Zeigler Research Forum 2023

College of Nursing and Health Sciences

May 10, 2023

8:00 AM – 12:15 PM

Grand Maple Ballroom & Livak Fireplace Lounge

Davis Center

Schedule of Events

Keynote Address

Departmental Mini-Talks

Poster Presentations at a Glance

Poster Abstracts

Schedule of Events

8:00-8:45 a.m. – Breakfast and Poster Set-Up

8:45-9:45 a.m. – Opening Remarks and Keynote

9:45-11:00 a.m. – Poster Session

11:00 a.m. – Departmental Mini-Talks

12:00 p.m. – Awards and Closing Remarks

Keynote Address

LETTING THE GINI OUT OF THE BOTTLE – HOW INCOME INEQUALITY HARMS POPULATION HEALTH

KEYNOTE SPEAKER: Dr. Ichiro Kawachi

Ichiro Kawachi, MB.Ch.B., Ph.D.

John L. Loeb and Frances Lehman Loeb Professor of Social Epidemiology Social & Behavioral Sciences Department, Harvard T.H. Chan School of Public Health, Boston, USA

Ichiro Kawachi received his medical degree and Ph.D. (in epidemiology) from the University of Otago, New Zealand. He has taught at the Harvard School of Public Health since 1992. His research focuses on the social determinants of health and health equity. Kawachi is the co-editor (with Lisa Berkman) of the textbook *Social Epidemiology*, published by Oxford University Press in 2000 (new & revised edition with Maria Glymour and Lisa Berkman published in 2014). His other books include *Behavioral Economics and Public Health* (with Christina Roberto, Oxford University Press, 2015) and *Neighborhoods and Health* (2nd edition, Oxford University Press, with Dustin Duncan 2018). *The Social Epidemiology of the COVID-19 Pandemic* is forthcoming in 2023 (Oxford University Press, with Dustin Duncan and Stephen Morse). Kawachi is an editor of the American Journal of Epidemiology and served for 10 years as Editor-in-Chief of Social Science & Medicine. He is an elected member of the US National Academy of Medicine, and an elected Honorary Fellow of the Royal Society of New Zealand. He received an honorary Doctor of Science from the Australian National University in 2019.

Departmental Mini-Talks

Biomedical and Health Sciences

- **Presenter: Bikki Tran Smith, PhD, MA; Assistant Professor**
Picturing access: The experiences of Afghan refugees in navigating healthcare and health resources access in rural and small-town resettlement communities in Vermont

Communication Sciences and Disorders

- **Presenter: Kathryn Fagan, B.S.; MS Student**
The Development and Pilot of a Broadband Caregiver-Informant Measure of Autobiographical Memory

Nursing

- **Presenter: Elise Tarbi, PhD, MBE, APRN; Assistant Professor**
Improving Communication During Serious Illness: Taking A Basic Science Approach

Rehabilitation and Movement Sciences

- **Presenter: Timothy Tourville, PhD, ATC; Associate Professor**
Longitudinal Evaluation of Thigh Muscle Adaptations Following ACL Reconstruction

Posters at a Glance

Nursing

Livak Fireplace Lounge and Grand Maple Ballroom, poster numbers 1-31

Biomedical and Health Sciences

Grand Maple Ballroom, poster numbers 32-53

Communication Sciences and Disorders

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Rehabilitation and Movement Science

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Nursing

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3	Chimienti, J, N	Improving Access to Contraception in a Treatment Program for Opioid Use Disorder
4	Teal L Church	Increasing Access to a Primary Care Free Clinic
5	Crouch, K, M	A Metaphorical Analysis of Autistic Meltdowns & Shutdowns
6	Dorsey, H. A.	The bundle approach: A quality improvement project aimed to reduce clinically insignificant alarms
7	Fedorka, L, A	Community Transitions of Care for Hospital Readmission Prevention
8	Head, C, R	Increasing Provider Use of the Family Media Plan for Patients Ages 2-5
9	Heller, M.D.; Martin, L.; Buck-Rolland, C.	Screening and Referrals for Perinatal Mood and Anxiety Disorders for Caregivers of Infants in the Pediatric Setting
10	Irizarry, P, R	Increasing patient acceptance and utilization of the hospice interdisciplinary team
11	Kenley, Grace, E	Implementing Social Determinants of Health Screening Post Emergency Department Discharge
12	Hanoune Langston, A, J	Epilepsy Education for New Female Patients
13	Mahoney, C., Carbone, J. & Lewis, L. F.	Understanding Stakeholders' Views on Autism Research
14	Malcolm, C.	Closing the Communication Gap Between Urgent and Primary Care During Patient Care Transitions
15	Miller, E. A.	Examining the Feasibility of Integrating an Alcohol Detoxification Protocol within Primary Care
16	Morgan, Kristin	Improving Communication Between Community Care Settings and Primary Care

