7%)	51 (78.5%)	11 (68.8%)
Epidural	63 (34.1%)	11 (16.9%)	3 (18.8%)
General	6 (3.2%)	3 (4.6%)	2 (12.5%)

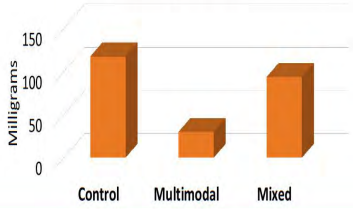
Length of Stay, median hours



Postpartum Doses of Pain Medication, median number of doses



Morphine Equivalents of Postpartum Opiates, median (p<0.001)



Next Steps

- Complete data collection on pain scores and non-medication interventions (ambulation, diet, urinary catheter removal).
- Validate EMR report to reduce manual process of data collection and allow for real time tracking of postpartum pain management.
- Implement strategic education to providers and nurses with attempts to reduce length of stay.
- Expand use of multimodal approach across the network. Work already completed includes:
  - Pre-operative and post-operative ordersets updated to include multimodal pain management strategies
  - Increased utilization of TAP blocks by physicians and CRNAs.

Conclusions

- Patient receiving multimodal pain management after a cesarean section received statistically significantly less number of opiate doses and less total exposure to opiates compared to control group and mixed treatment group.
- Patients in the multimodal group received significantly more non-opiates as anticipated based on treatment design.
- No difference was seen in length of stay between treatment groups.

**References available upon request*

P27

Creating a Care Plan for an Athlete Affected by Type-1 Diabetes Mellitus

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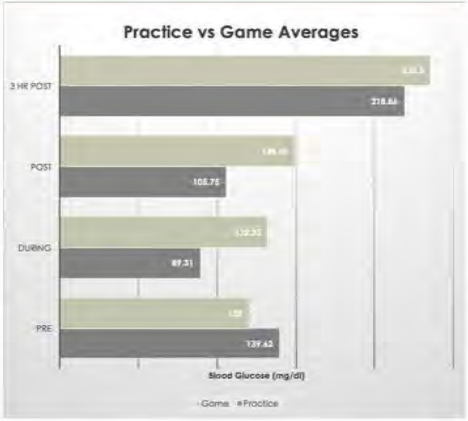
Background

- Patient is a 22-year-old female National Collegiate Athletic Association Division II soccer player who was diagnosed with type-1 diabetes mellitus (T1DM) when she was 10 years old.
- The patient's main complaint was that her glucose levels frequently run high, especially during and after practices.
- Despite this, her last A1C was 6.8 indicating effective glycemic control over time.
- The patient has participated as a collegiate athlete for the past 3 years with no individualized care plan, which is recommended by NATA position statement on management of the athlete with T1DM.
- Previously the patient had been solely responsible for controlling her glucose levels during activity.
- It is well documented in healthcare literature that a team approach to managing a patient with T1DM requires a well-designed and deliberate plan that clearly defines the role of each individual.

Results



Graph 1: Mean of Blood Glucose Level (mg/dl) at 4 different time points during practice and games.

	Practices	Games
Pre	139±61 mg/dl	120±41 mg/dl
During	89±48 mg/dl	132±41 mg/dl
Post	105±55 mg/dl	149±34 mg/dl
3 hr. Post	219±46 mg/dl	235±35 mg/dl

Table 1: Mean±SD of Blood Glucose Levels (mg/dl) at 4 different time points during practice and games.

Treatment

- The patient uses a Medtronic MiniMed insulin pump as well as a Dexcom continuous glucose monitor g6 sensor to manage her blood glucose levels.
- Her blood glucose levels were tracked over a 3-week time period, pre, during, immediately post, and 3 hours post activity as recommended by the American Diabetes Association, to analyze glucose trends and used to create a care plan specific to her.
- Blood glucose was monitored for both practices and games.
- Blood glucose monitoring was performed during these activities noted above as it is recommended that patients with T1DM have a care plan that reflects the differences between practices and games due to the body's variable response under different types of stressors.
- Due to advances in medical technology, the clinician was given 24-hour access to the patient's continuous glucose monitor.
- This allowed the clinician to see immediate feedback and provide appropriate treatment when the patient was dropping or spiking while under their care.
- After data collection, a care plan was created in accordance to recommendations contained in the NATA position statement of management of the athlete with T1DM.
- This plan can now be utilized by the patient, coaches, and athletic trainers to ensure proper care.

Care Plan

Guidelines for Play

- Blood glucose levels should be measured before beginning activity
- Blood glucose levels should be re-evaluated every 45 minutes
- In the red zone, patient should be removed from activity and treated accordingly
- In the yellow zone the patient should make corrections and re-assess as needed
- In the green zone, patient can continue play safely

Practice

<50	50-100	100-180	180-250	>250

Games

<50	50-100	100-150	150-200	>200

Diagnosis	Signs and Symptoms	Treatment
Hypoglycemic -80-100 treat is symptomatic -<80 always treat	Lethargic, sweaty palms, headaches, neuropathy	-Glucose tablets as needed -Emergency glucagon shot if patient is incoherent
Hyperglycemic -Treated dependent upon signs and symptoms	Lethargic, sluggish, stomach pain, excessive thirst	-1 unit of insulin to drop by 40 mg/dl i.e. at 200 mg/dl give 2 units to drop to 120 mg/dl -If incoherent, activate EMS
Ketones -Test if blood glucose is above 250 mg/dl for prolonged period	Confusion, decreased perspiration, excessive thirst/urination, and nausea	-Stay hydrated -Discontinue activity -Activate EMS if lasting

Emergency Care Kit

Glucometer	Most accurate measurement of blood glucose level
Lancet	Small needle used to prick the finger tip
Test Strips	Blood is drawn up through the strip and delivered to the glucometer
Alcohol Swabs	Used to clean the skin before finger is pricked to wipe away any dirt, bacteria, or glucose
Emergency Glucagon	-Used when hyperglycemic and incoherent -Inject into the buttock, upper arm, or thigh -May inject second shot if patient remains unconscious for 15 minutes.
Glucose	Extra glucose tablets/gel and granola bars
Urinalysis Test Strips	Used to check for ketones in the urine

Conclusion

- Providing patient centered care through the implementation of best practice recommendations and utilization of individualized patient data allows the clinician to provide an appropriate care plan for patients with T1DM.
- In this case, the patient was given more personalized care and the management of her blood glucose levels improved allowing the patient to perform better overall.

INFLUENCE OF EXERCISE ON PARKINSON'S: A CASE STUDY

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Introduction

Parkinson's disease (PD) is a neurodegenatrive disorder influencing individual function.

Exercise may promote a rich environment for neuroplasticity contributing to reduced PD symptoms and increased function.

The authors hypothesized that an instructor led, high intensity exercise program would reduce PD symptoms.

The purpose of this case study was to determine if motor cortical excitability is altered following three months of supervised exercise.

Methods

Exercise 2x/wk Rock Steady Boxing

Cortical Excitability – Transcranial Magnetic Stimulation (TMS) - 10 stim levels with 5x/stim.

Functional Tests: Stress Testing; 10m & 6-min walk tests; Grip Strength; Functional Reach; Balance Evaluation (MINIbest).

Cognitive Assessments: Activities Specific Confidence Scale (ABC); Trail Making Tests A&B (TMT).

Results

Figure Representing the pre-post testing setup.

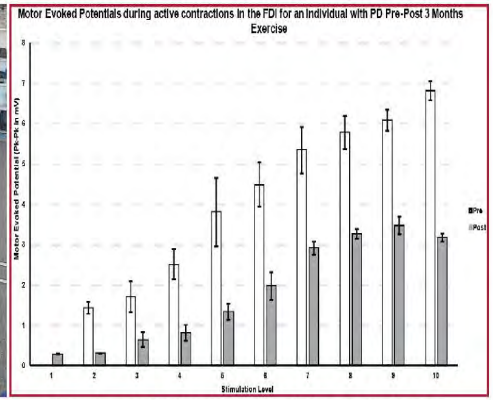

Figure Representing the MEP alterations during active contractions.

Figure Representing the MEP alterations during rest.

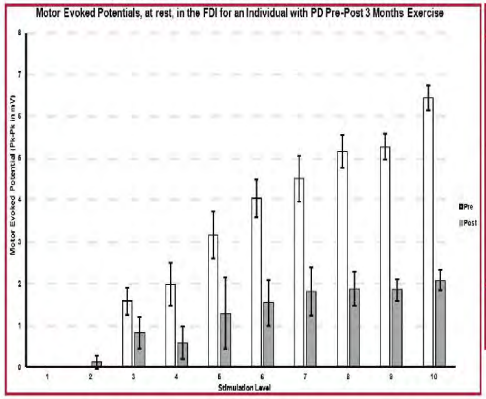

Table Representing the Functional and Cognitive changes pre-post intervention.

		Pre-Exercise	Post-Exercise
Functional Variables	VO_{2pk}(ml/kg/min)	24.7	24.6
	Peak Ve (l/min)	67.3	72.5
	Time to VT (sec)	140	240
	Time to exhaust(sec)	420	495
	Grip Strength (#/lb)	0.414	0.437
	CWT (m/sec)	1.22	1.43
	6MWT (m)	532	542
	MINIbest score	24	26
Cognitive Variables	ABC score	94	88
	TMT score	35.6	29.37

This Project was funded by the InQuery Collaborative Grant Program (#523425), University of Indianapolis

Conclusions

Following three months of instructor led, high intensity exercise:

1) cortical excitability was reduced, as measured via Motor Evoked Potentials (MEPs).

2) Functional and cognitive status improved significantly.

Discussion

Instructor led exercise 2x/wk has a positive influence on PD symptoms. Caution must be taken in the interpretation of the presented data as this was a case study.

Future directions include increased sample sizes and the introduction of exercise as a novel experience for subjects.

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Acknowledgements

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Implementing Individualized Discharge Planning for Patients with Addictions

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Aim

The purpose of this project is to implement a specialized discharge plan template for patients being treated for addictions targeted towards potential relapse factors in an attempt to decrease re-admissions and emergency evaluations.

Background

At the Inpatient Behavioral Health Pavilion at Community Health Network, there are a number of different units with different diagnostic populations that comprise each unit. Despite this, there is only one safety discharge plan for every patient who discharges from any unit. It is currently unclear if there would be benefit to having a specific plan for every patient oriented specifically to substance use patients. That is the gap in current knowledge.

There is no existing literature that was uncovered that specifically addresses how safety planning with substance use specific information could prevent relapse and re-admission and this project aims to add to that lack of knowledge.

Procedure

Based on recommendations from SAHMSA Safety Toolkit, a template format was created by the principal investigators of this study for discharge planning specialized for patients with substance use disorders. This discharge template is to be reviewed with the patient and their treating psychiatric resident. Data will be collected from a total of roughly 60 inpatient psychiatric residency patients who have a diagnosis of alcohol, benzodiazepine, or opiate substance use disorder. The data will be collected for two groups of patients-a control group with 30 patients with one of these diagnoses that received the standard hospital non-specific discharge planning and a treatment group of 30 patients with one of these diagnoses that received specialized substance abuse oriented discharge planning (seen in Figure 1). Inclusion criteria are patients with alcohol, opioid, or sedative use disorders as a primary or secondary diagnosis. No patients under age 18 will be included as they are not seen by the principal investigators.

Substance Abuse Collaborative Safety Plan

Name: John Doe
DOB: 1/7/1961
Date of Discharge: March 1st, 2019
Discharge Primary Diagnosis: Opioid use disorder Severe (F11.20) (304.00)

Collaborative Safety Plan
I, Wendy, developed this plan with my support system, specific to my needs. I am at the greatest risk to harm myself or someone else during the 1st month after a crisis. My safety plan is designed to help ensure my safety and to minimize safety risks. I will review and revise the plan with my support system and provider(s).

****The one thing that is most important to me and worth living for is:** my children.

My environment will be made safe by myself and support system (relationship), through the completion of the following safety measures. These safety measures will be completed immediately.

Check all applicable:

- ☒ Weapons locked up
- ☒ Medications secured
- ☐ Vehicle keys secured
- ☒ Alcohol/drugs removed
- ☐ Chemicals/cleaners secured
- ☐ Sharp objects secured (knives, razors, scissors, etc.)
- ☐ Check room for harmful objects
- ☒ Increased supervision
- ☐ Ensure safety of pets
- ☐ Ropes, belts, neckties removed
- ☐ I need to be supervised by an adult at all times, and the adult supervising is aware of the safety risks and is willing to take necessary precautions.
- ☐ Keep doors unlocked.
- ☒ Inform school staff of the safety concerns.

Discharge Plan:
Where are you discharging to? Home with my wife and children
Who will you be following up with?Therapy: Gallahue ICP and Medication Management Dr. David Pison
12 Step Planning: Meetings at Carvel Club. First name of sponsor Joe.

MAT at time of discharge: Naltrexone
What does the MAT do?: Helps me to not crave heroin

Recovery/Relapse Management:
Triggers are external events or circumstances that may produce very uncomfortable emotional or psychiatric symptoms such as anxiety, panic, discouragement, despair, or negative self-talk. Reacting to triggers is normal, but if we don't recognize them and respond to them appropriately, they may cause a downward spiral, making us feel worse and worse and potentially lead to relapse.
What are your triggers for relapse? Feeling down on myself, financial stressors, marital stressors
Examples of Triggers:
too much to do/feeling overwhelmed

Trigger Action Plan:
What can you do if a trigger comes up to comfort yourself and keep you reactions from becoming a more serious problem? Include tools that have worked for you in the past plus ideas you have learned from group and have learned from others.
Examples of Action Plan:
spending time w/a good friend or be in touch w/family

Relapse Prevention:
Early Warning Signs for Relapse – Identify responses to stressful situations that might lead to relapse.
Examples of these signs might include: nervousness
What signs or actions do you have when things are breaking down?
Examples: responding irrationally to events and actions of others

If you have relapsed, who can you call/talk to? Joe
What steps should you take once you have relapsed?
Examples: Call my doctor or other health care professional and ask for and follow his or her instructions

If you have issues with your medication follow up, including receiving your next injection of naltrexone or finding your buprenorphine provider, please call the Unit: (317) 621-5051

Safety Plan assembled with components of SAHMSA Safety Toolkit.

Figure 1: Example of Substance Use Discharge Planning

Patients who meet inclusion criteria will be pulled from chart review in Epic. We will be requesting a waiver for informed consent. The report coming to principal investigators will be de-identified prior to receiving the data, and principal investigators will not receive identifiable information. Data from both groups will be collected over the span of 4 months from 2018-2019. Data will be collected from Epic EMR system used by Community North with the help of our research department. The comparison between the two groups will be the number of inpatient psychiatric readmissions and reevaluations in Community Network's ER or Crisis facility done within the 30 days after discharge.

Discussion

The goal of this study is to retrospectively look at patients who present for alcohol, sedative, and/or opioid use diagnoses and evaluate how these admission or evaluation rates are impacted with the utilization of substance abuse oriented discharge planning. Data has not yet been gathered to analyze effects. Due to the low sample size over a short duration we do not currently expect to see significant differences in the data. Limitations to this study include missed patient evaluations that could happen at other mental health or substance abuse locations. There is a risk identified to patients of possible loss of confidentiality in the data collection process. Future research could utilize larger sample sizes over a longer time period with data collection from different hospitals in the state in order to more accurately assess evaluation rates.

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Qualitative Findings on the Effects of Cisnormative Beauty Standards on Transgender Women's Beauty

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Abstract

Authors conducted a qualitative study exploring the effects of cisnormative beauty standards on transgender women's perceptions and expressions of beauty. Twelve self-identified, Caucasian, transgender women completed a semi-structured interview which provided descriptive data related to their perceptions of societal beauty standards. Analysis of the data revealed the following primary themes: participants viewed the beauty of transgender and cisgender women as diverse or as encompassing a broad range of variability, societal beauty standards were influential in regards to participants' expressions of beauty, and participants' viewed out-group transphobia as a factor contributing to discriminatory and prejudicial perceptions of transwomen's beauty.

Research Questions

The following research questions are proposed:

- (1) What are the attitudes and beliefs transgender women have regarding beauty?
- (2) In what ways have societal beauty standards in the United States influenced participants' perceptions of their own beauty and the beauty of transgender and cisgender women?
- (3) In what ways have societal beauty standards in the United States influenced participants' expressions of beauty?
- (4) Do participants perceive any discriminatory or prejudicial factors contributing to societal perceptions of the beauty of transgender women? If so, what are these factors?

Participants

Participants included 12 self-identified transgender women between the ages of 23-64 who resided in Indiana, Rhode Island, or Massachusetts. The inclusion criteria mandated that participants have undergone some form of gender transition to more authentically live their identity or express their experience of gender. Following the informed consent process, participants completed a demographic questionnaire and a semi-structured interview developed specifically for this study. The interview format included 17 pre-determined questions.

Methods

The data obtained from the semi-structure interviews were analyzed using the CQR method (Hill et al., 1997). Within-case analyses involved dividing responses consensual from the interview questions into general and broad categories called domains and constructing brief summaries (core ideas), of participants' statements. Cross-analysis consisted of developing categories to describe common themes reflected in the core ideas, within domains, and across participant's statements. Each domain and category was then organized and the frequency of categories were assessed for representativeness across all participants. Categories were given the following frequency designations: "general: (category applies to all or all but one of the participants), "typical (category applies to half or more of the participants), & "variant" (category applies to either two or three, but no more than half of the participants) (Hill, 2012).

Results

General Themes:

- Overall, participants viewed the beauty of transgender and cisgender women as diverse or as encompassing a broad range of variability.
- Societal beauty standards have influenced participants' expressions of beauty.
- Participants viewed out-group transphobia as a factor contributing to discriminatory and prejudicial perceptions of transwomen's beauty.

Domain, Category, and Subcategory	Frequency
1 Personal Perceptions of Beauty	
Broadly Defined	Variant
Physical Characteristics	Typical
Non-Physical Characteristics	Typical
2 Perceptions of Societal Beauty Standards	
Utilized for Appraisals	Typical
Restrictive	Variant
Unattainable	Variant
Varies	Typical
3 Attitudes About Societal Beauty Standards	
Utilized for Appraisals	Variant
Unrealistic	Typical
Problematic	Variant
Needs Modification	Variant
Positively Changing	Variant
4 Societal Perceptions of Trans vs. Cis Beauty	
Different Standards	Typical
Higher Standards for Transwomen	Variant
Influenced by Cisnormativity	Variant
Misconceptions of Transwomen's Beauty	Typical
Similar Standards	Variant
5 Personal Perceptions of Trans vs. Cis Beauty	
Diverse	General
Physical Evaluations of Transwomen	Typical
Physical Evaluations of Ciswomen	Variant
Non-Physical Evaluations of Transwomen	Typical
Non-Physical Evaluations of Ciswomen	Variant
Similar Standards	Variant
Passing as Goal	Variant
6 Effects of Societal Beauty Standards on Participant's Personal Perceptions/Expressions of Beauty	
Influence Expressions	General
Femininity	Variant
Increases Efforts to Pass	Typical
Influence Perceptions	Typical
Felt Pressure to Conform	Typical
Non-Influential	Variant
7 Effects of Societal Beauty Standards on Participant's Perceptions of Transwomen's Beauty	
Influence Perceptions	Typical
Passing	Typical
Non-Influential	Typical
8 Attitudes About Passing	
Viewed Negatively	Typical
Recognizes Utility	Typical
Goal	Variant
9 Discriminatory or Prejudicial Factors Contributing to Perceptions of Transwomen's Beauty	
Out-Group Transphobia	General
Negative Evaluations of Transwomen	Variant
Misconceptions of Transwomen's Beauty	Typical
Violence	Variant
In-Group Transphobia	Variant
Poor Treatment	Variant
10 Protective Factors Contributing to Perceptions of Transwomen's Beauty	
Lack of Protective Factors	Variant
Friends	Typical
Reduce Negative Perceptions	Typical
Promote Positive Perceptions	Variant
Family	Variant
Reduce Negative Perceptions	Variant
Promote Positive Perceptions	Variant
Transgender Community	Typical
Online Support	Variant
Other	Variant

Discussion

- Positive and negative appraisals of beauty whether direct or indirect, influence ways in which transgender women are judged and correspondingly treated.
- Participants shared general sentiments of discontent, dysphoria, felt pressure, restrictiveness, unattainability, and the unrealistic and problematic nature of societal beauty standards, while also noting a need for modification and indications that some progress is being made.
- One key limitation of the study is the absence of ethnic/racial diversity in the participant pool. Accordingly, results of the study cannot be generalized to transgender women of color.

Literature Review on Factors Impacting Stigma Toward Alcohol Use Disorder

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Background

While stigma toward mental illnesses has decreased over recent decades, stigma toward alcohol use problems has remained high[1]. In fact, alcohol use disorder is more stigmatized than other mental illnesses and individuals suffering from alcohol use disorder experience more discrimination and are considered more responsible for their condition[2]. Understanding stigma surrounding alcohol use disorder is important because it can have many negative consequences, including sustained illness, increased stress, reduced social support, and lower self-esteem[3,4]. There are a variety of factors that influence how stigma is ascribed to individuals with alcohol use disorder, including biogenetic etiology and different drinking motivations and contexts. These factors may alter perceived controllability of drinking, which is important in attribution theory for its impact on blame and other facets of stigma[4]. However, research on these topics is limited and varying. The purpose of this review is to better understand the factors that may influence how stigma is attributed to alcohol use disorder.

Methods

Data sources: Hesburgh Libraries OneSearch, PubMed, WorldCat, and Google Scholar
Search terms: attribution theory, stigma OR stigmatization, alcohol use disorder OR alcohol dependence, genetic predisposition OR biogenetic explanation, motivations, drinking to cope, social drinking, and college students
Study selection criteria: Included articles were published between 2000-2019 and relevant to the topics above. Articles in the first 10 pages of hits were reviewed from each search engine. Articles were deemed relevant and used if content was focused on predicting stigma toward alcohol use problems based on drinking motivations and contexts, genetic predispositions for alcohol use and mental illness, and/or drinking among college students.
Review process: All relevant articles were logged and variables, samples, and results were recorded.

Results

Genetic predispositions:

In-text citation	Design	Sample	Measures (DVs)	Results
Corrigan, 2003	Experimental	542 college students; USA	Familiarity with mental illness, controllability, blame, anger, pity, fear, dangerousness, helping responses	Perceptions of control over a given condition led to more avoidance, more anger, less pity, and less help; genetic factors decrease perceived controllability for mental illness
Dietrich et al., 2006	Experimental, vignettes	5025 adults; Germany	Dangerousness, fear, social distance	Genetic predispositions for mental illness increased perceptions of fear, dangerousness, and social distance
Haslam & Kvaale, 2015	Review	-	-	Biogenetic explanations reduce blame but also produce essentialist thinking that can increase stereotyping
Heberlein et al., 2014	Experimental	444 adults; Germany	Attitudes toward alcohol use disorder and alcohol dependent persons	Less acceptance of alcohol use disorder as being self-inflicted with genetic predispositions
Lebowitz & AppelBaum, 2017	Experimental, vignettes	403 adults; USA	Blame, self-controllability, benefit from medication or therapy	Genetic explanations decreased blame for alcohol addiction
Kvaale et al., 2013	Meta-analysis	28 experimental studies	Blame, perceived dangerousness, social distance, prognostic pessimism	Impact of genetic predispositions depends on the specific disorder
Phelan, 2005	Experimental, vignettes	1241 adults; USA	Blame, anger, pity, help, punishment, seriousness, social distance	Genetic predispositions are related to desired social distance and increased perceptions of seriousness
Sattler et al., 2017	Experimental, vignettes	2857 adults; Germany	Blame, fear, anger, pity, avoidance, helping, dangerousness	Genetic predispositions lead to lower perceptions of blame and increased pity
Schomerus et al., 2014	Experimental, vignettes	3642 adults; Germany	Responsibility, dangerousness, treatability, social acceptance	Biogenetic explanations lead to more social acceptance of alcohol use disorder
Speerforck et al., 2014	Experimental, vignettes	3642 adults; Germany	Emotional reactions, desire for social distance	Biogenetic explanations/causal beliefs were associated with more acceptance of alcohol dependence
Walker & Read, 2002	Experiment	Undergraduate, New Zealand	Stereotyping attitudes	Biogenetic explanations for mental illness increased perceptions of dangerousness, unpredictability, social distance
Yang et al., 2017	Review	20 studies	Public stigma toward substance use disorders	Support for pattern that biogenetic explanations increase stigma

Drinking motivations and contexts:

In-text citation	Design	Sample	Measures (DVs)	Results
Colby et al., 2009	Qualitative, focus groups	79 undergraduate students, USA	Drinking motives	Heavy drinking during college is viewed as normal and is socially reinforced
Colby et al., 2012	Experimental, vignettes	151 undergraduate students, USA	Attitudes toward drinking, controllability, drinking behaviors	Negative consequences of drinking are overlooked and ignored in college populations; heavy drinking is not viewed as problematic for students
Henderson & Dressler, 2017	Qualitative	289 undergraduate students, USA	Controllability, blame, pity, fear, dangerousness, helping	Socially facilitated addictions were viewed as more controllable; drinking to cope with stress was viewed as outside of an individual's control; less likely to stigmatize individuals drinking to cope
Kingsbury et al., 2015	Experimental, vignettes	124 college students; USA	Heavy drinking intentions	Drinking in college is often motivated by social factors; social consequences may help motivation to change
Knutzche et al., 2015	Review	82 articles	Drinking motives	Socially facilitated drinking was to the most endorsed motive for drinking by college students
Lau-Barraco et al., 2017	Qualitative, focus groups	64 adults; USA	Drinking motivation, drinking consequences	College students are more likely to drink for social reasons than non-students
Martin et al., 2000	Experimental, vignettes	1444 adults; USA	Social distance, dangerousness, controllability	Drinking to cope with stress may have less social rejection than other causes
Sattler et al., 2017	Experimental, vignettes	2857 adults; Germany	Blame, fear, anger, pity, avoidance, helping, dangerousness	Substance use disorder with peer influence were related to higher perceptions of responsibility
Weine et al., 2016	Experimental, vignettes	373 adults; USA	Need for treatment, psychological abnormality, social distance	Alcohol use disorder explained by causal life events, such as drinking to cope with stress, was less stigmatized

Discussion

The literature suggests that genetic predispositions and drinking contexts impact perceptions of drinking's controllability and associated stigma of alcohol use disorder, with more perceived control over drinking leading to more stigma. Moreover, drinking among college students is strongly influenced by social motivations but remains unstigmatized, making it an interesting drinking context for future research. Understanding how stigma is attributed to alcohol use disorder is necessary in order to ultimately reduce stigma in the future. More research is needed to flesh out inconsistencies regarding how genetic predispositions impact stigma for alcohol use disorder specifically, as it has been studied more frequently with other mental illnesses. Further research is also needed to integrate how both genetic explanations and drinking contexts interact to impact stigma.

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Comparison of Prescribing Patterns of Atypical Antipsychotics and Monitoring Parameters between Primary Care Providers and Psychiatrists in a Pediatric Population

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Background

The use of atypical antipsychotics (AAP) for both FDA-approved and off-label indications in child and adolescent patients had increased from the 1990s through the early 2000s but a decreased trend has been noted with more recent studies.[1,2,3]

In 2011, the American Academy of Child and Adolescent Psychiatry (AACAP) published guidelines for the monitoring of adverse drug events (ADE) from use of AAPs in the pediatric and adolescent populations.[4]

Regardless of available guidelines, incomplete or inconsistent monitoring of pediatric patients on AAPs by both primary care providers and psychiatrists has been documented.[5,6,7]

Study Objectives

Primary

To compare the indications for which atypical antipsychotics are prescribed in pediatric patients between primary care providers and psychiatric specialty providers in the outpatient setting.

To compare the quality of monitoring for adverse drug events from atypical antipsychotics in pediatric patients prescribed by primary care providers and psychiatric specialty providers.

Methods

Study Type
- Retrospective chart review

Inclusion Criteria
- Patients < 18 years of age
- Prescribed an AAP for at least 3 consecutive months by either a primary care provider or psychiatric specialty provider from January 1, 2017 to July 31, 2018.

Exclusion Criteria
- Patients who were prescribed an AAP for less than 3 consecutive months

AACAP Monitoring Guidelines
- Weight (BMI): Baseline, 4 weeks, 8 weeks, 12 weeks
- Blood pressure: Baseline, 12 weeks, annually
- Fasting plasma glucose: Baseline, 12 weeks, annually
- Fasting lipid profile: Baseline, 12 weeks
- Electrocardiogram if on ziprasidone, cardiac history, or symptomatic
- Evaluation of extrapyramidal symptoms at baseline and regularly

Results-Demographics

	PCP N=153	Psych N=153	P-value
Age-median (range)	12 (3-17)	12 (6-17)	0.551
Female	25%	27%	0.897
Non-white	15%	32%	<0.005
History of psychiatric hospitalizations	19%	32%	0.012
Receiving therapy	38%	97%	<0.005
ADHD Treatment			0.019
-None	33%	31%	
-Stimulant	31%	19%	
-Non-stimulant	20%	23%	
-Both	16%	27%	

Results-Endpoints

Monitoring Parameter (% Adherent)	PCP N=153	Psych N=153	P-value
BMI	22%	63%	<0.005
Fasting Blood Glucose	2.6%	8.5%	0.043
Lipids	2.0%	7.8%	0.031
Blood Pressure	47.7%	90%	<0.005
Extrapyramidal Symptoms	4.5%	90%	<0.005
EKG	33%	100%	0.071

Antipsychotic Prescribed (n)	PCP N=153	Psych N=153
Aripiprazole	60	53
Asenapine	8	11
Iloperidone	1	2
Lurasidone	0	4
Olanzapine	3	4
Paliperidone	6	5
Quetiapine	18	27
Risperidone	54	45
Ziprasidone	3	2

Indication for Antipsychotic (n)	PCP N=153	Psych N=153
ADHD	28	17
Comorbid ADHD	23	17
Major depressive disorder	19	23
Autism spectrum disorder	43	21
Bipolar/mood disorder	16	39
DMDD/ODD	16	27
Schizophrenia	2	0
Miscellaneous	6	9

Discussion

Strengths
- Unique study design
- Integrated EMR
- Interdisciplinary collaboration

Limitations
- Retrospective chart review
- Difference in patient type and complexity between provider groups

Summary
- Higher rates of adherence to monitoring parameters noted in psychiatry provider group
- Lower than expected rates of adherence to blood glucose and lipid monitoring in both groups
- Indications and antipsychotics prescribed were similar across groups

Next Steps
- Compare antipsychotics with indications
- Educate providers on monitoring parameters
- Explore quality improvement opportunities involving multidisciplinary services
- Prospective study evaluating efficacy

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Cerebral manifestation of Paragonimiasis in a 19 year old female

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INTRODUCTION

Paragonimiasis is a parasitic infection caused by a lung fluke from genus Paragonimus. This parasite primarily causes inflammatory disease of the lung and affects 23 million people worldwide.

Due to the increase of immigrants and refugees from endemic areas such as Southeast Asia, this infection has become increasingly recognized in the United States.

The most common presentation of symptomatic Paragonimiasis is a lung infection similar to active tuberculosis with recurrent hemoptysis, cough and shortness of breath.

Less than 1% of individuals with symptomatic Paragonimiasis have dissemination to the brain leading to neurological complications such as intractable headaches, recurrent brain hemorrhages, seizures and paralysis. A majority of patients with cerebral Paragonimiasis occur in Asian adults that are less than 30 years of age in the south east Asian community.

This case illustrates a unique presentation of Paragonimiasis and the limited literature on treatment guidelines in patients with this rare condition.

KEY OBJECTIVES

Inclusion of parasitic infections in workup of infectious causes of ring enhancing lesions based on history.

Differentiation from active tuberculosis infection.

Understanding mode of transmission and how to prevent spread of infection.

Population consideration for those at risk for cerebral manifestation and its catastrophic consequences if treatment is delayed.

CASE PRESENTATION

This case is of a 19-year old Burmese immigrant who presented with intractable headache, hearing loss, vomiting, dizziness and dyspnea. On further review, patient was recently admitted multiple times for recurrent subarachnoid hemorrhages from ruptured aneurysm of an unknown source.

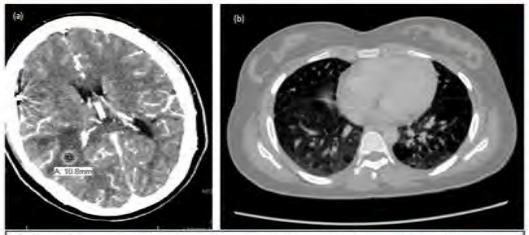
Close-up inspection showed that this maybe an infectious aneurysm. During this hospitalization, repeat CT scan showed multiple ring enhancing lesions surrounding new fronto-parietal subarachnoid hemorrhages. She underwent endovascular coiling/embolization and stereotactic biopsy.

Physical exam showed patient laying in bed somnolent. Neurological exam showed no focal neurological deficits, CN II-XII intact, negative Brudzinski/Romberg sign and symmetrical 5/5 UE/LE. Speech and affect unchanged.

As part of her infectious workup, numerous fungal and parasitic serological tests were ordered for workup of ring enhancing lesions.

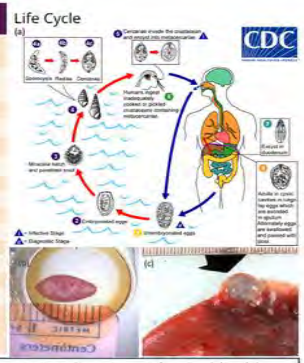
DIFFERENTIAL DIAGNOSIS

HIV, Neurocysticercosis, Tubercular granulomas, Toxoplasmosis, Histoplasmosis, Cryptococcosis, Echinococcus, Abscess (Bacterial, fungal, parasitic), Neoplasms (Glioblastoma multiformae, CNS lymphoma), Multiple sclerosis



(a) CT head showed 2 to 3 ring enhancing lesions including this 1.1 cm ring in right frontoparietal lobe with surrounding edema. (b) CT chest showed mosaic ground glass opacities with LUL bullae formation

Pargonimus antibody	Positive
Acid Fast Bacilli sputum x3	Negative
HIV Ag/Ab 4th generation	Negative
Toxoplasmosis IgG	Negative
Cryptococcal antigen	Negative
RPR & T. Pallidum Ab	Negative
Histoplasmosis Ab	Negative
Aspergillus Ab	Negative
Blastomyces Ab	Negative
Coccidioides Ab	Negative
Echinococcus Ab	Negative
T. Solium ETIB Ab	Negative
Quantiferon TB	Negative
Brain AFB smear	Negative
Blood Culture x2	No growth
Brain biopsy & culture	Negative, many Neutrophils seen



Serology results on left side. (a) Mode of penetration: After eating an infected crab/crayfish (often times undercooked or pickled), Metacercariae excyst in response to bile acids and penetrate the duodenum into the peritoneal cavity. Often times they traverse up the central aponeurosis of diaphragm and into pleural cavity . Here they can form cyst in the lungs often leading to chronic dyspnea and occasionally hemoptysis. Released eggs can travel into lungs, striated muscle and rarely to the brain. (b) Adult flukes can measure up to 1 cm in size often times resembling a coffee bean. (c) Eggs or flukes in ectopic sites can provoke an inflammatory reaction, resulting in cyst, abscess, or granuloma formation.

TREATMENT

Patient was given IV Decadron to treat intractable headaches related to cerebral edema from recent brain hemorrhages and brain cysts. Patient was first screened with PPD prior to start of corticosteroids. Once serology from CDC came back, she was treated with 3 day course of Anti-helminthic medication Praziquantel 75 mg/kd/day in 3 divided dose for 3 days.

She didn't show any improvement initially. Infectious disease extended duration of Praziquantel and added taper course of corticosteroid for 14 days. She will require subsequent Paragonimiasis antibody testing to document clearance in 2 years.

DISCUSSION

Clinical onset of Paragonimiasis is often insidious and migration to the brain is quite rare. This parasite is transmitted through ingestion of undercooked freshwater seafood crabs or crayfish which is common consumed in the Indochinese population. Most common is P. Westermani.

Retrospective case reports show that Cerebral Paragonimiasis is increasingly common in younger patients of Southeast Asian descent. 90% of patients with cerebral manifestation are less than 30 years of age and the mortality of untreated infection is approximately 5%.

Patient population includes south east Asian immigrants/refugees who either immigrated while infected, became infected while traveling in an endemic area or acquired infection through ingestion of imported pickled or frozen undercooked seafood.

When this parasite enters pleural cavity and invades lung parenchyma, patient often experience pleuritic chest pain. As cyst form and breakdown near bronchioles, hemoptysis, shortness of breath and coughing may ensue. This must be distinguished from TB.

Chest x-ray may show ring shadows and linear streaks representing burrowing tracts of flukes. Lesions are typically located peripherally in the mid and lower lung zones whereas TB cavities are predominantly apical lesions. Only serological testing can differentiate it from tuberculosis.

Eggs can penetrate the meninges and brain parenchyma leading to meningitis, encephalitis or a space occupying lesion. Meningitis is the initial presenting feature in 1/3 of cerebral cases.

Chronic infections can lead to recurrent severe headaches, brain hemorrhages, seizures, hearing loss, visual disturbances and paralysis. Early detection and treatment in young patient can prevent complication and death.

ELISA test and Immunoblot test using monoclonal antibodies against P. westermani antigens are typically used. It has sensitivity of 96% and specificity of 99%

There is limited literature regarding management of cerebral Paragonimiasis. Treatment failure for CNS infection is not uncommon. Expert opinion shows extending duration of therapy with Praziquantel to 2 weeks if documented clearance is not achieved after standard 3 days of therapy. Duration of treatment is based on IDSA guidelines for treatment of Neurocysticercosis, a similar parasitic infection to the brain.

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Comparing Outcomes of Neonates Born to Mothers with Opioid Use Disorder

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1. Background

Prenatal opioid misuse harms both mother and fetus and can lead to neonatal abstinence syndrome (NAS). NAS is a drug withdrawal syndrome that can occur in infants exposed prenatally to opioids or other psychoactive substances. Signs of NAS include failure to thrive, tremors, seizures, and autonomic instability. NAS rates in the U.S. more than quadrupled between 2000 to 2012,[1] and its associated cost of hospitalization increased eight-fold in the same time period.[1,2] To minimize negative consequences of opioid use disorder in pregnancy, medication-assisted therapy (MAT) with methadone and buprenorphine has been widely used, but few studies compare their effects on neonates.

2. Objective

This study compares how in utero exposure to illicit opioids, methadone MAT, or buprenorphine MAT affects neonatal length of hospitalization and pharmacotherapy requirements to treat NAS.

3. Methods

- Retrospective study of opioid-exposed mother-neonate dyads admitted to an urban community hospital network over 24 months (2016 to 2018).
- Subjects identified via electronic medical record query for opioid-positive maternal or neonatal urine drug screens, opioid-positive neonatal cord blood, maternal enrollment in a MAT program, or NAS diagnosis.
- Maternal and neonatal data collected via chart review.
- Statistical comparisons performed via Fisher exact, Chi-square, or Kruskal-Wallis tests as applicable.

Network NAS Diagnosis and Management

1. Neonates born to mothers with opioid use disorder are observed 5 days post-delivery with Finnegan scoring.
2. Opioid treatment for NAS may be initiated if:
   a. 3 consecutive Finnegan scores are ≥8 or
   b. 2 consecutive Finnegan score are ≥12 or
   c. Total Finnegan score is ≥24 in 12h
3. Neonatal opioid treatment
   - Usually with morphine
   - If mother received MAT, may be same agent as mother
   - Some require two opioids
   - Phenobarbital given if unable to wean from first opioid
4. Post-treatment observation period
   a. Morphine, Buprenorphine – 48h
   b. Methadone – 72h

Definition of Study Groups

MAT = medication-assisted therapy

1. **No MAT**: neonates born to mothers with opioid use disorder not treated with MAT, n=42
2. **Methadone**: neonates born to mothers treated with methadone, n=46
3. **Buprenorphine**: neonates born to mothers treated with buprenorphine, n=66

4. Results

Table 1. Maternal Characteristics

	No MAT (n† = 42)	Methadone (n = 46)	Buprenorphine (n = 66)	p value
Median (IQR) age (years)	27.0 (5.0)	29.5 (6.0)	28.0 (7.0)	0.093
Black race	10 (24%)	4 (9%)	9 (14%)	0.13
White race	31 (74%)	41 (89%)	57 (86%)	0.13
Non-opioid illicit drug use‡	21 (50%)	13 (28%)	18 (27%)	0.037
Cigarette use	32 (76%)	35 (76%)	53 (80%)	0.80
SSRI use	4 (10%)	6 (13%)	14 (21%)	0.25

† "n" = number of mother-neonate dyads

‡ As determined by urine drug screen at delivery

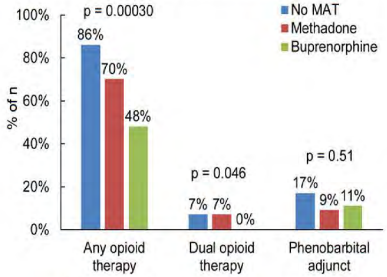
- No statistically significant difference in maternal characteristics among groups.