Nursing

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18	Parent, A., B. & Aitken, M.	Integrating a functional assessment tool for chronic pain in primary care
19	Peck, E, G	Understanding Pediatric Obesity Management in Rural Primary Care
20	Perchemlides, M. A.	Efficient Diet Management in Primary Care
21	Ray, N.T., Pelski, J., & Delaney, T. V.	Intentional Self-Poisoning Prevention: A Feasibility Analysis in Pediatric Primary Care
22	Rumley, K. J.; Lewis, L. C.	Improving Access to Gender-Affirming Care by Creating a New Patient Welcome Packet
23	Saghari, Soheila, L	Implementing a Reminiscence Therapy Program for Older Adults in Assisted Living
24	Shepard, P	Optimizing Clinician Confidence & Competence in Monitoring Patient Use of Continuous Glucose Monitors
25	Singh, Maara; Garbarino, Jason; Wageman, Kate	Increasing the Completion Rate of Advance Directives in Primary Care
26	Steenbeek, S. V., Laurent, J., Morgan, K.	Improving Care Coordination for Children with Attention-Deficit/Hyperactivity Disorder
27	Tjong, Jessica H	Improving the Process of Latent Tuberculosis for New Americans
28	Leila Ziad	Reducing Screen Time in Adolescents
29	Grimm, K., E.	Evaluating Methadone Induction Guidelines in People Who Use Fentanyl
30	Knakal, Meaghan E	Implementing the TCARE® Protocol to Screen Informal Caregivers at a Memory Program
31	Monforte, K.T.	Examining and Improving Active Learning Strategies in an Undergraduate Nursing Curriculum

Biomedical and Health Sciences

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35	Argentieri, C., Buerkett, A., Zehnacker, L.	Determining Eating Disorder Prevalence for Prevention Programs at UVM
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39	Doiron, A.P., Daci, E.E.	Fresh Produce Program
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50	Palaza, A. E.	Characteristics of Informal Caregivers and Social Participation of People with Dementia
51	Pencek, J, M	UVM Capstone Poster: Mass Incarceration as a Public Health Issue
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53	Whitney, Kristin, M, Palaza, Abby, E & Pelletier, T, Lauren	Art on the Road

Communication Sciences and Disorders

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55	Grenon, K., Dooley, S., Olszko, A., Cannizzaro, M., Jangraw, D.	Conversation in the Wild: Automating Analysis for Cognitive-Communication Impairments
56	Hempel, L,C, Velleman, S, Abbiati, C	Understanding the Psychsocial Impacts of Childhood Apraxia of Speech in Adolescents
57	Hemsted, E & Michaud, J	The Effects of Primary Caregiver Education on Preterm Born Children's Standardized Language Scores
58	Norton, M. J.	Sex-based differences on the Autism Diagnostic Observation Schedule in children under 6
59	Panganiban, B. & Stuart, B.	Cross-linguistic transfer effects of language intervention in L2 to L1 for linguistically diverse children: A systematic review
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Rehabilitation and Movement Sciences

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67	Bloch, T, A; Dee, J, M; Sargent, E; Wingood, M; O'Brien, S, E; Dee, M, C; Tschoepe, B, A; Gell, N, M.	Mobile Technology to Support Physical Therapist Exercise Prescription for People with Osteoarthritis: A Pilot RCT
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Rehabilitation and Movement Sciences

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73	Bae, M., Mcclure, C., Ligon, A., Vannostrand, M., Kasser, S.	Differences in self-efficacy for community-mobility, falls efficacy, and dual-task mobility across non-fallers, one-time fallers, and frequent fallers in adults with multiple sclerosis
74	Smith, A, M., Caudill, A, D.	Quality of life in people with intellectual and developmental disabilities and their care partners: Assessing how geographic barriers in a rural state affects resource needs and community integration
75	Freitas, E.	Validity of a Telerehabilitation Physical Therapy Examination in an Ambulatory Setting
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Poster Abstracts

Nursing

1. **Integrating Primary Care in Baccalaureate Nursing.** *Burnham, T. J.*
Background: Registered Nurses (RNs) with expertise in primary care are essential to improve health outcomes and quality of care in areas such as chronic disease management, transitional care management, and preventive care. However, primary care didactic and experiential learning are lacking in many baccalaureate nursing programs.
Purpose: To enhance primary care integration into an undergraduate adult health nursing course, assess current primary care content in one baccalaureate program, and identify courses/key concepts needed for future primary care enhanced curriculum.
Methods: Primary care activities consisting of didactic and experiential learning were integrated into an adult health nursing course. Student self-efficacy was assessed, and students, faculty, and preceptors evaluated the integration. The curriculum was also evaluated by program faculty for comfort, feasibility, and presence of 32 primary care activities.
Results: Student (n=102) self-efficacy increased in the following primary care domains: transitions of care management (p=.023), care coordination (p=.002), triage (p <.001), and telehealth (p <.001). Clinical students (n=12) and preceptors (n=5) reported overall positive experiences with support for ongoing primary care curriculum. Clinical faculty focus group (n=4) and co-faculty (n=2) debriefing revealed themes of strengths, concerns, and suggestions for improvement. Activities most lacking within the curriculum were those unique to primary care, and activities most prevalent bridged to other facets of the program.
Conclusion: Primary care activities can be successfully integrated into existing courses and should include experiential learning. Implementation of the new Essentials provides an ideal time for further program integration of lacking primary care content.