Table 2. Neonatal Characteristics

	No MAT (n = 42)	Methadone (n = 46)	Buprenorphine (n = 66)	p value
Median (IQR) Gestational age (weeks)	38.9 (1.7)	37.7 (3.4)	39.0 (1.6)	0.016
Preterm	7 (17%)	20 (43%)	10 (15%)	0.002
Small for Gestational Age	13 (31%)	10 (22%)	19 (29%)	0.58
Female sex	13 (31%)	26 (57%)	23 (35%)	0.028
C-section birth	12 (29%)	12 (26%)	26 (39%)	0.27

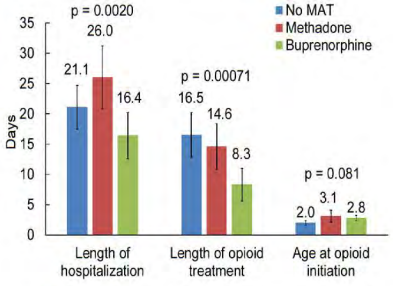
- Statistically significant difference in preterm birth rate. Remaining neonatal characteristics not statistically different among groups.

Figure 1. NAS Pharmacotherapy Needs



- Maternal MAT decreases need for NAS pharmacotherapy.

Figure 2. Mean Neonatal Outcomes



- Maternal buprenorphine MAT decreases neonatal lengths of hospitalization and opioid treatment.

5. Conclusion

Managing opioid use disorder in pregnancy with buprenorphine leads to shorter length of hospitalization and decreased pharmacotherapy for NAS compared to methadone or no MAT.

6. Discussion

Primary Outcomes

- Buprenorphine resulted in shortest hospitalizations mainly because fewer of the group required any opioid therapy (Figure 1).
- Length of hospitalization is confounded by methadone having a longer post-treatment observation period. To account for this, we determined length of opioid treatment, and this was also shortest for buprenorphine (Figure 2).
- Methadone group had increased preterm birth rates (Table 2). Evidence on how prematurity affects NAS is conflicting.[3,4]

Secondary Outcomes

- Methadone's longer half-life may suggest NAS would manifest later, but age at NAS treatment initiation was not statistically different among the groups (Figure 2).
- Although none of the neonates in buprenorphine group required a second opioid, our study was underpowered to detect a statistical significance (Figure 1).

Limitations

- Retrospective design
- Not all neonates requiring NAS treatment received morphine as their first agent; some (18 of 99) instead received methadone or buprenorphine. Preliminary subgroup analysis suggests this does not affect neonatal lengths of hospitalization or opioid treatment, but our study was underpowered for this subgroup analysis.

Future Directions

- Gather more data via multi-center collaboration and randomized controlled trials.
- Educate providers on improved neonatal outcomes with maternal buprenorphine MAT.
- Increase accessibility of MAT in pregnancy.

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Community Health Network

A Health Network's Call To Increase Training Capacity

Scott McNew, MBA
Kathy Zoppi, SVP

Introduction & Background

The physician training group at Community Health Network has been an invaluable resource for developing the organization's workforce, and driving effective partnerships with local educational institutions. In pursuing pipeline recruitment for workforce development, the network partnered with a local medical school, accepting students for monthly clinical training.

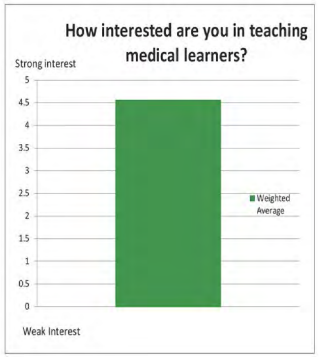
Objective

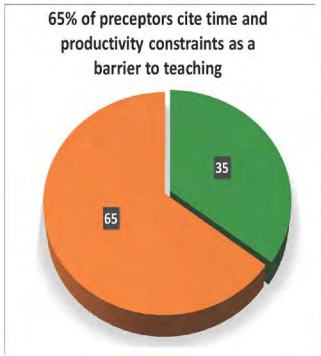
Develop a plan to grow training capacity from 70 monthly rotation opportunities to 140 monthly rotation opportunities. Investigation of this business problem included analysis of the network's physician preceptors, leadership and administrative teams.

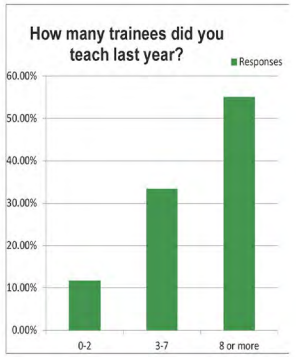
Methods

The network's current preceptor group of 160 physicians were surveyed about interest and barriers to teaching, placement volumes, and types of medical learners. 60 anonymous responses were received by electronic survey for analysis. Assessment of leadership and administrative teams was provided by the network's Chief Academic Officer during 2 interviews.

Survey Results







Recommendations

Annual Recognition and Development Events	Student Contribution to Practice	Centralize preceptor communication and resources
Present methods for teaching effectiveness and student evaluation, simulation exercises, provide preceptor awards.	Utilize rotating medical students in roles to support practice productivity and patient care enhancement	Preceptor newsletter, virtual student introductions, share quarterly student feedback with preceptors

Conclusion & Significance to Medical Education

Effective approaches to grow training capacity must address time and productivity impacts, promote physician engagement and connection with students, and centralize preceptor communication and resources. By incorporating methods for students to contribute to the practice, they may offset time and productivity constraints. As an organizational impact, expanding training capacity will allow the network's training programs to conduct increasingly selective recruiting, raise standards for applicants, and improve training quality across all programs.

The Effects of Message Emphasis, Framing and Identification on College Student and Non-College Student Emerging Adults' Alcohol Consumption Intent and Behaviors

Kathryn E. Kirkham, M.A. & Samantha L. Gray, Ph.D.

Abstract

Binge drinking and heavy alcohol use are both evident in the emerging adult population. Little research has been done to investigate the potential effects of framing within a vignette to produce a decrease in alcohol consumption intent and behaviors. In addition, framing effects be impacted by other factors, such as whether alcohol use is emphasized as either a social or health behavior or whether an individual identifies with a vignette character. The present study aims to examine these areas and hypothesizes that 1) for messages with social emphasis, a loss frame will be most effective at decreasing intent to drink and drinking behavior at a one-week follow up, 2) for messages with health emphasis, a gain frame will be most effective at decreasing intent to drink and drinking behavior at a one-week follow up, 3) for messages with social emphasis, identification with vignette character will not have a moderating effect on the relationship between type of frame and intent to drink or drinking behavior at a one-week follow up, 4) for messages with health emphasis, identification with vignette character will have a moderating effect on the relationship between type of frame and intent to drink and drinking behavior at a one-week follow up. Specifically, it is expected that for those who identify with the vignette character, a loss frame will most strongly impact intent to drink and drinking behavior at a one-week follow up. In contrast, for those who do not identify with the vignette character, a gain frame will most strongly impact intent to drink and drinking behavior at a one-week follow up. Participants will be emerging adults ages 18 to 25 who will be asked to complete a series of surveys online.

Introduction

Emerging adulthood is defined as a developmental period that occurs between the ages of 18 and 25 (Reifman, Arnett, & Colwell, 2007). In 2017, The National Institute on Alcohol Abuse and Alcoholism reported that over 30% of emerging adults, both enrolled in college and not enrolled in college, indicated that they had engaged in binge drinking in the last month. While research has shown that alcohol use tends to decrease as individuals transition from emerging adulthood to middle adulthood, non-college student emerging adults transitioning into middle adulthood may not exhibit the same degree of decline as those who have completed college (Merline et al., 2004). Some studies have investigated the predictors of alcohol use in the emerging adult population (Gates, Corbin, & Fromme, 2016; King, Karyadi, Luk, & Patock-Peckham, 2011; Littlefield, Sher, & Steinley, 2010; Smith et al., 2014). Fewer have researched potential strategies for encouraging a decrease in alcohol use in these individuals. Framing effects have been widely researched in the context of health behaviors, and the use of framing effects within narrative is a strategy that requires further investigation (Colby, Swanton, & Colby, 2012; Steinhardt & Shapiro, 2015).

Methods

Participants will be college student and non-college student emerging adults ages 18 to 25 who report consuming alcohol within the last month. They will be asked to complete two surveys. The first survey will include eight vignettes that vary by message emphasis (alcohol use as a social or health behavior), type of frame (gain or loss), and vignette character (college student or non-college student emerging adult, gender matched to participant gender). Participants will be asked, on a Likert scale, how much they identify with the vignette character. They will also be asked, on a Likert scale, how strongly they intend to consume alcohol during the next week. Participants will be asked to complete a second survey at a one-week follow up, which will ask them how many units of alcohol they consumed during the last week.

Daily Drinking Questionnaire (DDQ)

Gender: Male___ Female___	Height_______	Weight_____ lbs

INSTRUCTIONS FOR RECORDING DRINKING DURING A TYPICAL WEEK

IN THE CALENDAR BELOW, PLEASE FILL IN YOUR DRINKING RATE DURING A TYPICAL WEEK IN THE LAST 30 DAYS

First, think of a *typical week* in the *last 30 days* (Where did you live? What were your regular weekly activities? Were you working or going to school? Etc.) Try to remember as accurately as you can, *how much* you typically drank in a week during that one-month period.

For each day of the week in the calendar below, fill in **the number of standard drinks typically consumed on that day**. A standard drink is defined as 12 ounces of regular beer, 5 ounces of wine or 1.5 ounces of distilled spirits.

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Number of drinks							

Collins, Parks, & Marlatt, 1985

Research Questions and Hypotheses

- **How does emphasis of message affect the relationship between type of frame and intent to drink and drinking behavior at a one-week follow up?**

1. For messages with social emphasis, a loss frame will be most effective at decreasing intent to drink and drinking behavior at a one-week follow up.
2. For messages with health emphasis, a gain frame will be most effective at decreasing intent to drink and drinking behavior at a one-week follow up.

Research Questions and Hypotheses Cont.

- **Does identification with vignette character moderate the relationship between type of frame and intent to drink and drinking behavior at a one-week follow up for both messages with social emphasis and messages with health emphasis?**

1. For messages with social emphasis, it is expected that identification with vignette character will not have a moderating effect on the relationship between type of frame and intent to drink or drinking behavior at a one-week follow up.
2. For messages with health emphasis, it is expected that identification with vignette character will have a moderating effect on the relationship between type of frame and intent to drink and drinking behavior at one-week follow up, such that for those who identify with the vignette character, a loss frame will most strongly impact intent to drink and drinking behavior at a one-week follow up. In contrast, for those who do not identify with the vignette character, a gain frame will most strongly impact intent to drink and drinking behavior at a one-week follow up.

Discussion

This study will investigate whether messages with different frames impact alcohol use intent as well as actual alcohol use one week later in the emerging adult population. The study will also research whether college student emerging adults and non-college student emerging adults respond similarly or differently to these kinds of messages. Results will add to the literature on framing as well as whether differences exist between emerging adults who are in college and emerging adults who are not in terms of how they respond to messages intended to improve accurate processing of risk and activate behavior change.

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Piperacillin/Tazobactam Use in Pediatric Intra-Abdominal Infections

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Background

- Piperacillin/tazobactam is a broad-spectrum antibiotic that is frequently used in pediatric intra-abdominal infections (IAI) as initial therapy[1]
- Antimicrobial resistance is becoming an increasingly prevalent issue. Due to this, antimicrobial stewardship within health networks is more important than ever.[2]
- Routine use of broad-spectrum agents is not indicated for all children with fever and abdominal pain for whom there is a low suspicion of complicated appendicitis or other acute IAI.[2]
- Antimicrobial therapy of established infection should be limited to 4-7 days from adequate source control. Longer durations of therapy have not been associated with improved outcomes.[1]

Methods

A retrospective chart review was performed

- Inclusion Criteria:
  - Pediatric patients (ages <18 years of age)
  - Admitted to Community Hospital North between January 1, 2015 and August 31, 2018
  - Diagnosis of an intra-abdominal infection and an order for piperacillin-tazobactam

Study Objectives

Primary Objective

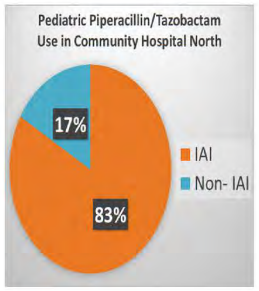
- To identify the percentage of patients receiving at least a dose of piperacillin/tazobactam for an IAI

Secondary Objectives

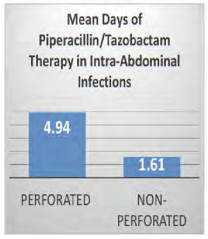
- Duration of therapy for non-perforated and perforated appendectomy patients
- Appropriateness of pediatric doses per medical literature
- Frequency of therapy de-escalation when culture results available
- Thirty-day readmission for wound infection/repeat surgery

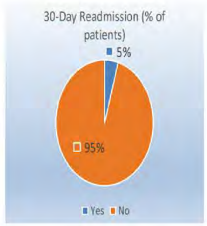
Results

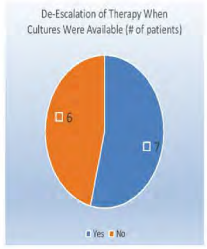
- 83.4% of pediatric patients receiving at least 1 dose of piperacillin/tazobactam had an indication of an IAI



Results







Conclusion

- The majority (83.4%) of piperacillin/tazobactam used at Community North Hospital in pediatric patients is used for IAI indications.
- Average duration of therapy for perforated IAI's is just below the recommended duration of therapy by the IDSA, suggesting physicians are trying to use the lowest recommended duration of therapy for such infections.
- The correct dose of piperacillin/tazobactam was used in 93.4% of patients with IAI's
- One place for improvement is de-escalation of therapy, as only 7 of 13 patients (53.8%) had therapy narrowed when culture data was available.
- The MUE findings suggest that piperacillin/tazobactam is often being used correctly, but that there is still room for improvement when it comes to de-escalation of therapy.

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Department of Kinesiology

Influence of Physical Therapy in the Emergency Department on Revisit Rates: A Chi-Square Analysis

Annabelle Hearne, Nathanial R Eckert, PhD, Lindsey Long, DPT, Kevin Brichler, DPT

Introduction

- In 2015 almost 10 million people entered the emergency department (ED) due to diseases of the musculoskeletal system and connective tissue and another 5.3 million people due to sprains and strains.[1]
- Due to a lack of orthopedic surgeons to treat the increase in musculoskeletal conditions, it was determined that PTs were the best alternative care provider for these conditions.[2]
- In the 1970's, the US Army Medical Department was the first to introduce PTs to the ED.
- As ED PTs were introduced to US hospitals in the early 2000s, the effectivity of ED PT was studied.
- Currently the literature lacks evidence regarding the ED PTs' effect on the issue of ED overcrowding.
- The survey and interview responses from one study concluded that the subjects believed ED PT consultations were decreasing ED revisit rates.[3]
- A medicare claim-based analysis, determined an association between ED PT and decreased ED revisits for adult fallers. [4]
- It is reasonable to expect that because PTs are able to focus on patient education, create an effective follow-up plan, and provide home exercise programs they are capable of reducing the likelihood of a patient returning to the ED. [5]
- Further quantitative data would be critical in order to confirm whether decreased revisit rates are a possible benefit of ED PT treatment for patients with musculoskeletal complaints.
- To meet that need a retrospective study comparing ED revisit rates for patients with regional or musculoskeletal pain who did and did not receive ED PT services was conducted.

Purpose

- The purpose of this project was to assess whether a patient's likelihood of returning to the emergency department (ED) for the same musculoskeletal or regional pain was impacted by whether or not they consulted with the emergency department physical therapist (ED PT) at their initial visit.

Methods

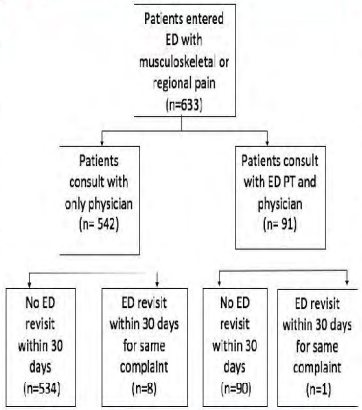

Figure 1: Flowchart of the categorization of patients .

- The Community Health Network (CHNw) Hospital's electronic record system (EPIC) was utilized to find participants with regional or musculoskeletal (sprain, strain, or tear) pain as indicated by the ICD-10 code.
- A participant was included in the study if they entered the Community Hospital South ED from 8am to 5pm, Monday to Friday, January 15th to July 15th, 2018.
- ED PT consultations and return visits were recorded from EPIC for all participants. Return visits were recorded for all three CHNw Hospitals: North, South, and East, within 30 days of that patient's initial visit.
- Additional data was recorded for patient demographic purposes including patient's age, gender, hospital admission, and any prescribed outpatient PT.
- The participants included were then categorized into 1 of 2 cohorts: those that consulted with a PT whilst in the ED and those who did not, as seen in **Figure 1.**
- Using SPSS, a Chi-squared test was conducted to analyze the differences in the percentages of participants within each cohort that had revisits to the ED. The other data collected was summarized between the two patient groups, but not analyzed.

Results

- 633 patients entered the ED with musculoskeletal pain or regional pain during these 6 months. 542 (85.6%) of the patients only saw a physician and 91 (14.4%) saw the ED PT as well.
- Of the 542 who saw the physician, 8 (1.5%) returned to the ED within 30 days of their initial visit and of the 91 who consulted with the ED PT, 1 (1.1%) returned to the ED within the same time frame.
- A lower percentage of patients saw the ED PT and returned to the ED within 30 days (1.1%) compared to patients who only saw a physician and returned (1.5%). Yet, the p-value was 1.000 (significance value <0.05), so results were not statistically significant.
- The effect size (0.02) was classified as negligible effect, which confirms that the magnitude of difference between the two revisit rates is not significant.
- Post-hoc Power analysis determined 4% power. A 96% chance of making a type II error was found. This error type would be the conclusion that there is no significant difference in revisit rates when that is false.
- 10 patients were admitted into the hospital, none of which consulted with the ED PT.
- 6 patients were prescribed outpatient PT and 5 of them consulted with the ED PT.

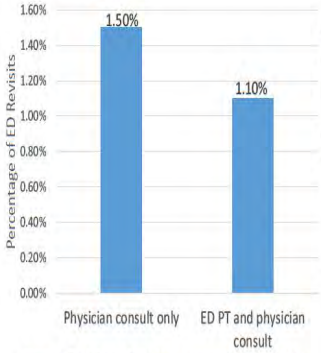

Figure 2: Revisit rates for those who consulted with the ED PT and those who did not.

Table 1: Summary of Data Sample Demographics.

Characteristic	ED PT consult	No ED PT consult	Total
Total Patients, n	91	542	633
Sex, n (%)			
Male	34 (5.4)	230 (36.3)	264 (41.7)
Female	57 (9.0)	312 (49.3)	369 (58.3)
Age, n (%)			
0-15	4 (0.6)	25 (3.9)	29 (4.6)
16-24	5 (0.8)	66 (10.4)	71 (11.2)
25-34	14 (2.2)	117 (18.5)	131 (20.7)
35-44	16 (2.5)	109 (17.2)	125 (19.7)
45-54	14 (2.2)	75 (11.8)	89 (14.1)
55-64	12 (1.9)	58 (9.2)	70 (11.1)
65+	26 (4.1)	92 (14.5)	118 (18.6)
Common Diagnoses, n(%)			
Low Back Pain	22 (3.5)	148 (23.4)	170 (26.9)
Shoulder Pain	14 (2.2)	70 (11.1)	84 (13.3)
Cervicalgia	14 (2.2)	79 (12.5)	93 (14.7)
Knee Pain	8 (1.2)	90 (14.2)	98 (15.5)
Treatment Plan, n(%)			
Admitted into Hospital	0 (0)	10 (1.6)	10 (1.6)
Prescribed Outpatient PT	5 (0.8)	1 (0.2)	6 (0.9)

- 369 participants were females (58.3%) and 264 were males (41.7%). The average age was 44.5 years old, with a standard deviation of 20.3.
- The most common complaint was low back pain (27%).
- Of the patients who had a revisit (9), 5 of them, who only saw the physician, had low back pain. One complained of cervicalgia. The remaining 3, including the 1 patient who saw the ED PT, all complained of either left or right ankle pain.

Analysis

- The results of this study did not find a significant difference between the two cohort's revisit rates.
- The negligible effect size further confirms that the magnitude of the difference between the two revisit rates is not significant. Therefore, the results of this study do not support the previous literature that suggests ED PT's may reduce ED revisit rates.
- The post-hoc power analysis determined the data sample to have 4% power, when typically 80-90% power is required. This demonstrates that the data sample is underpowered in its ability to determine the relationship between revisits and ED PT consultations.

Conclusion

- Due to the underpowered data sample of this study, a larger sample size of patients returning to the ED should be utilized in the future to determine whether such a relationship exists.
- Future research needs to be conducted to determine whether a PT has the potential to reduce overcrowding in the ED by allowing physicians to focus on more urgent cases and reducing the number of unnecessary boarders in ED beds. If this relationship can be established it will help to advocate for the further introduction of PTs into more EDs throughout the US.

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Community Health Network

Resident Satisfaction with Clinic Experiences in an FQHC and a Hospital-Owned Practice

Background

- Federally Qualified Health Centers (FQHCs) are community-based programs designed to provide comprehensive health care to those in underserved urban and rural communities.
- Community East Family Medicine Residency has offered an underserved educational track since July 2016, to offer two residents per class (selected via an application and interview process) additional exposure to underserved care and FQHC experience.
- All ten East family medicine residents (per class) have pediatric and obstetric rotations at Jane Pauley FQHC, but only the two underserved track residents have their ongoing family medicine continuity clinic at the FQHC.
- The underserved track residents have specialized didactic programs for scholarly activity and small group learning focusing on the care of the underserved.
- Underserved track residents do occasionally rotate at the Community Group Family Medicine (CGFM) site for specialty clinics such as podiatry, gyn procedures, osteopathic manipulative treatment, sports medicine, and more.
- In the form of a questionnaire, this research will aim to analyze the impact this partnership has had on residents, their view of community-based care, and the impact this has had on their future career and practice choices.

Methods

A 10 question anonymous survey was electronically distributed to all East family medicine residents. Some questions focused on in-clinic experiences and workflow, and the remainder asked about intent to provide services in an FQHC in the future. Additionally, space was provided for free text responses. Twenty responses were received and analysis of the data was performed to compare the responses of the two groups (residents at CGFM versus Jane Pauley.)

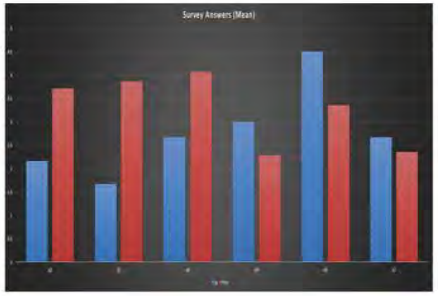
1. Where is your current residency clinical site? – CGFM or Jane Pauley

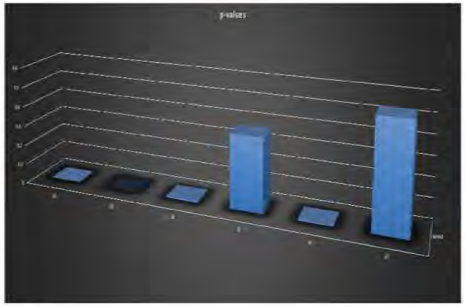
For questions 2-7 please answer according to the following scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree
2. The level of assistance I receive with day-to-day inbasket (physical and computer-based) is appropriate
3. Patients are roomed in a timely fashion most of the time
4. Supply of vaccinations is adequate (except during national shortages)
5. Based on my FQHC experience in residency, I am likely to consider FQHC positions upon graduation
6. My experience with the patient population at our FQHC has been generally positive
7. My experience with the daily workflow of an FQHC has been generally positive

Opened ended questions:
8. Are you likely to choose to work in an FQHC in the future? Why or why not? Did your residency experience have any influence on your answer and if so, how?
9. What is one change that could be made to the JP site that would increase your satisfaction with working there?
10. Based on what you know now, would you choose CGFM or JP for your residency clinic experience? Why?

Results

Questions about level of assistance with inbasket management, rooming procedures, and vaccine supply showed statistically significant differences between the CGFM and underserved track, with underserved track residents less satisfied with these clinic processes. We found no difference in the level of interest expressed in a future career in an FQHC. Despite the workflow challenges, we discovered a statistically significant finding that underserved track residents were more satisfied with their interactions with the FQHC patient population.





Barriers

Limitations of this study include small sample size and incomplete response rates from CGFM residents.

Follow up

Although not addressed in our survey results, group discussion identified areas of potential improvement to include efforts to reduce front and back office staff turnover, printers in each exam room, attention to adequate maintenance and presence of tools such as speculum lights and otoscopes, introduction of pre-visit planning, attention to MA/physician staffing ratios, and improved handling and protocols for both physical and electronic inbasket management. Performing a workflow analysis for patient rooming is our specific suggested next action step.

Conclusion

Overall, the results would suggest that CGFM residents are more satisfied with many aspects of routine clinic logistics than their counterparts in the underserved track. However, this has not had an apparent impact on the desire of residents at either site to provide care for FQHC patient populations in their future career. The Jane Pauley site at 21st and Shadeland is a unique combination of resources, staff, and clinic structure from Jane Pauley, but which has all of its physician staff employed by Community.

My desire to work with the patient population is what drives me.

Based on experiences during residency I would likely not consider an FQHC.

Unlikely to work at FQHC because it doesn't seem to run as smoothly and providers are responsible for things that MAs, nurses, etc. handle in other practices. Seems like it would be high burn out given all the paperwork, phone calls, etc.

This [FQHC] serves that population that I went into medicine with a heart for ... unfortunate that most doctors want to go where the work is easiest yet these are some of the sickest patients. My residency experience only increased my desire.

Jane Pauley residents' dedication to their patients and their positive attitudes are inspiring. The patients & communities they serve are lucky to have them!

Authors: C. Cashman, MD, FAAFP, M. Gilliatte, MD, G. Johnson, DO, C. Owens, DO, L. Rose, DO, R. Snell, MD, A. Walker, MD

Evaluating the effects of treatability information on the genetic essentialist bias in the case of schizophrenia

Noah Isaac Hinkley and Dr. Jordan Sparks Waldron, University of Indianapolis

Introduction:

Attributing the cause of mental illnesses like schizophrenia to genetic factors has been shown to reduce blame for the illness; however, genetic attributions may also increase other stigmatizing attitudes (Haslam & Kvaale, 2015). Research has suggested that presenting information about how mental illnesses can be treated alongside a genetic causal attribution may combat these negative side-effects (see, e.g., Lebowitz & Ahn, 2012); however, results have been inconsistent. The current study aims to address how attributions of the cause of schizophrenia and the presence of treatability information impact stigma.

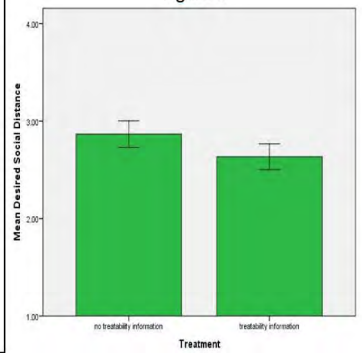
Method:

We recruited participants (N=280, 50% female) through Amazon's Mechanical Turk. Participants read a vignette about John, a student struggling with schizophrenia. Participants received either a genetic or environmental attribution for the cause. They then received information indicating that schizophrenia can be treated or received no information. Participants were then asked questions about their attitudes, including: desire for social distance, prognostic

Hypotheses:

1. There will be a main effect of attribution such that those who received a genetic attribution for schizophrenia will endorse more stigmatizing attitudes (higher on desire for social distance, prognostic pessimism, and perceived dangerousness) than those who receive an environmental attribution.
2. There will be no main effect of treatability information.
3. There will be a significant interaction effect such that those who receive a genetic attribution and treatability information will score lower on all dependent variables than those who received a genetic attribution only.

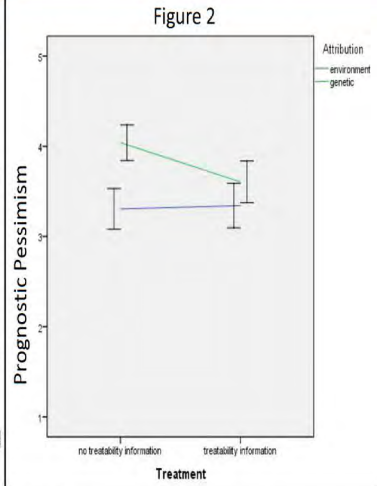
Figure 1



Results:

We conducted an analysis of variance (ANOVA) for each dependent variable to examine the effects of attribution type and treatability information. There were no significant effects found for perceived dangerousness. There was a significant main effect of treatability information on the desire for social distance, such that participants were more willing to engage with the vignette target if they had received treatability information, $F(1, 245) = 5.74$, $p = 0.02$ $\eta_p^2 = 0.02$ (Figure 1). There was a main effect of attribution on prognostic pessimism, such that those who received genetic attributions for schizophrenia perceived John's symptoms to be more permanent than those who had received an environmental attribution, $F(1, 283) = 19.51$, $p < 0.01$, $\eta_p^2 = 0.07$; however, this was qualified by a significant interaction effect. The presence of treatability information negated this increase in prognostic pessimism when presented with a genetic attribution, $F(1, 283) = 4.37$, $p = 0.04$, $\eta_p^2 = 0.02$ (Figure 2). In other words, there were no significant differences between the environmental and genetic conditions when treatability information was present

Figure 2



Discussion:

The current study may have implications for clinical work with mental health issues. In order to combat prognostic pessimism about mental health issues, providing information about the treatability of disorders may be especially important for disorders that are believed to be genetically-influenced, such as schizophrenia. Future research should examine other mental health conditions.

Improving Transitions of Care with a Multidisciplinary Team

Nora Sharaya, PharmD, BCPS, BCACP

Community Health Network

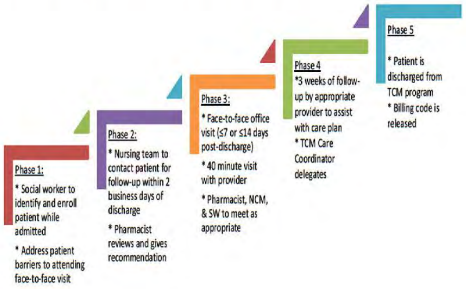
Background

Adequate continuity of care between inpatient and outpatient settings is essential to support safe and successful transitions of care as they return to the community setting. Throughout this transition, patients can face many barriers that can put them at risk for unnecessary readmissions. Successful transitions for complex patients often require advance care coordination and a team effort in order to efficiently address patient barriers. In 2013, Medicare began reimbursing clinicians for providing transitional care services.

As a patient-centered medical home, Community Group Family Medicine and Residency program delivers a comprehensive model of care through an interprofessional team. In July 2014, CGFMC began delivering Transitional Care Management services to our patients transitioning from the inpatient or extended care facility to the outpatient setting in order to maintain continuity of care and decrease patients' risk of readmissions.

Methods

Services are designed to uphold the TCM billing requirements set by Medicare while providing team-based care to our patients who have returned to the community setting and have a high risk for readmission. Throughout TCM services, each patient's hospitalizations and care needs are assessed by a social worker, pharmacist, nurse care manager, and physician through both direct and indirect encounters. Due to staffing, TCM services were only offered between January 1st-April 6th and were restarted on July 26th through the end of the calendar year.



Results

Community Group Family Medicine Center and Residency had a readmission rate for all patients of 21.3% in 2018 during the months TCM was available.
Patients enrolled in the transitional care program had a readmission rate of 10.1% in 2018. This is an absolute risk reduction of 11.2% and relative risk reduction of 53%.

Conclusions and Future Direction

Transitional care services at Community Group Family Medicine and Residency program continue to provide excellent care for patients. The use of the multidisciplinary team has been key in many of the interventions made throughout the year. The rates of readmission are lower than those reported by CMS and have improved from previous years.

These services will continue to be offered with room for growth as a new transitional care coordinator fills the role. The team will continue to utilize registered nurses, a clinical pharmacist, and a social worker as an extension of the physician's care as needed throughout the transitional care period. The development of transitional care services has also impacted all of the clinic's hospital follow up which now currently follows a similar multidisciplinary model.

A focus in future years will be to begin identifying those likely to become transitions of care patients to prevent them from being admitted and involving nursing with shared decision making with the transitional care social worker.

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Utilizing Interactive Voice Response with an Interdisciplinary Team to Improve Outcomes for Patients with Diabetes

Stephanie Werner, RN, MSN; Nora Sharaya, PharmD, BCPS, BCACP

Community Health Network

Background

Diabetes is a chronic disease state that can be difficult to manage for many patients. Left uncontrolled, diabetes can lead to many complications including stroke, heart disease, and kidney disease. Adherence to a regimen including lifestyle changes, blood glucose testing, and medications helps to lower a patient's A1C and minimize risk for complications. Both the American Diabetes Association and the American Association of Clinical Endocrinologists recommend the use of an interdisciplinary team to improve outcomes in patients with diabetes.

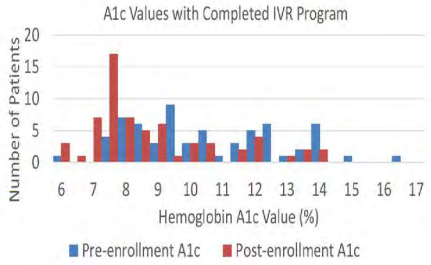
Methods

Patients were identified by providers in primary care clinics as those that would benefit from targeted phone calls to improve diabetes knowledge and titrate insulin in between appointments. The patients were referred to the clinical pharmacists in their office and the registered nurses at Community Home Health using the Interactive Voice Response (IVR) System. Patients received an automated survey twice weekly which included questions about adherence to medications and glucose monitoring, hyperglycemia, hypoglycemia, and foot exams for three months. If the patient's responses to the survey indicated an intervention was needed, the registered nurse would contact the patient for additional details and education. The registered nurse would also coordinate with the clinical pharmacist to adjust the patients' medications as appropriate. Hemoglobin A1c values were obtained prior to the program and after completion of the program.

Results

Patients included were enrolled from two different clinics at Community Health Network. Patients that completed 50% or more of surveys are included in these results as those patients are considered to have completed the program. Patients receiving IVR services received phone call contacts from an RN and PharmD as needed.

	Pre-Program	Post-Program
Patients who completed program		
Average A1c	10.7%	9.0%
Percent of Patients who met CPN goal of A1c <8%	8% (5/64)	44% (28/64)
Patients who did not complete program		
Average A1c	11.1%	10.5%
Percent of Patients who met CPN goal of A1c <8%	8% (2/24)	13% (3/24)



Conclusion

The utilization of interactive voice response with an interdisciplinary team improved metric outcomes for patients with diabetes. Based on the results, there is a clear association with a greater improvement in A1c in those patients that responded to more surveys and therefore had more contact with the interdisciplinary team. The completion of an interactive voice response system in collaboration with RN and PharmD intervention was associated with improvements in diabetes control. Approximately 49% of patients enrolled showed an improvement in their A1c with 44% of patients meeting their goal A1c compared to 8% at enrollment.

Future Direction

Based on feedback from patients and pharmacists, the number of surveys was decreased from twice a week to once a week in 2018. This service has also expanded to additional clinics within Community Health Network. The team of IVR nurses now utilize a standardized note template and similar counseling points for patients to provide exceptional care- simply delivered.

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Comparing Stereotypes and Schemas Using the Macrae False Memory Task

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BACKGROUND

The Macrae False Memory task (MFM) was designed to evoke false memories that are in line with gender stereotypes. Participants viewed male and female names randomly paired with the word 'mechanic' or 'hairdresser.' Later, they viewed a series of new and previously-viewed names and were asked to identify which they remembered seeing and what the paired profession was. Participants were more likely to correctly recall expectancy-inconsistent (EI) pairings and were more likely to associate false recalls with expectancy-consistent (EC) pairings, (Macrae et al., 2002).

Prior to the current study, the MFM has not been utilized to study false memories associated with images and schemas. However, previous research on image processing has shown that images containing EI objects in the foreground are processed differently by viewers, (Truman & Mudrik, 2018).

CURRENT STUDY

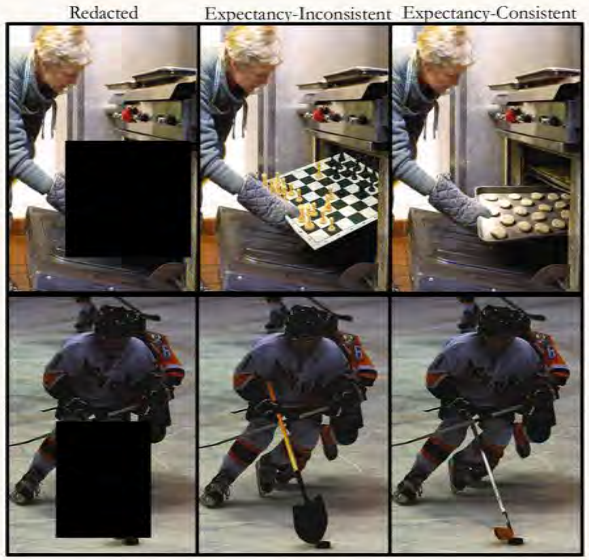
The current study aimed to determine whether the MFM can be adapted to evoke false memories of images based on preexisting schemas of visual scenes. It was hypothesized that participants would be more likely to correctly recognize EI than EC images. Additionally, it was anticipated that when participants incorrectly remembered seeing images, they were likely to identify the EC image as the version they saw.

METHOD

54 undergraduates (ages 18-34) were recruited from a research subject pool of psychology students.

Participants viewed 60 images (½ EC, ½ EI) and then completed a 5 minute distractor task. Next, they viewed 120 partially-redacted images (½ old, ½ new) and reported whether they had seen each image before. If they reported remembering an image, they were asked to select which version they'd seen (EC or EI).

Rates of participants' veridical source memories (correctly recognized redacted images that led to accurate image selection) and false recall (images that were recognized, but had not been viewed) were calculated for analysis.



RESULTS

Veridical Source Memories: A single-factor (EC vs EI) repeated measures ANOVA revealed that participants were significantly more likely to accurately recognize and identify EC images, $F(1,53) = 10.534$, $p = .002$.

False Recall: A single-factor (EC vs. EI) repeated measures ANOVA revealed that when participants falsely recognize a redacted image, they were significantly more likely to select the EC version as the version they saw, $F(1,53) = 12.833$, $p = .001$.

DISCUSSION

Consistent with Macrae et al.'s findings, the MFM was able to evoke EC false memories. This suggests that the MFM can be effectively utilized using schemas to evoke EC false memories.

Findings diverged regarding correct recognition of previously viewed items. This difference is unsurprising based on prior research revealing that participants process images with EI objects differently. It is also possible that participants searched for EI objects in EC images, leading to a more thorough view of the EC images.

Future research should be conducted to further explain differences between false memories evoked using stereotypes and visual schemas.

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"A CQR EXAMINATION OF POLICE OFFICERS' PERCEPTIONS ON THE PRESENCE OF CHILDREN AT DRUG RELATED CRIME SCENES"

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Abstract

This study was an exploratory analysis of police officers' perceptions on children being present at drug related crime scenes. Twelve police officers completed a demographic questionnaire and a semi-structured interview. The information obtained from the interview was analyzed using Consensual Qualitative Research (CQR) method.