2. **The Pediatric Well-being Action Plan: A Pilot Feasibility Assessment in Pediatric Primary Care.** *Charlson, J.L.*

   Mental health concerns among adolescents pose a significant public health challenge. The COVID-19 pandemic has increased feelings of depression, anxiety, social isolation, and maladaptive behaviors in this population. Vermont adolescent mental health data echo concerns at the national level and indicate an urgent need for early and continued intervention. To address this urgent need, professional societal guidelines recommend integration of mental health services in primary care. The overall aim of this Doctor of Nursing Practice (DNP) quality assessment project was to assess the feasibility of use of a mental health action plan for these purposes in a pediatric primary care setting. The Pediatric Well-being Action Plan (PWAP) is a novel strength-based tool developed for use in this population to identify coping skills and strategies during well-child care (WCC) visits and to provide additional tiered advice if increased symptoms of emotional distress are identified. During a four-week pilot, providers in 2 pediatric primary care clinics utilized the PWAP in all WCC visits for adolescents ages 11 - 18. Criteria for feasibility outcome included utilization success, useability, learnability, efficiency, effectiveness, and overall user satisfaction. Pre- and post-implementation provider surveys assessed provider impressions related to their experiences using the PWAP. Despite low utilization rates of the PWAP in WCC visits, survey results demonstrate overall ease of use, functionality, and provider satisfaction. Qualitative feedback suggests impact in clinical practice to prioritize mental health services during WCC visits. Further evaluation of the PWAP to include adolescent/family feedback in varied clinical settings is indicated for sustainability of use. Modification of the PWAP in the EHR to improve clinic workflow and design for a second pilot cycle to include pediatric resident physicians is ongoing. Future practice implications include utilization of the PWAP beyond the context of primary care.

3. **Improving Access to Contraception in a Treatment Program for Opioid Use Disorder.** *Chimienti, J, N*

   Background: Up to 80% of all pregnancies are unintended in pregnancy-capable individuals who are in treatment for opioid use disorder (OUD) (Meschke et al., 2018). This is higher than the national average and highlights a gap in care. Although the use of contraceptives and family

planning can decrease unintended pregnancy, they are used in less than 50% of pregnancy-capable individuals receiving medication for opioid use disorder (MOUD) (Melbostad et al., 2020). Pregnancy-capable individuals describe unique barriers to accessing contraception (Sobel et al., 2021). Co-location of family planning services in MOUD programs is one way to decrease barriers to care (Hurley et al., 2020).

Methods: This project developed and implemented a protocol that included screening, education, and treatment plans for family planning in pregnancy-capable individuals enrolled in a MOUD program in the Northeast of the United States. This protocol was integrated into follow-up visits during the 6-week implementation period. Outcomes of interest were collected through a patient eligibility survey, provider outcome survey, and patient satisfaction survey.

Results: Of the 52 scheduled clients, 21 participated in the eligibility survey. Four people were eligible for the intervention. All four eligible patients were engaged in contraception counseling with a provider. One participant received a prescription for oral contraceptive pills. No referrals were made to collaborating gynecological providers.

Conclusions: 81% ineligibility indicates low need for this service at this clinic currently. The workflow developed was successful since all eligible patients received counseling and one person received a new contraception method during the implementation period. Patient satisfaction with counseling was high, as indicated by the patient satisfaction survey.

4. **Increasing Access to a Primary Care Free Clinic.** *Teal L Church*
   Background: There is growing recognition that social determinants of health (SDoH)—the conditions in which people live, learn, work, play, and worship—can affect health and produce disparities (Thornton, 2016). The Nurse Navigator re-builds a connection between high needs patients and accessing healthcare. The Nurse Navigator intervention was designed to re-engage a historically underserved population in their healthcare by incorporating support for social determinants of health factors.
   Methods: A retrospective chart review and consult were performed with 107 patients either by phone or text outreach. 14 patients participated via phone or in person and 8 responded via text. 6 more people made preventative appointments from text outreach between January 2023 and April 2023. Participating patients fit the inclusion criteria of having a

diagnosis of diabetes, hypertension, or COPD. Utilizing the Plan-Do-Study-Act quality improvement methodology, a Nurse Navigator interviewed 22 patients who were willing to participate in determining gaps in patient knowledge, self-management, motivation for change, and knowledge of preventative screenings to increase follow-up care.

Results: One hundred seven patients met the selection criteria and were contacted for this intervention. Twenty-two participants agreed to the consultation. Twenty-two made follow-up care appointments out of those that were overall selected. The clinic saw an increase of 37% in attendance after the intervention. Target question scores are pending.

Conclusions: This project showed that a Nurse Navigator can facilitate follow-up care appointments for patients whose SDoH may be negatively impacting their health outcomes. This intervention also demonstrates the potential for re-engaging patients at a free clinic is possible through education and consultation with a Nurse Navigator. This project also allows some patients to realize a readiness to change. Initial pilot program results indicate potential and a need for further investigation due to the time limit and demographics for the project.

5. **A Metaphorical Analysis of Autistic Meltdowns & Shutdowns.** *Crouch, K, M*
Background: "Meltdowns" and "shutdowns" are common responses to dysregulation among autistic people. Little is known about how meltdowns and shutdowns are experienced by autistic people. Figurative language used by autistic people can offer rich insight into what this experience feels like for those living it.

Objectives: The purpose of this qualitative secondary data analysis was to identify the metaphors autistic individuals used to describe experiences of dysregulation, including meltdowns and shutdowns.

Methods: This study was conducted by a team of autistic and non-autistic people using a participatory action approach. We used the Pragglejaz Group's metaphor identification procedure to identify figurative language used to describe meltdowns and shutdowns by autistic individuals. Data were collected in two previous phenomenological studies exploring meltdowns (n = 32) and shutdowns (n = 26) for autistic adults, as well as a mixed methods survey study (n = 46). From our corpus of text (79 typed pages), we judged 696 lexical units to be used metaphorically. We sorted these into metaphors used most often by autistic adults to describe their meltdown and shutdown experiences.