This poster will present the primary themes and results found through CQR analysis (Hill, 2012).

Introduction

- There is a brewing opioid epidemic in our nation currently, while other types of drug use are also on the rise (Hohman, et al. 2004; Hopper, 2007; Manning, 1999; Police Executive, 2014; Nachtwey, 2018; Smith, 2008; Zezima, 2017).
- There has been considerable research demonstrating the impact parental drug use has on children (Altshuler & Cleverly-Thomas, 2011; Brook, et al. 1995; Carlson, 2006; Hopper, 2007; HHS, 1999; Messina & Jeter, 2012; Peleg-Oren & Teichman, 2006; Savonlahti, et al. 2004; Shukla, et al. 2016; Staton-Tindall, et al. 2013).
- There has also been considerable research demonstrating the impact parental drug use has on parenting (Altshuler & Cleverly-Thomas, 2011; Brook, Whiteman, et al. 1995; Carlson, 2006; Chaplin & Sinha, 2013; "Child Welfare," 2014; Dube et al., 2001; Hanson et al., 2006; Messina & Jeter, 2012; Peleg- Oren & Teichman, 2006).
- Research shows a distinct connection between actions police officers take and their attitudes (Marinos & Innocente, 2008; Oberweis & Musheno, 2001; Worden, 1989).
- It is important to have information regarding police officers' views as they are the ones on the front lines seeing the consequences of drug abuse (Petrocelli, Oberweis, Smith, & Petrocelli, 2013; Police Executive, 2014).

Method

The study included twelve police officers, which is consistent with the Consensual Qualitative Research (CQR) method (Hill, 2012). This study included a demographic questionnaire as well as a semi-structured interview that were designed specifically for this study by the primary researcher. The data obtained from the semi-structured interviews was analyzed using the CQR method. CQR involves both a within-case analysis as well as a cross-analysis (Hill, 2012).

CQR

- The approach is beneficial for looking at unexplored topics because it helps provide a foundation description to help guide future research (Hill, 2012).
- Utilizes open ended questions to allow for a more in-depth understanding of the participants' beliefs, attitudes, experiences, and perceptions regarding the presence of children at drug related crime scenes (Hill, 2012).
- Rather than forming hypotheses, the CQR method utilizes an inductive approach that involves forming conclusions based on the collection and analysis of data to aid in the discovery of hypotheses, rather than forming hypotheses (Hill, 2012).

Research Questions

- **How do these police officers' perceptions differ when arriving at a drug related crime scene versus arriving at a drug related crime scene with children present?**
- **How does a negative image of police officers from the children impact participants?**
- **Does having children of their own impact their views regarding the presence of children at drug related crime scenes? If so, in what ways?**
- **How does witnessing children at drug related crime scenes effect the participants?**

Results

- **Age of the child:** All participants reported this has an impact on their view of the drug related crime scenes. However, less than half of the participants reported that the case is harder when it involves younger children and less than half of the participants reported worrying about the child being involved when dealing with older children.
- **Gender of the child: Most** participants felt that the gender of a child does not impact his views on the child at drug related crime scenes.
- **Messages to children:** The majority of participants felt that children are receiving messages that police officers are bad. Furthermore, most participants believed that the child's perception of them impacted their interaction with the child. Most police officers focused their interactions on communication and attempting to do things for and with the children.
- **Emotional Reactions:** The majority of participants endorsed feeling anger toward the parent or caregiver when arriving at a drug related crime scene with children present. Most participants endorsed a strong desire to help children at drug related crime scenes and the majority of participants focused on finding placement for the children.
- **Impact on their job:** Regardless of children being present, most participants reported focused on completing their job, but they also discussed the need to find placement for the children and communicating with the children..
- **Coping Mechanisms:** Most participants struggle separating work and home. While they deny struggling with their emotions, they tend to focus on how they deal with the presence of children in the scenes. Their coping mechanisms differed between participants and they reported these as not showing emotions, not talking about work at home, hobbies, and talking to family members.
- **Having Children:** Most participants reported that being a parent has impacted their emotions. Some feared seeing their own children at drug related crime scenes.
- The current study had an unexpected finding with the majority of participants discussing their perceptions of addiction. The majority of participants felt addiction is a cycle and described the cyclic nature of addiction.

Discussion

The present study is the first study to look at police officers' views of the presence of children at drug related crime scenes. This study utilized CQR methodology to allow for an in-depth exploration of police officers' beliefs, attitudes, experiences, and perceptions of the presence of children at drug related crime scenes (Hill, 2012).

Understanding police officers' views about addiction, the children, and the parents/caregivers involved can help us understand how this may impact their actions. Understanding police officers struggles with emotions and coping can help us understand ways to provide them better mental health resources. Understanding how police officers' jobs are impacted with the presence of children can help us understand the resources needed to allow police officers to focus on other primary aspects of their job. Police officer perceptions regarding the presence of children at drug related crime scenes are exceptionally important as their perceptions almost certainly impact and influence how they deal with both the children and the individuals involved with the drugs.

An Unexplained Abdominal Mass

Lauren M. Rose, DO and Maurice M. Henein, MD

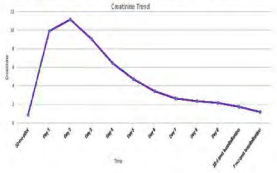
Community Health Network

Introduction

- An abdominal mass is an atypical presentation to a family medicine office and has a wide differential.
- In this case, the source of the mass was a distended bladder. Although the patient was not having any difficulty urinating, he had a history of an elevated PSA (4.17) a year prior.
- He was not having any BPH symptoms (incomplete emptying, frequency, hesitancy, or nocturia) and therefore according to current guidelines, management with lifestyle modifications were indicated.

Case Description

- A 75-year-old male presented to our outpatient office for a routine follow up.
- For the three days prior to the appointment, he had been experiencing abdominal and leg swelling but denied any difficulty urinating or having bowel movements.
- Vitals Signs T: 99.8F BP: 168/72 Pulse: 66 Respiratory Rate 18
- Physical Exam A large right-sided abdominal mass (15x20cm) was found without a fluid wave present.
- A CT of the abdomen/pelvis, repeat PSA and CMP were ordered as outpatient.
- Subsequent workup revealed acute renal failure with creatinine of 11.15 with the mass noted to be on the left side of the abdomen in the ER
- CT imaging demonstrated a largely distended bladder as the source of the mass.
- The causative etiology was benign prostatic hyperplasia (BPH) with bladder outlet obstruction.
- In the first 24 hours after foley catheter placement he put out over 15 liters of urine. In the subsequent months following treatment, his creatinine has normalized.



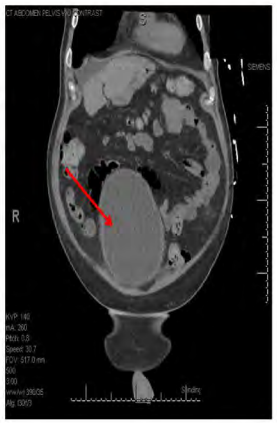
Discussion

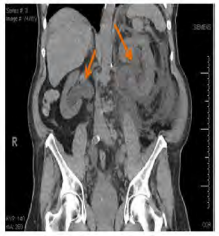
- Our patient has required a foley catheter for the past 10 months due to lack of return of normal bladder function.
- BPH is the causative factor in 53% of cases of acute urinary retention in men and BPH-associated acute renal failure has increased 400% in a 10-year span[7].
- Initial testing for the workup of acute urinary retention often includes a post void residual.
- Without a specific volume definition, studies have suggested that a palpable bladder typically contains more than 200 ml of urine[8].
- Before developing a severe complication such as urinary retention and acute renal failure, assessing and targeting modifiable risk factors such as metabolic syndrome should be included in medical management of BPH[9].

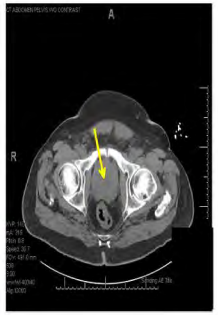
Exam: CT ABDOMEN PELVIS WO IV CONTRAST

IMPRESSION:

1. There is massive distention of the urinary bladder with severe bilateral hydroureteronephrosis, left more than right. Pronounced enlargement of the prostate. Likely some stone material layering dependently within a dilated calyx on the left. No other stones are identified. There is extensive retroperitoneal edema in the left abdomen which is likely pyelosinus backflow from the hydronephrosis. There is also a small amount of free peritoneal fluid, presumably urine.

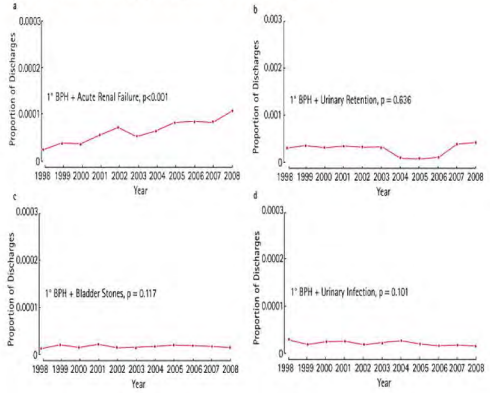






Arrow Key:
Red: Massively distended bladder
Orange: Dilated renal pelvises with hydronephrosis
Yellow: Markedly enlarged prostate

Trends in adverse events of benign prostatic hyperplasia (BPH) in the USA, 1998 to 2008



BJU International, Volume: 109, Issue: 1, Pages: 84-87, First published: 26 May 2011, DOI: (10.1111/j.1464-410X.2011.10250.x)

Conclusion

- Despite any urinary symptoms or previous diagnosis of BPH, acute urinary retention needs to be on the differential for an abdominal mass, especially in an older male.
- Although the patient in this case received proper imaging, workup, and treatment in a timely fashion, this may not happen in every case.
- Quickly assessing a post void residual with an ultrasound in the office could hasten a patient's diagnosis and treatment in a similar case presentation in the future.

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The Relationship Between Patient Satisfaction and Self-Reported Functional Outcomes for Patients with Mechanical Low back Pain: A Correlation Study

Jennifer Reynolds PT DPT, Ed Jones, PT, DHSc, OCS, Leslie Gardner, PhD, Lochana Siriwardena, PhD- Community Health Network & Krannert School of Physical Therapy, University of Indianapolis

Introduction

- Increasing value is placed on patient satisfaction across healthcare settings
- Meanwhile, outcomes such as hospital readmission and the presence of surgical complications were independent of satisfaction.[3]
- Physical therapy literature echoes similar concepts with little to no correlation noted between patient satisfaction and outcomes in various populations and settings.[1,3,4,5]
- However, other literature supports a more positive correlation between satisfaction and patient outcomes.[1,2,4,5,6,7]

Outcome Tools

- FOTO is a computer adaptive test for patient reported outcomes, benchmarked to a national database. FOTO is risk adjusted based on a linear regression including 11 patient specific constructs.[15]
- NRC-health is national survey of patient satisfaction.

Methods

- The study design is a retrospective study investigating the relationship between NRC Health patient satisfaction and FOTO outcomes for patients with lumbar spine conditions.
- The study includes all patients treated at Community Health Network PT and Rehab clinics for lumbar spine conditions between Jan 1, 2015 and Sept 30, 2017.
- To study correlations, Pearson correlation of attributes related to the patients, conditions and the treatments were calculated
- In addition, 2- sample t-tests were used to identify which categorical variables from the FOTO survey influence patient satisfaction and functional improvement outcomes.

Results:

- Analysis did not show correlation between FOTO outcomes and patient satisfaction.
- Patient satisfaction is also not correlated to final functional score or the difference between final functional score and predicted final functional score.
- Patient satisfaction and patient outcomes were not correlated to many of the patient specific measures gathered in FOTO.
    - No significant correlation to patient age, BMI, number of comorbidities or weeks since onset of condition (figure 1)
- Patient satisfaction and FOTO outcomes also appear unrelated to number of therapy visits, duration of therapy, and other FOTO administration processes.
- Also an inverse relationship was found between predicted number of visits and improvement above prediction of functional outcome (figure 2)
- Some patient variables are associated with poorer outcomes (hx of anxiety, hx of previous treatment, etc (figure 3)

Pearson Correlation of Patient-Specific Variables

Variable	Clinician Satisfaction Score (r)	Improvement Above Prediction (r)
Age	.0013	.0178
BMI	.0013	-.0102
Number of Comorbidities	.0032	-.0252
Weeks Since Onset	.0044	.0068

Figure 1

Pearson Correlation of FOTO -Specific Variables

Variables	Clinician Satisfaction Score (r)	Improvement Above Prediction (r)
Number of Therapy visits	.0366	-.0318
Duration of Therapy	.0030	-.0370
Days to Last Survey	.0219	.0281
Days to Last Visit	.0016	-.0393

Figure 2

Patient Variables Associated with Poorer Outcomes Independent t-tests

Patient satisfaction	Improvement (Difference in Functional Score	Final Functional Score (p)	Improvement above Prediction (p)
Hx of Anxiety (p<.01)	Hx of Prior Tx (p<.01)	Hx of Anxiety (p<.01)	Hx Sleep Dys (p<01)
Hx of Kidney Dz (p=.03)	Hx of OA (p<.01)	Hx of Depression (p<.01)	Prescription meds (p<.01)
Hx of Diabetes (p=.04)	Hx of Osteoporosis (p<.01)	Hx of Prior Surg (p<.01)	Hx of Anxiety (p<.01)
Hx of CVA (p=.05)	Hx of Obesity (p<.01)	Hx of Prior Tx (p<.01)	Hx of Depression (p<.01)

Figure 3

Figure 3 lists statistically significant patient variables most associated with poor satisfaction and functional outcomes for those with low back pain.

Conclusions

Patient reported outcomes appear unrelated to patient satisfaction, patient specific measures, and FOTO administration measures. This echoes previous medical literature that suggests patient satisfaction is independent of patient outcomes. This may suggest clinician skill level and the therapeutic alliance are more important predictors for these outcomes. Further research should investigate the relationship of these variables on both functional outcomes and patient satisfaction. Further research is also needed to investigate pt variables associated with poorer outcomes

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Transverse Myelitis and Language Barriers—A Case Report

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INTRUDUCTION

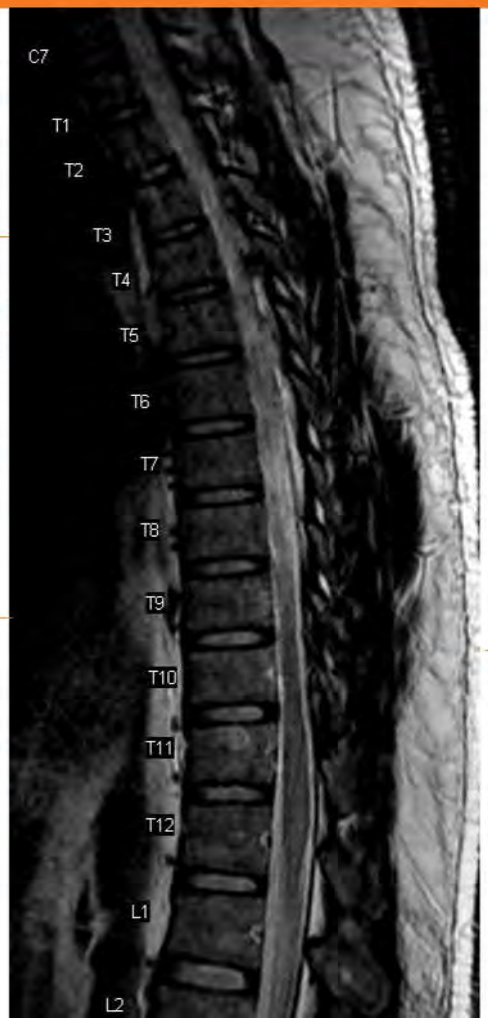
Transverse myelitis is a relatively rare condition occurring 1 in 1-8 million individuals in the United States annually. It is typically an acquired neuro-autoimmune spinal cord disorder that is sudden in onset and the risk of prolonged complications, such as permanent lower extremity weakness, numbness, or urinary retention, is high if a patient is untreated. A thorough history and physical, high index of suspicion, and prompt imaging are critical in accurate diagnosis, as laboratory studies are typically normal.

CASE REPORT

- 34 year-old non-English speaking male presented to local ED 2 days after a viral gastroenteritis with abrupt onset of bilateral lower extremity weakness and numbness and mid-back pain
- Physical and examination were done in the presence of native-speaking interpreter
- Noted to have urinary retention on review of systems
- No significant past medical history, family history, or social history
- Laboratory workup was normal
- Due to high clinical suspicion, Spine Survey MRI ordered (see Imaging—right)
- MRI revealed mottled abnormal signaling from T1-T2 through T7 suggestive of transverse myelitis
- Patient was admitted to the hospital

INTERVENTION AND TREATMENT

- Patient was started on 1000mg methylprednisolone for 5 days
- Subjective and objective examinations were done in the presence of native-speaking interpreters throughout his stay
- Over the course of his hospitalization his numbness and weakness improved, however he continued to have urinary retention on the day of discharge
- He was released to an acute rehab facility on a prednisone taper of 5 days
- After 2 weeks in rehab, he followed up at the family medicine outpatient clinic with complete resolution of his weakness, numbness, and urinary retention



DISCUSSION

- During the patient's hospital course, the dermatome level of numbness was difficult to assess as interpreters changed with shifts
- The importance of these subjective findings required coordinated communication between the patient and the provider. This coordination can be difficult when done through interpreters, especially if the interpreter changes from day to day
- This case demonstrates the importance of using clear communication and common lay-terms to facilitate ease of understanding between patient and provider
- While relatively uncommon, transverse myelitis carries a high risk of persistent disability (up to 40%) with recovery of symptoms occurring from 1-3 months after onset
- High clinical suspicion and thorough examination are necessary for prompt diagnosis and treatment to help reduce the risk of persistent disability
- Review of literature supports the use of high-dose IV glucocorticoids. Alternative to methylprednisolone is 200mg of dexamethasone daily for 3-5 days
- Duration of high-dose glucocorticoids can be extended or doses can be increased if clinical course is poor
- In cases refractory to glucocorticoids, plasma exchange is recommended. Typically, 5 treatments of 1.1-1.5 plasma volumes are suggested every other day for a total of 10 days
- There is limited evidence to suggest the use of cyclophosphamide as adjunctive therapy to either glucocorticoids alone or with glucocorticoids plus plasma exchange.
- There is also a risk of recurrent disease (~25-33%), and immunomodulatory therapy can be considered in these patients with methotrexate or azathioprine
- Patients carry a 5-10% risk of developing multiple sclerosis, but rates can be higher depending on the classification

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Developing an mHealth Tool to Enhance Treatment of Teen Substance Abuse and Mental Illness

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Background

- There is great need to improve the efficiency, effectiveness, and reach of existing treatments for substance use disorders and co-occurring mental illness, particularly among at-risk adolescents.
- Mobile health tools (apps) can augment traditional psychotherapy and increase youth's motivation and engagement in evidence-based treatments.
- The current study sets out to target patient engagement by creating a developmentally tailored mHealth tool to complement evidence-based and empirically supported treatment principles.

Methods

- Development of content and functionality followed a multi-step process guided by behavior change theory, evidence based treatment principles, and community based participatory research principles.
- The figure outlines the overall development model (current project steps denoted in box).
- Participants completed single 45-60 minute visit to lab to complete demonstration of app features and provide reactions via semi-structured interview and questionnaires (e.g., Perceived Usefulness, Perceived Ease of Use Scales, Davis, 1989).

Participants

- Adolescents (n=10)
  - Adolescents aged 14 to 17 years old with current or past involvement in outpatient psychotherapy treatment for SUD and/or PTSD.
- Providers (n=10)
  - Behavioral health providers with a history of working with adolescent patients with SUD and/or trauma-related psychopathology.

Evidenced-Based SUD+PTSD Treatment Components	Corresponding Mobile App Function
Ongoing Assessment of Symptoms	Daily symptom tracker, Substance use calendar
Education about SUD, Traumatic Stress, PTSD, Comorbidity	FAQ screen, Psychoeducational modules
Identification of Trauma Cues/Triggers	Psychoeducation on trauma triggers, Cue/Trigger identification activity
Coping Skills: Relaxation, Distress Tolerance, Mindfulness	Coping and distress tolerance skills activities, Establishment of "coping plan"
Contingency Management and/or CBT for SUD	Completion of assessment and activities for CM plans, Cognitive distortion/Automatic thought record modules

- Figures depict Sample screenshots for different content types and menu screens.
- The app includes over 25 activities.

Results

	Perceived Usefulness	Perceived Ease of Use
Therapists	2.4 (.2)	2.5 (.5)
Adolescents	2.5 (.5)	2.6 (.5)

M(SD); Range: 0=strongly disagree, 3=strongly agree

- Overall, both adolescents and providers were enthusiastic about the prospect of using a mobile app to enhance outpatient treatment.
- Suggestions addressed content and format to improve relevance to adolescents.
- Specific quotes and aggregated ratings of acceptability (usability, perceived ease of use, etc.) will be summarized. Emerging themes include:
  - Visually appealing, easy navigation, simple, interactive.

"Useful to refresh brain between sessions" - Teen

"Easy to use" - Teen

"Can pull out in session for education content" - Provider

Discussion

- Use of a developmentally tailored app to deliver evidence-based content to adolescents in treatment for co-occurring disorders appears promising.
- Next steps will involve a pilot feasibility trial among youth actively in outpatient treatment for substance use and mental illness to promote long-term well-being.

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Acknowledgments

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Expressive Arts in Long Term Care

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University of Indianapolis Center for Aging & Community

Introduction

Expressive arts—including dance, drama, music, writing, and visual art—are empowering tools that can enhance the aging process. Incorporating expressive arts approaches and interventions in a long term care (LTC) setting can reduce challenging behaviors, decrease antipsychotic drug usage, and improve one's sense of well-being.

The Expressive Arts (EA) for Long Term Care Professionals initiative aimed to provide educational and practical opportunities for LTC professionals to learn about and implement strategies for integrating the EA into LTC. The goals of the initiative were to determine the feasibility of increasing statewide use of EA within nursing homes (NH); determine the impact EA has on NH quality metrics and/or resident health outcomes; and improve knowledge and best practices for utilizing EA.

The University of Indianapolis Center for Aging & Community (CAC) teamed with subject matter experts to develop, deliver and evaluate direct and train-the-trainer EA courses for LTC professionals. CAC provided overall project management for both courses. Additionally, EA grants were awarded to seven Regional Collaboratives (RCs)- a regional group of LTC facilities working together on quality improvement projects, to implement a Quality Assurance Performance Improvement (QAPI) Performance Improvement Project (PIP) related to EA in each RC. CAC provided technical assistance to all RCs.

	Expressive Arts Project Topic
Central IN NH Improvement Collaborative	Increase resident participation through active engagement in EA activities.
Community Care Connections	Increase resident participation through active engagement in EA activities.
East Central IN Collaborative	Reduce pain levels by participating in EA.
North Central IN Quality Improvement Collaborative	Reduce pain levels by participating in EA.
Quality Improvement Collaborative of North East IN	Decrease depression by using EA activities.
Southern IN Regional Collaborative	Decrease depression by using EA activities.
Southwestern IN Collaborative for Performance Improvement	Increase resident participation through active engagement in EA activities.

Methods

CAC worked with the Indiana State Department of Health, regional, and national experts to develop, deliver, and evaluate a four-day direct training course and a two-day train-the-trainer course, teaching best practices for implementing extensive EA programming in LTC.

- EA direct course taught about using EA systemically.
- EA train-the-trainer course taught participants how to instruct other colleagues to integrate EA in LTC.

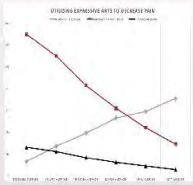
Participants were recruited from LTC facilities across the state. To track resident outcomes, CAC and the RCs implemented PIPs.

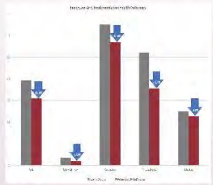
- Each RC sent representatives to both the direct and train-the-trainer courses.
- Train-the-trainer participants then led workshops on integrating EA for all RC members.
- RCs used the techniques learned to build PIPs around increasing the number and variety of EA offerings in each member building.

Results

Results of the EA initiative included:

- Certificates of Training were earned by 96 individuals for the EA Direct Course and 20 individuals for the train-the-trainer course.
- Over 90% of all participants strongly agreed or agreed that the course included quality content and acquisition of transferable skills.
- 99% of participants indicated knowledge gained would improve residents' quality of life.
- Improved participant knowledge by 10% and 22%.
- Resident activity participation increased by 88.1%.
- Improved health outcomes for residents (PIP results below).





Many participants relayed the positive impacts associated with implementing EA within their facilities. Comments included:

- "This stuff works!"
- "A nonverbal resident…spent most of every day sleeping or quiet in a chair. [When] the "Star Spangled Banner" was played…He perked up, then began to mouth the words, and then began to sing."
- "We've completely revamped our activities program using this."
- "She has been going around showing everyone her work, so the facility will be framing the artwork for her."
- "I've been doing this for 25 years, and was burned out – now I feel refreshed!"

Discussion

Results demonstrated the feasibility of statewide implementation of EA, while improving NH metrics and resident health outcomes, as well as expanding knowledge and best practices. Providing educational and practical opportunities for integrating EA into LTC proved to be successful in improving both health outcomes and quality of life for NH residents. Qualitative feedback received from LTC staff and program participants showed improvement to NH residents' quality of life. Also reported was increased staff satisfaction - by implementing EA, staff felt renewed in their work and more engaged with residents. A prevalent challenge to this initiative was the fact that the concept of utilizing EA in nursing homes was not widely accepted, creating challenges related to lack of awareness and uptake. Additional awareness efforts will bolster the effectiveness of this project.

Conclusion

The EA courses, PIPs, and resulting outcomes show that increasing EA programming in LTC leads to better resident quality of care and quality of life. Suggested next steps include additional training and dissemination of best practices for integrating EA into long term care, including online learning modules, and expanding efforts to other states.

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Thank you RC lead agencies for their determination and hard work.

OPTIMISTIC Nurse Selection and Building Readiness Study

UNIVERSITY of INDIANAPOLIS

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University of Indianapolis Center for Aging & Community

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OPTIMISTIC MODEL

The OPTIMISTIC model of care was conceived by researchers and clinicians from Indiana University, Regenstrief Institute, and the University of Indianapolis Center for Aging & Community

ABOUT OPTIMISTIC

- The goal of OPTIMISTIC is to decrease potentially avoidable hospitalizations of long-stay residents in nursing homes (NHs). This is accomplished through a focus on quality of life by implementing evidence-based strategies to improve medical care, enhance transitional care and support palliative care.
- Funded by the Centers for Medicare and Medicaid Services (CMS) Innovation Center
- OPTIMISTIC clinical staff are embedded into participating NHs. Staff receive extensive training in geriatric assessment and intervention, advance care planning and quality improvement.

DUAL GOALS

- Identify OPTIMISTIC nurse essential functions and appropriate selection instruments.
- Identify characteristics of nursing home buildings that ready them to optimally support the OPTIMISTIC nurse position.

NURSE SELECTION METHOD

1. Job Analysis
   - Job descriptions examined
   - Incumbent OPTIMISTIC nurses interviewed
   - Essential job functions identified
   - Personal characteristics for success hypothesized: intelligence, sociability, conscientiousness, emotional stability
2. Selection Instruments
   - Wonderlic Personality Test (WPT) and NEO™-Five-Factor Inventory-3 administered to measure personal characteristics
   - Results of selection instruments compared to performance evaluations

BUILDING READINESS METHOD

1. Organizational Assessment
   - Executive directors interviewed
   - Focus group with corporate representatives and Indiana State Department of Health leader
   - Building characteristics for success hypothesized
2. Readiness Checklist Validation
   - Existing buildings ranked by subject matter experts on how well they support the OPTIMISTIC nurse position
   - Buildings scored on checklist by OPTIMISTIC nurses
   - Results of ranking and scoring correlated to determine agreement

DISCUSSION

The results should be interpreted cautiously as both the OPTIMISTIC nurse selection and the building readiness portions of the study were carried out with small non-random samples. Further study with larger samples is needed to strengthen results.

NURSE SELECTION RESULTS

- WPT, which measures intelligence, was supported in predicting better OPTIMISTIC nurse performance.
- NEO™-Five-Factor Inventory-3, which measures sociability, conscientiousness and emotional stability was not supported in predicting better OPTIMISTIC nurse performance.

BUILDING READINESS RESULTS

- A correlational study found a high level of agreement (R^2=0.69), between nurses' checklist assessment scores and subject matter experts' (SME) ranking of nursing home buildings.
- Building readiness checklist was supported in predicting whether a nursing home building would be able to optimally support the OPTIMISTIC nurse position.

CONCLUSIONS

- WPT is recommended for use in OPTIMISTIC nurse selection process. Next steps include adding structured interview questions.
- NEO™-Five-Factor Inventory-3 is not recommended for use in OPTIMISTIC nurse selection process.
- Building readiness checklist is recommended for use in predicting whether a nursing home building will successfully support an OPTIMISTIC nurse.

OPTIMISTIC TRANSFORMING CARE

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Quality Assurance Performance Improvement Collaboratives: A Novel Approach to Nursing Home Quality

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Introduction

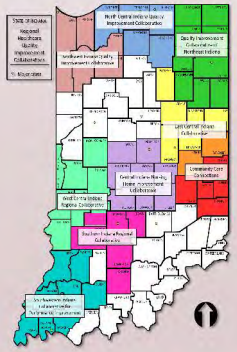
The Centers for Medicare and Medicaid Services (CMS) introduced the Quality Assurance Performance Improvement (QAPI) program as a means for system improvements in nursing facilities. In part because QAPI has not been used fully, the Indiana State Department of Health (ISDH) used Civil Monetary Penalty funds to form Regional Healthcare Quality Improvement Collaboratives (RC) to support implementation of QAPI as a means to improve quality of care and resident outcomes. The purposes of the RC project were to:

1. determine the feasibility of RCs as a means to encourage statewide quality improvement;
2. determine the impact of various QAPI projects on NH quality metrics and/or resident health outcomes; and
3. determine the impact of various QAPI projects on NH costs.

Methods

ISDH used Civil Monetary Penalty funds to form 11 RCs across Indiana to better implement QAPI and improve quality of care and resident outcomes. Since 2014, CAC served as program manager and technical assistance provider, offering training on QAPI and RC formation and management; providing technical assistance through monthly phone calls, quarterly in person meetings, and webinars; and analyzing project outcomes data.

RCs included at least 20 skilled nursing facilities (NF) and community stakeholders as members. Each RC implemented two Performance Improvement Projects (PIPs) that identified areas for improvement, tracked baseline metrics, facility level interventions (with process measures) and post intervention outcomes. These metrics were reported to CAC and ISDH with lessons learned for each PIP.



Results

Overall results showed RCs are a feasible way to support and expand nursing homes' use of the QAPI model and that RCs result in improved quality metrics, better health outcomes for residents, and financial savings. Some RCs experienced challenges with data collection and NF engagement. This impacted the RC's ability to complete PIPs and achieve successful outcomes.

PIP outcomes were positive in 10 of the 14 projects as detailed in the table below. Several RCs also reported improvements in secondary metrics. Where available, these data are also included in the table below.

Financial Impact: At the close of the project, **$1,624,243** in savings had been identified as a result of RC PIPs.

Collaborative	PIP 1 Topic	PIP 1 Outcome	PIP 2 Topic	PIP 2 Outcome
Central Indiana Nursing Home Improvement Collaborative	Reducing rates of polypharmacy	No data reported	Reducing rates of falls with major injury	Reduced by 50%
Community Care Connections	Reducing challenging behaviors	Reduced by 2% Reduced hospital visits for behaviors by 79%	Improving rates of decline in activities of daily living	Improved by 39%
East Central Indiana Regional Collaborative	Reducing rates of hospitalizations	No data reported	Reducing rates of incontinence	Reduced by 4.9%
North Central Indiana Quality Improvement Collaborative	Reducing rates of falls	Reduced by 44%	Improving antibiotic stewardship	Improved adherence to McGeer criteria
Northwest Indiana Quality Improvement Collaboratives	Reducing rates of incontinence	Reduced by 22%	Reducing rates of falls	0 falls with major injury
Quality Improvement Collaborative of Northeast Indiana	Reducing the average number of monthly medications	Reduced by 10% Increased discontinued medications by 20% Reduced as needed medications by 14%	Reducing rates of falls	Increased rate of falls
Southern Indiana Regional Collaborative	Reducing rates of unnecessary antipsychotic medications	Reduced by 43%	Improving person centered care	Increased by 11%
Southwestern Indiana Collaborative for Performance Improvement	Reducing rates of falls	Reduced by 63%	Reducing rates of hospital readmissions	Increased readmissions
West Central Indiana Regional Collaborative	Reducing rates of polypharmacy and antibiotic use	Reduced medications by 48% Reduced antibiotics by 51% Reduced cases of *c. difficile* by 60%	Reducing rates of falls	Reduced fall rate by 24% Reduced falls with injury by 69%

Discussion

Project results show that program efforts were successful in statewide quality improvement in participating NFs. Project efforts built and improved upon earlier efforts with seven existing RCs and add two new RCs for near statewide coverage. Previously, fidelity to the QAPI model and project implementation were noted as a challenge. To address this issue, RCs were asked to track and report process measures to document fidelity to the project. In all projects where data did not show improvements in the primary metric, process measures showed that adherence to project implementation was low. Non-successful outcomes are likely related to variable implementation of process changes.

Support from CAC proved critical to the success of the RCs, while NF participation and data collection continued to be challenging.

Technical Assistance from the CAC was a significant factor in success of the RCs. CAC provided support through meeting management, data collection tool development, data analysis and quarterly training for the RC leadership teams. Accountability for the overall project created by CAC, provided structure throughout the project period.

NF Participation was a constant challenge for even the most successful RC. Strong project management, attendance policies, and availability of educational sessions with continuing education units helped keep NFs engaged. During PIP 1, several RCs experienced high NF staff turnover and challenges with engagement. During this time new CMS regulations came into effect and several other initiatives were ongoing. These contributed to capacity challenges for members and decreased NF participation in the RCs.

Data Availability/Collection was a challenge that led to negative impacts for some RC projects. Based on previous experience, Collaboratives spent significant time developing data collection tools and processes. NF members were engaged throughout to ensure data collection was specific and reasonable. This helped to streamline data collection process, but receiving data from all members remained a challenge.

Conclusion

Overall, a RC approach to QAPI was both feasible and successful. Many innovative ideas for improved quality of care in nursing facilities were generated. To disseminate these ideas, a toolkit was created that detailed the process and lessons learned for creating QAPI RCs and for each project topic. This toolkit can be downloaded at www.uindy.edu/cac.

Recommended next steps are continued efforts to improve quality of care through participation in RCs including expanding the number of RCs to reach statewide coverage, engaging corporate leadership to support and encourage increased participation, and utilizing the toolkits and lessons learned to improve consistency of process between RCs.

Acknowledgements

Guidance and funding provided by the Indiana State Department of Health Quality and Regulatory Commission and Civil Monetary Penalty funds.

Thank you to RC lead agencies for their determination & hard work and to member facilities for their dedication to quality care for all Hoosiers.

Case study: Thrombotic/hemorrhagic stroke in the setting of von Willebrand disease

Kyle Gehres, DO

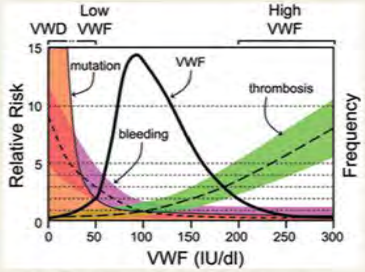
Case: 44 year old Asian female with PMHx of von Willebrand disease (type 2A) and HTN presented with 4-day history of vertigo, nausea, and unsteady gait. On exam, she was afebrile with BP of 188/102. She was found to have right finger-to-nose ataxia.

Labs: WBC 14.7k

Imaging:
MRI of brain w/wo contrast – moderate-sized acute and sub-acute infarct involving the inferior and medial right cerebellar hemisphere.
CTA head and neck w/ contrast – occluded distal right vertebral artery and thrombus in distal left vertebral artery

Management:
Day 1: Neurology consulted. Stroke protocol with rectal baby aspirin alone.
Day 2: Pt continued to have severe headache. CT head wo contrast showed tonsillar herniation. Neurosurgery refrained from decompression surgery.
Day 4: Pt's headache persisted, attributed to increased ICP/edema. Repeat MRI without contrast showed enlargement of cerebellar infarction with increased mass effect and a new petechial-type hemorrhage.
Day 5: Patient continues to have headache and hard to control BP. Neurology recommended continued rectal aspirin and permissive HTN beyond 24 hours.
Day 7: Headache improves after IV steroids added to narcotic regimen. Two serial head CTs show stability of her infarction. She is tapered off her IV steroids/narcotics and is transferred to sub-acute rehab (Day 17)

Bleeding versus thrombosis[1]



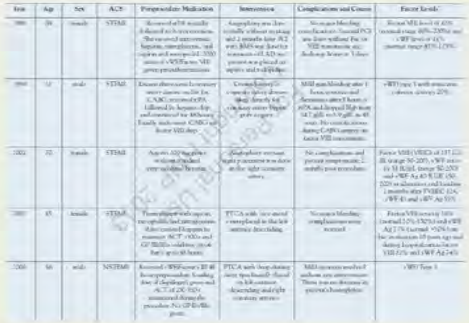
VWD and risk of arterial thrombosis
Dutch study; nationwide cross-sectional study, 2007-2009[2]

- 21/664 WVD patients had arterial thrombotic events (3.3%)
- 3 had ischemic CVA (0.5%) vs. 4.6 expected from general population
- 13 had CAD (1.9%) vs. 21.5 expected from general population

Management of stroke with VWD
Swiss study; nationwide cross-sectional study, 10 year period[3]

- 13 cases (of 7.7 million) had VWD and stroke; outlined 2 cases
- **Patient 1**: mild type 1, acute CVA (NIHSS 9), CT head neg, replacement tx w/ goal of VWF:Ag 80%; tPA; NIHSS 6 in 24 hrs, no bleeding, ASA ppx, NIHSS 0 in 3 months
- **Patient 2:** type 2A, acute CVA (NIHSS 2), CT head neg, dipyridamole, NIHSS 0 in 6 hours

Management of ACS with VWD[4]



Conclusions:
Per stroke/ACS info for those w/ VWD, it is reasonable to consider start conventional therapy + VWD replacement therapy WITH caveats:

- Involve neurology, hematology-oncology, +/- neurosurgery
- Use infusion (vs boluses) for replacement therapy
- Have low threshold for serial imaging
- Be hesitant to use thrombolytics

References:

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Are Athletic Training Preceptors Using Patient Reported Outcome Measures? A Pilot Study

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Community Health Network

Background

Patient Reported Outcome Measures (PROMs) provide information regarding impairments, function, health, and overall quality of life from the patient's perspective

Healthcare professionals are required to demonstrate the efficacy of treatment plans for their patients

Information gained from PROMs assist the clinician in developing a treatment plan based on the patient's goals

74% of athletic trainers do not use PROMs in the clinical setting[1]

Barriers to PROM Use[1-4]
- Patient confusion
- Lack of clinician and patient time to complete
- Validity and reliability of the PROM
- Technology
- Low organizational priority and support
- Lack of available/appropriate outcome measure
- Perceived subjectivity of information gained

Benefits of PROM Use[1-4]
- Enhance communication with patients
- Enhance communication with other healthcare providers
- Direct plan of care
- Increase efficiency of exams

Acknowledgements

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Thank you to Alexis Cleveland, LAT, ATC; Rachel Davis, LAT, ATC; and Adriana Martel, LAT, ATC for their assistance in completing this research

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Study Purpose

To determine if preceptors in athletic training use Patient Reported Outcome Measures as well as the benefits and barriers for implementation that may exist in their specific clinical setting

Methods

- Cross-Sectional Survey Research Design
- Participants were licensed healthcare providers serving as preceptors in CAATE athletic training programs in Indiana
- We used a previously validated questionnaire[1,2]
  - 54 questions completed by preceptors who indicated they used PROMs
    - Questions pertained to benefits, problems, policies, procedures, and selection for PROM use using a 5 point Likert Scale (1=strong disagree; 5=strongly agree)
  - 32 questions completed by preceptors who indicated they did not use PROMs identifying problems for their use through a Likert Scale (1=strongly disagree; 5=strongly agree)
  - Demographic questions
  - Questionnaire identifies 3 factors – Benefits, Barriers, Language/Culture
- We contacted Clinical Education Coordinators to send an online link to the preceptors
- The data did not demonstrate a normal distribution and represented categorical data. Therefore, we used nonparametric statistical tests. A chi-square was used to analyze the data. The alpha level was set to $p \geq 0.05$

Results

Questionnaires were sent to 271 preceptors, and 75 preceptors completed the questionnaire (27.7%)
- 22 preceptors indicate they use PROMs; 53 preceptors indicate they do not use PROMs

Chi-Square analysis found no significant differences between sex, healthcare profession, practice setting, or highest degree regarding the benefits and problems of PROMs use ($p>0.05$)

For those preceptors using PROMs:

Benefits of Using PROMs
1. Helping to motivate and encourage patients
2. Helping to direct plan of care
3. Attaining better patient outcomes
4. Enhancing communication
5. Helping patients feel like clinician is thorough

Problems with Using PROMs#
1. Take too much time for patients to complete
2. Make patients anxious
3. Confusing to patients
4. Take too much time to score
5. Difficult for patients to complete

#Although identified as problems, the majority of Respondents identified they disagree or are neutral regarding these statements.