Results: Eight metaphors emerged to describe the experience of meltdowns: a bomb exploding; something cracked; trying to escape; flipping my lid; a spammy pop-up; hitting my limit; going off-script; and animalistic survival. Six metaphors characterized the experience of shutdowns: being frozen; the blue screen of death; going inside myself like a snail; not keeping up with the world; running on autopilot; and feeling stuck.

Conclusions: These metaphors add a new voice for understanding autistic people's experiences of meltdowns. Our findings add to evidence about how autistic people use figurative speech in naturally occurring written expressive language. Finally, findings suggest that meltdowns and shutdowns each include internalized components, and distinguishing between types of dysregulation may be irrelevant to understanding the experience.

6. **The bundle approach: A quality improvement project aimed to reduce clinically insignificant alarms.** *Dorsey, H. A.*
Background and Objectives: Alarm fatigue in nurses is the top contributing factor in patient harm and death when looking at alarm related events. Too many alarm sounds lead to alarm fatigue, which can cause nursing staff to disable, ignore or miss alarm signals A delayed or no response to alarm signals compromises patient safety. Reducing alarm sounds is crucial to increasing patient safety and improving appropriate alarm response by the nurse. The purpose of this quality improvement project was to reduce alarm burden and alarm fatigue in nurses on an inpatient cardiology, telemetry unit.

Methods: Methods included clinical audits, surveys, Plan-Do-Study-Act cycles, educational interventions, and communication tools. Nurses were surveyed on alarm fatigue and knowledge regarding current practice and management of the telemetry system. The CEASE bundle, a nurse driven, group of interventions aimed to reduce telemetry alarms and alarm fatigue in nurses, was implemented.

Results: Post-implementation of this QI project, there was a 10% decrease in clinical alarms, a 56% increase in alarm management knowledge reported by nurses, and a 24% decrease in nurses reporting severe alarm fatigue.

Discussion: Nurses heavily rely on the telemetry system to alert them to life threatening changes in their patients' condition. Problems arise when

nurses are bombarded with too many alarm sounds. This project demonstrates that educating nurses and implementing a bundle of interventions can reduce alarm burden and fatigue in nurses. The design of this QI project is generalizable and can be replicated in populations of patients who are on telemetry. More research is needed to explore the complexities of nursing culture, technology, and standardizing practice regarding the telemetry system.

7. **Community Transitions of Care for Hospital Readmission Prevention.**
Fedorka, L, A
Background: Transitions of Care (TOC) occur whenever an individual moves from one healthcare setting to another. Older adults are higher utilizers of healthcare services, including inpatient and emergent visits, than the general population (Mattison, 2021), and thus experience more TOCs. Due to risk of poor outcomes at discharge from the hospital, rehospitalizations are a concern. Standardized TOC protocols have been shown to be beneficial in reducing rehospitalizations for this vulnerable population.
Purpose: Use current best practices to design and implement TOC for a rural community organization to reduce unintended rehospitalizations for older adults.
Methods: Best practices in TOC were assessed, formalized, and informed the intervention. Patients from three local hospitals were evaluated inpatient for TOC services. l. Registered nurses implemented TOC visits within 24-48 hours post discharge, and completed a in-home care plan with need for additional follow-up. Clients were followed for 60 days following discharge for any unintended hospital events.
Results: 31 patients were referred for TOC. 21 were deemed appropriate referrals and 9 (42%) consented to the TOC visit. 2 (22%) of those who received TOC had a hospital event within 60 days of discharge.
Conclusion: Implementation of TOC services post hospital discharge has a beneficial effect on reducing readmission and emergency visits for older adults in the short term

8. **Increasing Provider Use of the Family Media Plan for Patients Ages 2-5.**
Head, C, R
Background: Currently in the United States, 56.1% of preschoolers use over one hour a day screen time, exceeding time recommendations set by the

American Academy of Pediatrics (AAP) (Healthy People 2030, 2020). Excess screen use by preschoolers is detrimental to development, behavior, and increases the risk for obesity. The Family Media Plan (FMP) is an evidenced-based intervention developed by the AAP to reduce screen time use in pediatrics (Reid Chassiakos et al., 2016).

Purpose: To address preschoolers at risk for the overuse of screen time, this quality improvement project aimed to increase evidenced-based intervention for those ages 2-5 years old who use more than one hour a day of screen time.

Methods: At a pediatric clinic in New England, a standard intervention process for the introduction of the FMP was piloted for 2–5-year-olds. A one-page handout of the FMP was developed for providers and families to initiate the plan at well-child visits. Providers were surveyed before and after the intervention trial to evaluate provider practice in addressing screen time in preschoolers and to assess approval of the intervention.

Results: Prior to the implementation of the Family Media Plan intervention, no participating providers used an intervention to address screen time use in the preschooler population. After the intervention period, 80% of providers used the FMP intervention and planned to continue to use it in future practice.

Conclusion: The FMP intervention is appropriate for use in primary care setting to address the overuse of screen time in the preschool population.

9. **Screening and Referrals for Perinatal Mood and Anxiety Disorders for Caregivers of Infants in the Pediatric Setting.** *Heller, M.D. ; Martin, L. ; Buck-Rolland, C.*

Purpose: Perinatal mood and anxiety disorders (PMADs) are the most common obstetric complication. They create dysfunctional parent-infant relationships by dysregulating emotional responses, thus increasing the risk of child abuse/neglect, maternal suicide, and infanticide.