For those preceptors NOT using PROMS;

Problems with Using PROMs
1. Take too much time for patients to complete
2. Take too much time for the clinician to score
3. Do not contain the types of items or questions that are relevant for the types of patients I see
4. Require much more effort than they are worth
5. Often do not get complete at discharge, so are not useful for determining patients' response to treatment
6. Require a support structure that I do not have (e.g. technology, staff)

Conclusions

In previous athletic training research, only 26% of athletic trainers use PROMs[1]

In our study, only 29.3% of athletic training preceptors in Indiana use PROMs

Athletic trainers and preceptors are not using PROMs in the clinical setting

Our study confirmed a study by Valier[1] regarding what athletic trainers who do or do not use PROM identify as benefits and problems of PROMs use

Interestingly, preceptors who do not use PROMs identify problems regarding their use that are not identified as problems by preceptors who use PROMs.
- The majority of preceptors indicate they disagree with the statements identifying problems with PROM use

Clinical Implications

More education is needed for preceptors in athletic training programs regarding the importance and benefits of using PROMs in the clinical setting

Preceptors identified problems with PROM use that are not actual identified problems by those who use PROMs

Athletic training students are educated on PROMs and are asked to use them during clinical experiences. To serve as healthcare role models, athletic training preceptors must use PROMs in the clinical setting

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Attachment Style as a Predictor of Emotional Abuse

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Background

Intimate partner violence (IPV) is defined as actual or threatened physical, sexual, psychological, or stalking violence by a current or former intimate partner (Thompson, Basile, Hertz, & Sitterle, 2006; Centers for Disease Control and Prevention [CDC], 2017). Physical and mental health are both affected by IPV directly and indirectly (Velotti, Zobel, Rogier, & Tambelli, 2018). IPV has been a topic of great concern and a major public health problem, as reflected by both its prevalence and negative consequences.

Approximately 1 in 4 women and 1 in 9 men report being victims of IPV. Common negative impacts include: feeling fearful, concern for their safety, and symptoms of PTSD (CDC, 2017). Much of the research focuses on factors that place intimate partners at risk for being a victim or perpetrating violence (Thompson et al., 2006). Attachment theory is a useful framework to better understand the causes of the victimization and perpetration of IPV (Velotti et al., 2018). Additionally, there are four different types of abuse that comprise IPV: physical, sexual, psychological/emotional, and stalking abuse. Although a good deal of research has focused on IPV among college students, few researchers have examined emotional abuse in intimate relationships. Therefore, more research is necessary to understand the relationship between attachment style and emotional abuse.

		IWM OF SELF: Positive	IWM OF SELF: Negative
IWM OF OTHERS	Positive	I. SECURE Comfortable with intimacy and autonomy	II. PREOCCUPIED Worry about and consumed by having relationships with others
IWM OF OTHERS	Negative	IV. DISMISSING Dismiss intimacy Deny need of dependency	III. FEARFUL Fearful of intimacy Socially avoidant

Figure 1. Bartholomew & Horowitz's model of adult attachment.

Presented at the 4th Annual Multidisciplinary Scholarly Activity Symposium
Indianapolis, IN, U.S., May, 2019
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Purpose

The purpose of the present study is to examine how preoccupied, dismissing, and fearful attachment styles are related to the victimization and perpetration of emotional abuse in young adults.

Questions

Does attachment style predict the victimization and perpetration of emotional abuse?

- What is the relationship between attachment style and the victimization of emotional abuse?
- What is the relationship between attachment style and the perpetration of emotional abuse?
- Does an attachment style predict the victimization of emotional abuse?
- Does an attachment style predict the perpetration of emotional abuse?

Participants

The present study will recruit approximately 150 undergraduate and graduate students attending college at a small, private Midwestern university. The required number of participants for the study to have good power and a large effect size is 111. Participants will be recruited through a school-wide email advertisement and SONA systems.

The current number of participants is 156.

Measures

- Demographics
- Relationship Scales Questionnaire (Griffin & Bartholomew, 1994)
- Multidimensional Measure of Emotional Abuse (Murphy & Hoover, 1999)

Methodology

- Quantitative approach
- Correlational design of study
- Use of an online survey to collect data from undergraduate and graduate students regarding attachment style and experiences with emotional abuse

Data Analyses

- Data collection is still in progress.
- Correlational analysis to determine strength and direction of relationship between attachment style and victimization or perpetration of emotional abuse
- Multiple regression analysis to determine which attachment style predicts the victimization or perpetration of emotional abuse
- To be included in the analyses, participants must have completed the entire questionnaire.

Clinical Implications

- Further understanding of the relationship between attachment style and emotional abuse.
- Increase awareness among practitioners about the incidence of emotional abuse among young adults.

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Mindfulness, Social Media Use, and Mental Health

Aaron Morrison, MA, Jordan Sparks Waldron, PhD

INTRODUCTION

- Social media (SM) use associated w/ negative mental health outcomes (NMHO)
- Most studies focus on Facebook → limiting generalizability
- Most use subjective SM reports → prone to desirability biases, inaccuracies, etc.
- Studies have not focused on moderators between NMHO & SM
- Mindfulness is protective against many NMHOs → not studied re SM & NMHO
- Current study aims to address these limitations

DESCRIPTIVE STATISTICS

Self-reported Social Media Use (n=279)

	# of users	% of sample	Mean Number times checked per week	Mean Minutes used per day
Facebook	267	95.7	54.65 (70.79)	64.54 (70.73)
Instagram	189	67.7	25.03 (51.80)	26.54 (49.93)
Snapchat	107	38.4	10.60 (34.91)	10.49 (36.33)
Pinterest	165	59.1	6.78 (22.39)	16.65 (30.77)
Twitter	198	71.0	29.58 (65.45)	32.69 (62.88)

Social Media Use based on iPhone Data (n=86)

	# of users	% of sample	Mean Use last 24 hours (minutes)	Mean Use in last 7 days (minutes)
Facebook	85	92.4	32.64 (51.79)	212.70 (315.54)
Instagram	83	90.2	14.84 (31.03)	108.78 (255.89)
Snapchat	82	89.1	5.98 (17.63)	40.07 (117.10)
Pinterest	83	90.2	4.02 (15.40)	18.33 (46.92)
Twitter	81	88.0	21.23 (52.11)	119.92 (256.45)

HYPOTHESES

- H1 - Higher self-reported social media use (both average daily use and the number of times used per month) will be associated with more negative mental health outcomes
- H2 - Higher "objective" social media use collected from real iPhone data (last 24 hours and last 7 days) will be associated with more negative mental health outcomes
- H3 - Mindfulness will moderate the relationship between SM and NMHO, such that as the level of mindfulness increases, the relationship between SM and NMHO decreases

RESULTS

Regression of Depression Anxiety and Stress Scales (DASS) on Social Media Use

H1 Analyses – Self reported SM use data

Predictor	B
Times checked per week	.13*

Predictor	B
Use in a Day	.16*

H2 Analyses – iPhone data

Predictor	B
iPhone Use last 24 hours	.23*
iPhone Use last 7 days	.23*

*Different measures of social media use were regressed on the depression, anxiety and stress scale in separate analyses. All variables were standardized *p < .05

Moderation Analyses

Moderation was completed under SPSS Process Macro (Model 1) to check if the relationship between social media and the DASS-21 varied at different levels of mindfulness. Bootstrapping set at 5000 samples. All interaction terms were non-significant (p > .05) and all change in R^2 was less than .0004.

METHODS

- Amazon Mechanical Turk Sample (MTurk) (N = 297)
- Mindfulness - Five-Facet Mindfulness Questionnaire, Short Form (FFMQ-SF)
- NMHO - Depression Anxiety and Stress Scales, 21 (DASS-21)
- Top Five most popular SM: Facebook, Instagram, Snapchat, Pinterest, Twitter
- Asked average time/day on SM, times SM used/week, iPhone actual use in mins

CONCLUSION

- Successfully found a relationship between social media use and negative mental health outcomes
- Relationship found across 4 main variables, 2 self-report, 2 objective iPhone use
- Findings are unique because used the top five forms of SM, most research focuses on Facebook
- Possible that all who use SM are at risk, regardless of mindfulness

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Trauma-Informed Care in Adolescent Substance Use Treatment

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INTRODUCTION

- This is part of a larger study exploring risk and resilience factors among adolescents in treatment for substance use.
- We examined prevalence and type of trauma, as well as PTSD symptoms in this unique sample.
- Research strongly supports the self-medication hypothesis for adolescents exposed to traumatic life events, such that traumatized adolescents' frequently report substance use as a means of coping with negative affect (Haller & Chassin, 2014; Jester, Steinberg, Heitzeg, & Zucker, 2015).
- Research has shown high rates of comorbid PTSD in chemically dependent adolescents in treatment (Jaycox, Ebener, Damesek, Becker, 2004).
- Interpersonal trauma (directly experienced trauma that occurs between people) is strongly linked to externalizing problems in adolescents while noninterpersonal trauma linked to internalization (Price, Higa-McMilan, Kim, Frueh, 2013).
- With the presence of traumatic events, there is a greater risk for use of marijuana, other drugs, and multiple drugs with interpersonal violence associated with increased risk in drug categories (Knopf, 2016).
- Adolescents with PTSD preferentially use alcohol, tranquilizers, and narcotics in order to self-medicate PTSD symptomatology including hyperarousal, anxiety, and pain (Chasser, 2016).
- Hyperarousal symptoms, behavioral symptoms of PTSD activating the autonomic nervous system, are shown to have an effect on alcohol use; alcohol offers a sense of control to the user and inhibits sympathetic nervous system, reducing anxiety (Duranceau, Fetzner, & Carleton, 2014).
- Little is known about trauma type and particular symptom category experienced among adolescents in treatment for addictions, indicating a need to develop research on this topic.

METHOD

Participants

Ethnicity	N	Age	N
White	19	13 years	1
African American /Black	3	14 years	1
Asian	0	15 years	5
American Indian/Alaskan Native	3	16 years	4
Native Hawaiian/Other Pacific Islander	1	17 years	11
Not Hispanic or Latino	29	18 years	11
Did not Answer	2		
Gender	**N**		
Male	22		
Female	11		

Measures

- UCLA Child/Adolescent PTSD Reaction Index (PRI) - assesses trauma history and full range of DSM-5 PTSD diagnostic criteria.
- Demographic Questionnaire - developed for this study

DESCRIPTIVE ANALYSES

- 84.8% (N=28) of participants endorsed a Criterion A traumatic event.
- 77.3% (N=17 of 22) of males and 100% (N=11) females endorsed Criterion A traumatic event.
- Less than 50% endorsed interpersonal trauma.
- *See Table 1 for criteria B-E descriptive statistics.

Table 1. Criterion B-E Descriptive Statistics

Criteria	Mean	SD	Range
Intrusion	1.93	1.15	0 - 3.60
Avoidance	2.25	1.11	0 - 4.0
Neg. Alterations in Cognitions & Mood	1.87	0.91	0 - 3.17
Hyperarousal	1.87	0.84	0.25 - 3.25

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RESULTS

- Interpersonal trauma occurred at a higher rate in the present sample compared to other possible forms of trauma experiences (i.e., natural disaster, injury due to accident, life-threatening disease, etc.).
- Among those that endorsed a trauma, intrusion symptoms, avoidance symptoms, and negative alterations in cognition/mood occured 1-2 days per week following the trauma.
- Hyperarousal symptoms were reported as occurring less than 1-2 days per week following the trauma.
- A great deal of variability exists within the sample across all PTSD symptom clusters, such that some participants endorsed no symptoms and others endorsed experiencing most symptoms most days.

DISCUSSION

- This research is beneficial in that it adds to the minimal amount of research on adolescents in substance use treatment who display trauma symptomatology.
- Although some differences in frequencies of symptom clusters appeared, these differences were not tested due to low power. Future research should investigate if there are significant differences in frequency of trauma symptoms across reported symptom clusters.
- Conclusions and generalizability to other treatment-involved adolescents are limited, given the small sample size. However, this preliminary research supports the use of trauma-informed care in substance use treatment for adolescents.

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*Detailed reference list provided upon request.

Peer Use and Social Support in an Adolescent Inpatient Substance Use Treatment Population

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INTRODUCTION

- Poor peer social support (Hussong, Hicks, Levy, & Curran, 2001) and increased peer substance use (Wills, Sandy, Yaeger, Cleary, & Shinar, 2001) are risk factors for adolescent substance use and misuse.
- Little research has examined the factors contributing to sustained recovery among adolescents in inpatient substance use treatment.
- Peers become increasingly important sources of support during the adolescent years, yet family support remains significant (Furman & Buhrmester, 1992).
- Research has shown that rates of recovery in adolescents decreased significantly over the past four decades, with two-thirds of adolescents relapsing once they enter recovery (White, 2012).
- Therefore, understanding modifiable environmental risk factors may be important for improving treatment outcomes.
- The current study was developed from a larger study of risk and protective factors for teens in addictions treatment. We examined the presence of social support and peer use as potential modifiable risk factors for adolescent substance use in an inpatient treatment population.

METHOD

Participants

- 33 adolescents in treatment at an addiction treatment facility
- 66.7% Male, 33.3% Female
- 87.9% Caucasian
- Ages 13-18 (*M*=16.71, SD=1.313)

Measures

Adolescents completed the following questionnaires:

- Multidimensional Scale of Perceived Social Support (Zimet et al, 1988)
- Peer Substance Use and Tolerance of Substance Use Questionnaire (Curran et al., 1997)
- Demographics Form prepared for this study

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DESCRIPTIVE ANALYSES

- See Table 1 for means and standard deviations and Figure 1 for mean social support from significant others, family, and friends.
- See Table 2 for means and standard deviations and Figure 2 for mean peer marijuana and other drug use.

Table 1. Means & Standard Deviations

Variable	Mean	Standard Deviation
Peer Use	2.82	1.09
Significant Other Suport	5.31	1.54
Family Support	5.21	1.83
Friend Support	5.13	1.89

Figure 1

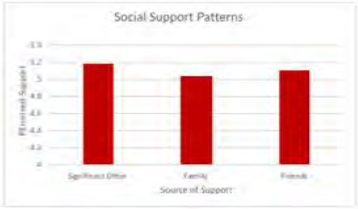
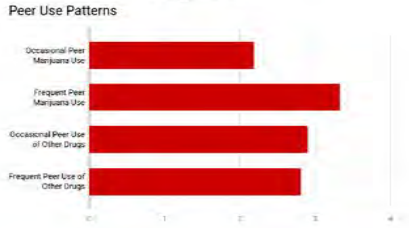


Table 2

Variable	Mean	Standard Deviation
Occasional Peer Marijuana Use	2.19	1.57
Frequent Peer Marijuana Use	3.33	1.59
Occasional Peer Use of Other Substances	2.90	1.59
Frequent Peer Use of Other Substances	2.81	1.69

Figure 2



RESULTS

- Participants reported moderate social support from a significant other (*M*=5.31, *SD*=1.54), family (*M*=5.21, *SD*=1.83), and friends (*M*=5.13, *SD*=1.89).
- Some to many of their friends also used substances (*M*=2.82, *SD*=1.09).
- Some of those friends smoked marijuana occasionally (*M*=2.19, *SD*=1.57), and many of those friends smoked marijuana frequently (*M*=3.33, *SD*=1.59).
- Only a few to some friends used other substances occasionally (*M*=2.90, *SD*=1.58) or regularly (*M*=2.81, *SD*=1.69).

DISCUSSION

- These results suggest that while the adolescents sampled have moderate social support, their peer groups tended to include peers that also used substances.
- Most reported having social support from a variety of individuals in their lives, which is a protective factor for adolescent substance use, and may therefore contribute to an increased chance of successful recovery.
- Once out of treatment, adolescents may be encouraged to stay away from situations that involve substances in order to prevent relapse. This may lead to choosing between their existing social support network and maintaining their recovery.
- Future research should examine the relationship between social support and peer use as a potential barrier to recovery.

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Traits and Strategies Related to Eating Behavior

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INTRODUCTION

- It is commonly accepted that diet plays a role in overall health.
- As such, understanding how to target eating behavior, and various factors that influence it, is one important way to improve the overall health of the general population.
- In recent years, emotion regulation strategies, particularly emotional suppression, have been implicated as a significant factor that influences the consumption of high-fat food (Evers, Marijn Stok, and de Ridder, 2010; Ferrer et al., 2017).
- These findings beg the question of whether there is a trait that may reduce the use of suppression, and thus, result in healthier eating habits.
- Self-compassion involves allowing oneself to nonjudgmentally feel negative emotions and pain, rather than avoiding or suppressing them (Neff, 2003a).
- The primary aim of this study is to understand the relationship between self-compassion, emotional suppression, and eating behavior.
- Self-compassion was investigated as a trait that may result in lower use of emotional suppression as an emotion regulation strategy, and ultimately the chronic consumption of high-fat food that results in dietary imbalance.

METHOD

Participants

- 157 undergraduate students recruited from a university
- Ages 18-26 (M=19.54, SD=1.34)
- 3.9% males, 96.1% females
- 83.1% Caucasian, 16.9% minority status
- 77.1% not adhering to a special diet

Measures

Participants completed the following questionnaires:

- Self-Compassion Scale – Likert Scale (Neff, 2003b)
- Emotion Regulation Questionnaire – Likert Scale (Gross & John, 2003)
- Positive and Negative Affect Schedule – Likert Scale (Watson, Clark, & Tellegen, 1988)
- Demographics Form & Food Diary prepared for this study
  - Food diaries were coded to obtain total high-fat food consumption in a 24-hour period

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DESCRIPTIVE ANALYSES

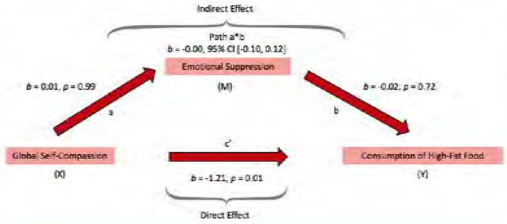
- See Table 1 for means and standard deviations of self-compassion, emotional suppression, and high-fat consumption (in grams).
- High self-compassion scores indicate more self-compassion.
- High emotional suppression scores indicate more emotional suppression.

Table 1. Mean reported self-compassion, emotional suppression, & high-fat consumption

Variable	Mean	Standard Deviation	Scale
Self-Compassion	2.82	0.62	0 - 5
Emotional Suppression	15.53	5.26	0 - 28
High-Fat Consumption	55.18 (g)	54.56	0 - 458.22*

*Scale represent actual high-fat consumption scores (in grams)

Figure 1. Model of global self-compassion as a predictor of consumption of high-fat food, mediated by emotional suppression



RESULTS

- See Figure 1 for simple mediation model.
- Self-compassion was not a significant predictor of emotional suppression (b = 0.01, p = 0.99).
- Emotional suppression was not a significant predictor of consumption of high-fat food (b = -0.02, p = 0.72).
- There was a significant direct effect between self-compassion and consumption of high-fat food (b = -1.21, p = 0.01), however there was not a significant indirect effect of self-compassion on consumption of high-fat food through emotional suppression (b = -0.00, CI [-0.10, 0.12]).
- Gender, reappraisal, and negative mood were entered into the model as covariates.
  - Gender was a significant predictor of emotional suppression (b = -5.52, p = 0.01).
  - Reappraisal (b = 0.08, p < 0.05) and negative mood (b = -0.07, p = 0.03) were significant predictors of consumption of high-fat food.

POST-HOC ANALYSIS

- Post-hoc analyses were conducted in order to further explore the relationship between self-compassion and consumption of high-fat food.
- There was a significant negative correlation between consumption of high-fat food and self-kindness (r = -0.14, p < 0.05) and mindfulness (r = -0.17, p = 0.02).

DISCUSSION

- Individuals who had higher levels of self-compassion consumed significantly less high-fat food than individuals with lower levels of self-compassion.
- This relationship, however, was not mediated by emotional suppression.
- Self-compassion did not demonstrate a significant relationship with emotional suppression, which is surprising given that an inherent aspect of self-compassion is allowing oneself to feel negative emotions (Neff, 2003a).
- Similarly, emotional suppression was not a significant predictor of consumption of high-fat food, which is in contrast to Evers and colleagues' (2010) findings, but in line with previous findings (Butler, Young, & Randall, 2010).
- Post-hoc analyses revealed that the elements of self-compassion most related to consumption of high-fat food were one's level of self-kindness and mindfulness.
- These findings are beneficial in that they add to the limited research regarding self-compassion and eating behavior in the general population.
- Future research should aim to explore and better understand the mechanism by which self-compassion impacts eating behavior.

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"Eating Disorder Emphasis Program for Clinical Psychology Doctoral Programs"

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Abstract

Eating disorders are serious mental illnesses with dangerous health consequences, including death. Individuals with eating disorders require specialized care and treatment from a team of health professionals working together to assess and treat complex medical, nutritional, and psychological needs. Mental health professionals must possess a specialized level of skill and knowledge to treat individuals with eating disorders safely and effectively. There is a need in the field of clinical psychology for more psychologists specializing in the treatment of eating disorders. Research was conducted to determine if an education program in eating disorders existed at the doctoral level of study in clinical psychology. Because such a program did not exist, a program intending to provide this education and training was developed.

Introduction

Eating disorders are complex psychological disorders with potentially devastating physical consequences, including premature death. The specialized knowledge and skills for treating eating disorders are often outside the scope of basic therapist training (Spotts-De Lazzer & Muhlheim, 2016). Clinicians without sufficient education and training in eating disorders may be unaware of the biopsychosocial effects of starvation and may not attend to the nutritional aspects of treatment (Kaplan & Garfinkel, 1999). Graduate training opportunities in eating disorders have been described as "insufficient and inadequate" (Wilson, Grilo, & Vitousek, 2007). The need for more mental health practitioners specializing in eating disorders is evident but no training programs are currently being offered in clinical psychology doctoral programs to address this need. The seriousness of eating disorders as psychological disorders, including potential physical consequences, necessitates a scope of competence (Spotts-De Lazzer & Muhlheim, 2016) that generally requires additional training beyond the clinical psychology doctoral degree. For these reasons, the development of an Emphasis in eating disorders is justified and necessary for clinical psychology doctoral programs.

Method

Description of Data Sources: Primary and secondary sources were obtained and examined as part of the literature review. Databases examined in the literature review allowed for the compilation of information relevant to the fields of psychology, counseling, education, social work, and medicine. Utilizing multiple search criteria over multiple databases, relevant sources of information were compiled and examined.

Procedures:

- Studied information from the *Insider's Guide to Graduate Programs in Clinical and Counseling Psychology* (Norcross & Sayette, 2016).
- Consulted with experts in the treatment of eating disorders to obtain input on the various components of the program.
- Obtained and studied scholarly resources and information from various eating disorder professional organizations to develop a strong core curriculum for the eating disorder courses that are a required component of the program.

Results

PROGRAM COMPONENTS

Instructor Preface: Provides an introduction to the program and lists the required components (four core courses in the area of eating disorders and two required clinical practica) plus optional but recommended program components.

Program Objectives:

- Strong knowledge base of eating disorders & understanding of the complexities of eating disorders.
- Appreciation for the multidisciplinary treatment model for eating disorders.
- Comprehension of the medical risks and complications of eating disorders.
- Strong grasp of the nutritional aspects of eating disorders and the role of nutrition in treatment.
- Ability to assess and treat patients with eating disorders under the supervision of a licensed clinical psychologist who specializes in treating eating disorders.

Results

Pre- and Post-Evaluations: To assess knowledge and skills of program participants prior to starting and upon completion of the emphasis program.

Program Satisfaction Survey: To assess participants' overall experience of the various program components.

Four Required Core Courses:

Practicum: Emphasis requires two supervised field experiences at approved placement sites over the course of two academic years. Students must complete a minimum of 500 of their required total practicum hours in working with patients with disordered eating and/or eating disorder concerns. At least 40% or 200 hours must be direct patient contact by way of assessment, intake/structured interview, individual therapy, and group therapy services.

Research: Optional but recommended dissertation or other research project in eating disorders.

Outreach and Prevention: Optional but recommended outreach and prevention activities directly related to eating disorders.

Professional Memberships and Training Opportunities: Optional but recommended membership with APA and iaedp.

Competency Benchmarks: Recommended benchmarks for evaluating competencies in eating disorders for program participants.

Resource List for Program Directors and Instructors: Recommended books, articles, video and multimedia, and websites.

Discussion

A summary and interpretation of the findings of the study are discussed. Discussion includes details of how all the components of the emphasis in eating disorders program were developed. The program was developed using the APA CRSPPP doctoral emphasis requirements as a starting point. The program that was developed represents a unique contribution to the literature and one in which future studies may build upon. Limitations of the program and study were identified and discussed. Future directions for research could include implementation and evaluation of the emphasis in eating disorders program. Another potential future direction for research would be to modify the program so it could be offered inter-professionally.

Analysis of GeneSight Use in Family Medicine Clinic

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Abstract

Background: GeneSight is a form of pharmacogenomic testing that, according to the manufacturer, analyzes the patient's genetic profile with respect to metabolism of various psychotropic medications. We analyzed the efficacy and utility of GeneSight testing within our primary care clinic population for management of mood, anxiety, and psychotic disorders.
Method: The GeneSight database was queried for all testing ordered by our primary care clinic. Chart audits were then done on each of those patients to determine whether changes were made to their medication regimen based on the GeneSight report and whether those changes led to improvement in their mood, anxiety, or psychotic symptoms.
Results: Chart review showed limited documentation of objective assessments, subjective assessments were inconclusive. Medication changes were made in most cases and were generally concordant with recommendations.
Conclusions: Greater utilization of objective measures would likely help consistency of care. Analysis of GeneSight efficacy was hampered by scant use of objective measures of symptoms, small sample size and limited documentation. No statistically significant conclusions could be drawn from data.

Introduction

Mental health disorders are the leading cause of disability in the United States. The burden of treating these mental health disorders has fallen on primary care providers. Pharmacotherapy and psychotherapy are the primary treatment modalities utilized by primary care providers in the management of mental health disorders. GeneSight is a form of pharmacogenomic testing that, according to the manufacturer, utilizes the patient's own genetic profile to help guide medication selection to treat mental health disorders like anxiety and depression for primary care providers. A search of the existing literature on studies of this pharmacogenomic test revealed that all of the studies we found in the literature to date were sponsored (either directly or indirectly) by the test manufacturers. We wanted to perform an independent assessment of the clinical utility of this test.

Methods

Subjects: 28 total patients at Community Group Family Medicine who have already had this testing done. Consent for testing was given at the time of sample collection (prior to this study). Testing was all done from a time period of 2/15/18 to 12/19/18.
Design: This study was a retrospective analysis of patients from our clinic who have already been tested using the GeneSight test, to assess whether the testing led to change in medical management and improvement in symptoms.
Description: The database at genesight.com was queried for all GeneSight tests ordered by our clinic. A chart audit form was then used to collect basic clinical information on each of the patients tested, including prior medication usage, prior psychiatric diagnoses, subsequent psychoactive medication changes and response to those changes. These forms were then analyzed and abstracted in a de-identified fashion.

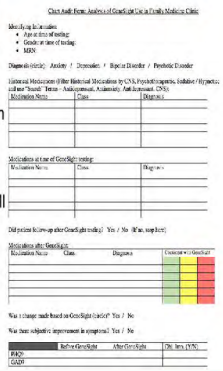


Chart Audit Form: Analysis of GeneSight Use in Family Medicine Clinic

Identifying Information
- Age at time of testing:
- Gender at time of testing:
- MRN:

Diagnosis (circle): Anxiety / Depression / Bipolar Disorder / Psychotic Disorder

Medications at time of GeneSight testing:

Medication Name	Class	Diagnosis

Did patient follow-up after GeneSight testing? Yes / No (If no, stop here)

Medications after GeneSight:

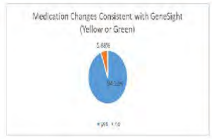
Medication Name	Class	Diagnosis	Continue = / Genesight

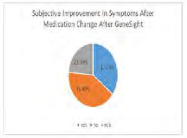
Was a change made based on GeneSight results? Yes / No

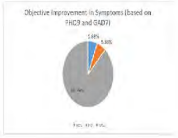
Was there subjective improvement in symptoms? Yes / No

	Before GeneSight	After GeneSight	Dx. Imp. (Y/N)
PHQ9			
GAD7			

Results







Discussion

GeneSight testing appeared to help guide changes in medication choices for patients, but the outcomes of those changes were limited in the study. Limitations include small sample size, patients lost to follow up, and lack of data before and/or after medication changes. After GeneSight testing, 71% of the patients received medication changes and 94.12% of those patients' physicians made medication changes to medications in the Yellow or Green category. 35.29% of patients revealed subjective improvement in their symptoms after medication changes, but 41.18% did not have any improvement and 23.53% of the patients did not have any reported data. Only 2 patients (11.76%) had a PHQ9 done before and after the medication change. Of thos, 1 patient showed objective improvement based on a decrease in PHQ9 score while 1 patient showed worsening symptoms.

Conclusions

Pharmacogenomic testing offers promise for patients who have not responded well to multiple psychiatric medications. Based on this small study, it is unclear whether medication changes guided by GeneSight pharmacogenomic testing benefitted these clinic patients. Greater use of objective evaluation tools would better facilitate determination of test effectiveness.

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Fifth Metatarsal Base Fractures: A Literature Review of Treatment Options

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Abstract

INTRODUCTION: Fifth metatarsal base fractures are one of the most common injuries of the foot. There are several treatment options of these fractures based on fracture pattern and patient activity level. There have been numerous classifications used to help distinguish severity of the fracture and the potential patient outcomes with operative vs. non-operative treatments. Most commonly, these fractures are divided into 3 anatomical zones which help direct care and bring to light potential healing complications. We will discuss each of these zones and describe treatment options for each.

PURPOSE: The purpose of this literature review was to describe the different types of fifth metatarsal base fractures, review the treatment options of each fracture type and bring focus to the most recent literature describing differing surgical techniques.

METHOD: Information was compiled from a well-known foot and ankle surgical textbook as well as a PubMed search for relevant articles published on the subject within the last 5 years.

RESULTS: There are three main zones of fifth metatarsal fractures and each have multiple fixation options including bicortical vs intramedullary screw, tension band wiring, plating, or use of a suture anchor. Despite these numerous options, literature shows a tendency towards the use of a screw or plate.

CONCLUSION: There are numerous factors involved when treating fifth metatarsal base fractures, however, when analyzing the available literature there appears to be a trend towards fixation of these fractures with either an intramedullary screw or a hook plate. Despite the numerous other fixation options these two choices appear to be the most often used treatments.

Classifications

STEWART CLASSIFICATION

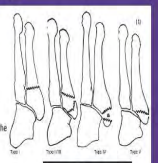
Type 1 – True Jones fracture with fracture occurring at the metaphyseal-diaphyseal junction, approx. 1 cm from joint
MOI: adduction or internal rotation of the forefoot

Type 2 – Intra-articular fracture with the fracture line involving the cubo-metatarsal joint
MOI: typically shear force, resulting from the contraction of the peroneus brevis

Type 3 *(most common)*– Avulsion fracture of styloid process from the pull of the peroneus brevis and/or lateral band of the plantar fascia

Type 4 – Comminuted intra-articular fracture, typically from a crush injury

Type 5 – Partial avulsion of epiphysis. Salter Harris type 1 fracture going longitudinally through the epiphysis.



TORG CLASSIFICATION

Classification is based on the degree of sclerosis adjacent to the fracture on imaging at the time of presentation to determine the fracture age.

Type	Acuity	Radiographic Findings
1	Acute	Narrow lytic w/o intra-medullary sclerosis
2	Delayed Union	Widened lx line with intra-medullary sclerosis
3	Non-union	Complete sclerotic obliteration of the intra-medullary canal

LAWRENCE & BOTTE CLASSIFICATION

Division of the 5th metatarsal base into zones.
Viewed as the most simplified and useful classification system.

3 types of fractures based on zone of injury:

ZONE 1 → Avulsion fracture
ZONE 2 → Jones fracture
ZONE 3 → Proximal diaphyseal fracture

Literature Review

Zone 1 – Avulsion Fracture

This fracture pattern is common in inversion ankle injuries due to the pull of peroneus brevis and/or lateral band of plantar fascia.

For non-displaced fracture:
- Can be treated conservatively
- WBAT in stiff-soled shoe or walking boot for 4-6 wks, area may be sore for 6 months

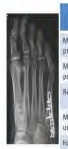
For fractures with displacement >2mm, joint involvement of >30%, comminution, or previous nonunion (rare-> 0.5-1%):
Surgical correction is recommended, several fixation options exist including: bicortical screw, intramedullary screw, tension band wiring, plate, or suture anchor.

Bicortical Screw:
3.0 to 4.0 mm cortical

Intramedullary Screw:
-requires a large enough fragment
-4.5 to 5.5 mm cannulated

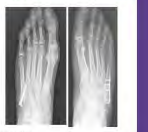
Tension band wiring:
2 K-wires, stainless steel wire

Hook Plate vs. Screw:
Kim et al performed a retrospective study comparing headless cannulated screw fixation vs distal ulna hook plate fixation. Mean follow up time was 13 months.
Conclusion was that bony union was confirmed without complication with both the headless cannulated screw and locking compression distal ulna plate. However, the time to union was shorter and the reduction distance was significant in the plate group leading them to believe the plate may have more compressive force than the screw.

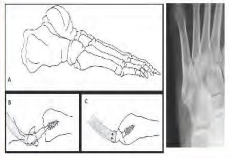


	3.0 cannulated screw n=15	Hook plate n = 15
Mean diastasis pre-op	3.4 ± 0.8 mm	4.5 ± 1.6 mm
Mean diastasis post-op	0.3 ± 0.4 mm	0.06 ± 0.2 mm
Reduction distance	2.9 ± 1.0 mm	4.1 ± 1.6mm
Mean interval to union	7.8 wks	5.9 wks
Hardware removal	0	4

Xie et al performed a retrospective study comparing locking compression distal ulna hook plate fixation and intramedullary screw fixation. 18 patients received hook plate fixation and 15 patients received IM screw. Follow up time was 12 months.
Time for surgery, time to partial and full weightbearing, and time to union were less for the plate fixation group. AOFAS at 9 & 12 months were also higher in the plate fixation group.
"LCP distal ulna plate fixation is an alternative fixation method & better therapy for the displaced avulsion fracture than the IME fixation."



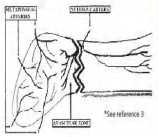
Suture Anchor:
Hong et al presented a small case series of 4 patients with comminuted tuberosity avulsion fx with >5mm of linear or rotational displacement. The fracture was fixated with a double loaded 5.5mm suture anchor.
Post operative course involved: NWB 2 wks postior splint, WB in walking boot 4 wks + ROM at 3 wks, WB in shoe at 6 wks + strength. All patients returned to preinjury level at 3 months. No failed fixation at 1 yr.
This innovative technique for displaced comminuted fragments allowed for early rehab and showed good results without need for removal of prominent hardware.



Zone 2 - Jones Fracture

- These fractures result most often from an inversion force to a plantarflexed foot
- Within this zone there lies a "watershed" area or area of decreased vascularity. The non-union rate within this zone has been reported at 25%-30% with conservative treatment.
- Delayed union has been reported as high as 67% and re-fracture rate of 61%.

Surgical correction is recommended to avoid the lengthy & inconsistent healing seen with conservative treatment

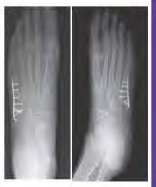


*See reference 3

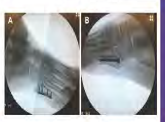
Fixation options...

Intramedullary Screw
-most commonly used fixation technique
- Scott et al performed a cadaveric study in 2015 (n=20) to determine the avg. intraosseous diameter for screw selection. They concluded a 6.5mm cannulated screw in the narrowest diameter zone may can be used to obtain adequate purchase. However, they recommend to "select the largest diameter screw that will achieve the maximal interface with the dense cortical bone in both the medial-lateral & dorsal-plantar plane."

Distal Ulna Hook Plate
Lee et al evaluated the use of a locking compression distal ulna hook plate as an alternative fixation method. Within this study 12 patient had a Zone 1 fracture, 7 pts had a Zone 2 fracture. Mean follow up period was 9 months. Fracture union was obtained at a mean of 7.4 weeks. One patient had a delayed union which healed at 16 wks with an additional NWB period. Mean AOFAS improved from 26 to 94 and 2 of 19 patients experienced arthritic changes with pain. All study patients returned to regular sports & daily activities at an average of 11.2 weeks.
Conclusion: LCP distal hook plate is an accessible & alternative method to provide stable & stable reduction of comminuted, osteoporotic, or avulsion fracture of the 5th met base



Lateral Plate
Duplantier et al performed a biomechanical comparison study of a lateral plate vs intramedullary screw. This was a cadaveric study with 24 specimen. An osteotomy was created to simulate a Jones fracture. Within the plate group a 3.0mm 4-hole low profile plate was placed plantar-laterally with 3 locking & 1 nonlocking screw. For the screw only group a 40-45mm x 5.5 mm partially threaded solid intramedullary screw was used. Cyclic testing was performed with increasing 5 lbs. force increments per 10 cycles until implant or bone failure.
Plate fixation showed higher cycles to failure (69 vs. 37), higher peak failure load (159 N vs. 97 N), and lower gap width. (0 mm vs 3.2mm).
Conclusion: Plantar-lateral plating may supply more rigid fixation to the fractured site & warrants clinical outcome studies.



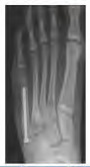
Zone 3 - Proximal Shaft Fracture

These fractures are most often stress fractures from repetitive microtrauma and are often grouped with Zone 2 fractures due to similar outcomes.

Conservative treatment → immobilize & NWB
-conservative care can be attempted in lower demand patients
-risk of nonunion up to 30%, re-fracture up to 50%

Operative treatment → intramedullary screw fixation
-best option for all active patients, allows for earlier return to sport
-however, due to continued stress to this area non-unions & re-fractures can still occur even after fixation

Mallee et al performed a literature review in 2015 which showed across 246 cases surgical repair saw a 4.6% nonunion rate and 6.9% re-fracture rate. These values were less than those treated conservatively which experienced a non-union rate of 7.1% and re-fracture rate of 17.9%.



	Conservative	Surgical
Return to sport	19.2 wks	13.8 wks
Non-union	7.1%	4.6%
Re-fracture	17.9%	6.9%

Conclusion

ZONE 1 fracture →
If fracture is non-displaced : conservative therapy does well
If fracture is displaced: there are many fixation options available
- Intramedullary screw is most commonly the fixation technique of choice.
- Hook plate is often used if fracture is comminuted or bone is osteoporotic.

ZONE 2 fracture →
Surgical correction provides the best outcome
- Intramedullary screw is the most commonly used fixation technique.
- However, plating is also a viable treatment option. Hook plate tends to be favored over lateral straight plates.

ZONE 3 fracture →
Treatment may depend on activity level of patient
- Conservative care for lower demand patients
- Surgical fixation for more active patients. Most commonly fixated with intramedullary screw.

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