Local problem: The American Academy of Pediatrics (AAP) recommends screening caregivers for postpartum depression at well-child checks (WCC) before six months postpartum. National research indicates 60% of women at risk for developing PMADs don't receive subsequent mental health care. This project examined how expanding documentation of screening and referrals in the pediatric setting impacts identification and follow-up for PMADs.

Methods: A retrospective chart review was done at a pediatric practice in Vermont to identify the current process for PMAD screening and referrals during recommended WCCs. A standardized protocol for documenting screening and follow-up care was implemented for providers and an additional screening was added to the six-month WCC. A second retrospective chart review then assessed for improvements in screening and follow-up care. Data were reported descriptively as percentages in charts and graphs.

Results: Screening rates did not increase following the intervention due to a high overall baseline rate of 85%. Following expansion of the screening template there was an increase in the rate of documented follow-up plans from 50% of encounters to 86.7%.

Conclusions: Standardized documentation, screening, and follow-up for PMADs provides a framework for providers to address this sensitive topic. Posting information and resources around the office also raises awareness and normalizes PMADs. These actions augment early identification of PMADs and mitigate the effects on families.

10. **Increasing patient acceptance and utilization of the hospice interdisciplinary team.** *Irizarry, P, R*
Background: The core hospice interdisciplinary team consists of a nurse case manager, social worker, and spiritual care counselor. Including all these disciplines in the plan of care for hospice patients assists them in addressing most of their end-of-life needs including physical, psychosocial, and spiritual needs. Many patients at the site of this project were not utilizing the full interdisciplinary team. Objectives: 1) Identify barriers of patient acceptance of hospice social work and spiritual care services by January 15, 2023. 2) Increase patient acceptance of hospice social work and spiritual care services at start of care (first 7 days) by April 1, 2023. 3) Increase utilization of hospice social work and spiritual care services at end of life (last 7 days) by April 1, 2023. Methods: A staff survey and staff interviews were used to identify barriers. Joint admissions were introduced to increase acceptance of social work at start of care. An admission guide for nurses was created to help nurses introduce the hospice team. A daily voicemail update to the team was piloted with two nurses for patients imminently dying. Results: Barriers were identified and used to inform interventions. Patients were slightly more likely to accept a second visit from social work (77.8% vs 70.8%) if they had a joint admission.

Patients with a stay of 14 days or greater were more likely to accept a second visit from social work (81% vs 93.3%) if they had a joint admission. Joint admissions with nursing and social work increased to approximately 50%. There was no upward trend in visit rate in the last week of life during project. Discussion: Pending.

11. **Implementing Social Determinants of Health Screening Post Emergency Department Discharge.** *Kenley, Grace, E*

Purpose: Frequent emergency department use is defined as four or more visits a year. Individuals who frequent the emergency department often have social and health inequities, chronic illness, and live in rural settings. Healthcare complaints associated with frequent emergency department use can typically be managed in a primary care setting. Decreased emergency department use is a suspected outcome of addressing unmet social needs. Outcome measures utilized include: 1) number of individuals seen in the emergency department on a weekly basis; 2) how individuals were called by the site RN and then subsequently screened for unmet social needs; 3) identified unmet social needs; 4) number of follow-up visits scheduled with the patient's primary care provider; 5) nurses' perception of tools utilized.

Methods: Developed and implemented a conversation guide and social determinants of health screening decision tree to be used by nurses when contacted patients of a primary care clinic in the Northeastern United States recently seen in the emergency department. Data sets were analyzed using a run chart to compare pre and post intervention values.

Results: Compared to benchmarking data, there was an initial decrease in percentage of follow-up phone calls in the first PDSA cycle, followed by an increase in the second PDSA cycle. No individuals screened positive for unmet social needs. Staff found the script useful and allowed for a more direct conversation.

Conclusions: Recommendations for future practice include increased use of social determinants of health screening during routine office visits and continued inclusion of conversation script for nursing directed phone calls.

12. **Epilepsy Education for New Female Patients.** *Hanoune Langston, A, J*

Background: Medication interactions between anti-epileptic drugs and oral combination contraception place women with epilepsy at risk for seizures and unintended pregnancy. Significant numbers of patients in this

population are not educated about this risk and continue to take medications concurrently that interact.

Objectives: Develop an educational curriculum for recently diagnosed epilepsy patients of child-bearing potential. Implement telehealth educational program. Increase patient education levels via post-test knowledge scores through education.

Methods: At an academic medical center in Northeast America, patients who had a new patient visit with an epileptologist and met inclusion criteria were invited to participate in a telehealth educational intervention. Inclusion criteria included capacity for pregnancy, a diagnosis of epilepsy, and the intellectually and technological capacity to participate. The intervention included a fifteen-minute education video on the topics of contraception, pre-conception planning, pregnancy, and caring for an infant as a person with epilepsy. Patients with a person who assists them in epilepsy management were also invited to participate. A post-survey evaluated knowledge gain and satisfaction.

Results: There were 64 charts eligible for review, and 15 patients were eligible and invited to participate. Two patients and one patient support person took the post-survey. Reasons for ineligibility included: No diagnosis of epilepsy, diagnoses of non-epileptic seizures, inability to participate due to intellectual disability, patients no longer managed by the provider, non-English speaking patients, patients no longer retaining reproductive organs, lack of technological requirements.

Discussion: An educational intervention was successfully created and launched. Patient education levels were increased according to post-survey results. However, the participation rate in the educational intervention and post-survey were not as significant as anticipated. A vast majority of patients screened for eligibility were not eligible due to lack of diagnosis of epilepsy. Of the fifteen participants were invited, six confirmed verbal interest, two completed the survey.

13. **Understanding Stakeholders' Views on Autism Research.** *Mahoney, C., Carbone, J. & Lewis, L. F.*

Background: In recent years, the goals of autism research have shifted due to the emergence of the Neurodiversity Movement. Autistic self-advocates challenge the dominant research agenda, debunking treatment and cure narratives and embracing neurodiversity as part of

one's identity. It is unclear whether stakeholders feel that their perspectives are represented in current autism research.

Objectives: The purpose of this convergent parallel mixed methods study was to understand how various stakeholders view autism research and what aspects of research are important to them.

Methods: An online survey was conducted to analyze stakeholders' (autistics, parents, clinicians, and others interested in autism research) perspectives on autism research. Recruitment notices were shared on online autistic message boards and via social media. Open-ended qualitative responses were analyzed using reflexive thematic analysis. Quantitative responses were analyzed using descriptive statistics and independent samples t-test to compare autistic verses non-autistic responses. Qualitative and quantitative data were compared to determine agreement.

Results: The five themes identified from the qualitative data indicate that autistics value: involving autistics on the research team, centering autistic voices, improving quality of life, supporting neurodiversity, debunking the cure narrative, considering intersectionality, and conducting high quality research. The quantitative data supports these themes. Compared to non-autistics, autistic participants were significantly less likely to want to see research that supports prevention and cure. Non-autistic participants were significantly more likely to want to see research that includes parents of autistic people on the research team, focuses on autistic children, and aims to improve the quality of like of parents of autistic children.

Discussion: The goal of this study is to offer guidance for future autistic research that supports what stakeholders want to see. Researchers should engage with the autistic community and involve autistic voices in the research process.

14. **Closing the Communication Gap Between Urgent and Primary Care During Patient Care Transitions.** *Malcolm, C.*

Background: Continuity of care is the process by which the patient and health care team work together on shared goals to attain high-quality, cost-effective care. Implementing best practice strategies for communication between the health care team improves continuity of patient care. Guidelines recommend that urgent care providers communicate the patient's diagnosis, visit summary and follow up to the primary care provider.

Purpose: The aim of this project was to improve communication between urgent and primary care using an evidence-based recommendation to standardize workflow during patient transitions. A secondary aim of the project was to improve documentation of discharge planning for better continuity of care and to facilitate primary care follow up. Methods: Electronic health records (EHR) were audited using a tool developed with evidence-based recommendations for best practice documentation. Using a Plan, Do, Study, Act methodology, results were shared with the interprofessional team to gain consensus for a new standardized workflow with multilayered communication approaches. A pre- and post-implementation audit of the EHR was done.

Results: There was an increase from 14% (n=35) pre-intervention documentation to 40% (n=35) post-intervention documentation in the follow up section of the EHR. For visits requiring follow up, an increase from 75% to 100% in follow up primary care appointments was noted after implementation of the new workflow.

Conclusions: Structured workflow systems and team consensus supports improved communication between urgent care and primary care. Audit and feedback of communication processes is imperative to support continuity of care, lower costs and improve patient health outcomes.

15. **Examining the Feasibility of Integrating an Alcohol Detoxification Protocol within Primary Care.** *Miller, E. A.*
Purpose: Medically supervised, in-home alcohol detoxification is safe, efficacious, cost effective, and satisfying for patients. However, it remains underutilized within primary care practices. This feasibility study aimed to examine clinician perceptions of adopting a standardized outpatient alcohol detoxification protocol at a rural primary care clinic where no internal protocol exists.

Methods: An ambulatory alcohol detoxification protocol was created using the American Society of Addiction Medicine guideline on alcohol withdrawal management and presented to 38 providers and 11 nurses. Twelve participants (six providers and six nurses) completed a modified version of the Implementation Process Assessment Tool. The instrument measured stakeholder perceptions of the protocol within the domains of individual stages for behavioral change, individual activities and perceived support, collective readiness and support, and perceived

effectiveness of the intervention. Average sub-domain scores were analyzed using the one-sample t-test.

Results: Meaningful increases in average IPAT scores were noted for individual stages for behavioral change among nurses (25.33, $p < 0.05$) and the total cohort (24.4, $p < 0.01$), and for perceived effectiveness of the intervention among nurses (18.33, $p < 0.05$), providers (21, $p < 0.05$), and the total cohort (19.4, $p < 0.01$).

Conclusions: Stakeholders viewed the protocol favorably in terms of perceived effectiveness and openness to change. Neutral ratings related to perceived support and individual/collective readiness highlighted a need to tailor implementation strategies before trialing the protocol. This study was limited by its small sample size and nonresponse bias. Structured stakeholder interviewing and replication with a refined sampling methodology are recommended.

16. **Improving Communication Between Community Care Settings and Primary Care.** *Morgan, Kristin*

Background: In older patients with more complex and chronic health concerns, consistency and continuity of care is essential. These patients often live in Assisted Living Facilities or with programs like Support and Services at Home (SASH), where there are nurses available to address concerns and assist with certain aspects of care. Effective inter-professional communication is integral to well-coordinated care, but communication of assessments and coordinating care with participants' primary care providers is complex and difficult.

Purpose: Improve efficiency and clarity of care-related communication for patient and care team by developing a system that prioritizes action-oriented communication and addresses current concerns.

Methods: At a small primary care office in New England, a standardized communication tool was developed based on concerns voiced by assisted living and SASH nurses and primary care staff, to be used to convey non-urgent concerns, relay pertinent information, and request appropriate follow-up. Primary care providers and support staff were surveyed about communication efficacy with residential care sites prior to and after implementation of the communication tool, and utilization and outcomes of the tool were measures quantitatively.

Results: Primary concerns at the outset were redundancy in communications, communication by multiple methods, unclear

expectation of office action, and lack of follow-up communication. During the 6 week initial implementation, the communication tool was utilized 9 times for non-acute issues, and allowed for some reduction in back-and-forth communication and redundant phone calls.

Conclusion: Tool was used appropriately in non-urgent contexts. Initial response indicates primary care staff find this improves communication, and that they will continue to use this tool for future communication with assisted living facilities and programs.

17. **Using Clinical Workflow Assessment Frameworks for Process Improvement of Patient-Provider Communication in a Primary Care Office.** *Morris, M, A*

Purpose: The purpose of this project was to assess the current workflow for addressing the needs of patients between face-to-face healthcare visits at a primary care clinic in Northern New England. The assessment served as a framework to inform recommendations for process improvement interventions.

Methods: Workflow was mapped using Lean's value stream map (VSM) tool. Observational data and retrospective chart review were performed to collect information on time to complete tasks, equipment used, and personnel involved in each patient request. Key patterns in workflow variation, guided by theoretical frameworks of system constraints, were identified. Finally, a team brainstorming session was organized with practice staff to engage stakeholders and generate actionable next steps for process improvement.

Results: Process mapping was especially useful as a visualization tool to engage stakeholders and isolate reasons for variation. There were four maps created to assess the workflow to respond to patient requests. The brainstorming session with staff concluded with two major areas of process improvement and next steps. Interventions would focus on maximizing use of health information technology and adjusting protocols for referrals sent to specialists with long scheduling periods.

Conclusions: This approach can be used to systematically assess workflow practice of the primary care team. Results indicate that using the mapping tool in tandem with healthcare-specific assessment tools and theoretical frameworks helps identify opportunities for process improvement in the primary care office.

18. **Integrating a functional assessment tool for chronic pain in primary care.**
Parent, A., B. & Aitken, M.

Background: Chronic pain is prevalent in the United States. Frequently, rural primary care providers must manage patients' chronic pain and any associated long-term opioids. Best evidence-based practices recommend, and in some cases state guidelines require, periodic functional assessment, for which the CDC endorses the PEG assessment scale.

Objective: To integrate the PEG assessment scale into a rural, primary care practice and evaluate sustainability in following best evidence-based practice guidelines.

Methods: A one-year retrospective chart review determined the baseline quality and frequency of functional assessment. A pre-implementation survey was distributed to providers to assess knowledge of opioid prescribing guidelines and their perceived applicability and importance to practice. The PEG assessment scale was implemented in a six-week series of PDSA cycles. Weekly retrospective chart reviews evaluated rate of completion. A post-implementation survey was sent to providers to gauge satisfaction and feasibility of continued use.

Results: Implementation increased the percentage of patients with chronic pain managed on long-term opioids with a validated and standardized functional assessment from 0% (N=95) pre-implementation to 63.53% (n=71). Providers endorsed the feasibility and sustainability of using the PEG assessment scale with intent to continue use after project completion.

Discussion/Implications for Practice: Clinical staff supported utility of the PEG assessment scale despite not reaching the target average completion rate of 75%. The tool not only supports guideline compliant care but provides a more comprehensive assessment, helps open conversations about impacts of pain and goals of care, and helps direct changes in pain management regimens to support function.

19. **Understanding Pediatric Obesity Management in Rural Primary Care.**
Peck, E, G

PURPOSE: Pediatric obesity rates in rural areas of Vermont are double the Healthy Vermonters goal of 8%. Primary care clinicians are critically positioned to implement interventions for pediatric patients who meet obesity criteria. Research suggests that only 10% of pediatric patients who

meet obesity criteria are receiving the recommended lifestyle interventions set forth by the US Preventative Task Force Services USPSTF). The purpose of this project was to understand current practice for the screening and management of pediatric obesity in a rural primary care setting.

METHODS: Data was collected via provider surveys and electronic health record reports to gain an understanding of how current practice compared to best practice recommendations published by the American Academy of Pediatrics (AAP), CDC, and USPSTF.

RESULTS: Data showed that 99.1% (n=1,292) of pediatric patients ages 6-17 were screened with an age specific BMI at their annual well child visit. Survey analysis revealed 30% (n=10) of providers reported use of a uniform clinic diagnostic criteria for pediatric obesity. Of children with an age specific BMI ≥ 95th percentile for age and sex, 45.8% (n=1,292) were provided the corresponding diagnostic billing code. 18.1% (n=1,292) of children with BMI above the 9th percentile were provided a referral to a weight management specialist.

CONCLUSION: Findings were used to perform a gap analysis and develop a proposed workflow for the management of pediatric obesity. This proposed workflow and project can be replicated in other rural primary care practices to help improve the management of pediatric obesity per current best practice guidelines.

20. **Efficient Diet Management in Primary Care.** *Perchemlides, M. A.*
Purpose: To increase the rate of diet-management by PCPs with the use of a digital diet-tool. The Global Burden of Disease Study identifies chronic disease (CD) as the leading cause of mortality in the world and diet-quality as the leading predictor of all-cause morbidity and mortality (Afshin et al., 2019). The same is true in the United States (Gicevic et al., 2021) and in Vermont (VT DOH, 2019). Low-quality diets contribute to CD while improved diet-quality reduces morbidity and premature death (Harmon et al., 2015; Wang et al., 2019). Diet is not routinely managed by PCPs (Ahmed et al., 2016) due to barriers including, limited nutrition training, limited time, competing medical-priorities, and insufficient reimbursement (Kolasa & Rickett, 2010). Digital diet-tools are a means of overcoming these barriers, per the AHA (Vadiveloo et al., 2020).
Methods: Retrospective chart-audits established the baseline-rate of diet-management by two PCPs for adult patients. A validated, digital, diet-

management tool, for professionals was available for 5 consecutive weeks. Documentation of diet-assessments and diet-planning was tabulated daily. Staff provided feedback regarding workflow, functionality, and feasibility of the practice-change.

Results: The rate of diet-management increased with this practice-change. Diet-assessment increased from 0% to 40%, diet-planning from 14% to 54% for one PCP and from 0% to 15% and 14% to 29% respectively for the second. Identification of patients with low-quality diets and high-risk of developing CD increased 20-fold among one PCP's patients and 4-fold among the other. 55% of patients with low-quality diets received diet-management for the primary prevention of CD. Providers reported a positive opinion of the tool and practice-change.

Conclusion: Diet-management by PCPs increased with use of the digital diet-tool. This practice-change lead to the identification of patients with low-quality diets who were at high-risk of adverse health outcomes and facilitated intervention toward primary prevention of CD.

21. **Intentional Self-Poisoning Prevention: A Feasibility Analysis in Pediatric Primary Care.** *Ray, N.T., Pelski, J., & Delaney, T. V.*

Introduction: Adolescents nationwide are exhibiting intentional self-harm behaviors at a rate significantly higher than past years. The Vermont Department of Health has called for expansion of intentional self-harm and suicide prevention. Pediatric primary care clinicians in Vermont would benefit from education and materials necessary for safety planning and safe storage of medication for the at-risk adolescent patients in their practice. The purpose of this DNP project is to collect data regarding acceptability and feasibility of an approach for distributing medication lockboxes in primary care as a method promoting of lethal means safety.

Methods: Primary care practices received medication lockboxes and educational materials to distribute to patients deemed at-risk for intentional self-poisoning. Feasibility was measured by number of lockboxes distributed over a 90-day period, patient information gathered on the Self-Harm Office Checklist, and post-implementation surveys and provider debrief interviews.

Results: Results demonstrate 17 lockboxes were received by patients (mean age 14.8 years, 47.0% female). 82.4% of risk identification used a formal screening tool and 76.4% had documentation of a safety plan; 41.2% had indication of a referral made for additional services. Survey

data from 9 providers were included in analysis, of whom 6 agreed it was convenient to incorporate lockboxes into practice, with all respondents wanting to continue using lockboxes to promote lethal means safety. Conclusions: While this intervention was widely accepted among the practices, providers faced challenges. Barriers to distribution include time for retrieving lockboxes, absence of scripting for patient encounters, and need for integration with the electronic health record.

22. **Improving Access to Gender-Affirming Care by Creating a New Patient Welcome Packet.** *Rumley, K. J.; Lewis, L. C.*
BACKGROUND: Transgender and gender diverse (TGD) individuals face unique challenges in accessing healthcare such as stigma, bias, fear of rejection, limited access to providers, and lack of information on where to seek care. There is evidence that creating an inclusive clinic atmosphere improves access and leads to a more positive healthcare experience
AIMS: The global aim of this project is to improve access to gender-affirming care for students at a New England university. Specific aims were to assess stakeholder needs for content inclusion and develop a new patient welcome packet based on the needs assessment.
METHODS: The Plan Do Study Act method of quality improvement was used in this project. A needs assessment was conducted to identify stakeholder needs and expectations for packet design. Resources and content for the packet based on stakeholder needs were compiled and evaluated for quality.
RESULTS: A group of 18 stakeholders were contacted directly for needs assessment survey. By the end of the survey period, 10 responses were completed resulting in a 55.6% response rate. Out of the 15 topics presented in the survey, 7 were identified by ≥50% of respondents as areas of interest for TGD students.
CONCLUSIONS: Implications for further study include assessing the packet's use by primary care providers and assessing the impact of the packet on patients' perceived inclusiveness of the clinic.

23. **Implementing a Reminiscence Therapy Program for Older Adults in Assisted Living.** *Saghari, Soheila, L*
Purpose: Many older adults report feeling lonely, with rates even higher for residents in long-term care facilities. Group reminiscence therapy is an intervention proven to improve a variety of psychosocial outcomes in

older adults, including loneliness. The aim of this project was to implement and evaluate a reminiscence therapy program at an assisted living facility, with a goal of seventy percent of participants reporting program satisfaction and increased feelings of connectedness with others.

Methods: A group reminiscence therapy program consisted of weekly, 60-minute sessions over the course of six weeks. There was one in-person group in addition to one telephone-based group of four to six participants each. An after-program survey was utilized to measure program satisfaction and feelings of connectedness. Sustainability was promoted by delivering a six-week reminiscence therapy toolkit to activities staff at the project site. The toolkit was provided to additional facilities to promote outreach and establishment of similar programs.

Results: One hundred percent of participants (n=10) responded that they were satisfied with the program. Seventy percent responded that the program helped build meaningful relationships and increased feelings of connectedness.

Conclusions: Both in-person and remote group reminiscence therapy are feasible in this population and may have positive effects on psychosocial wellbeing and connectedness among assisted living residents. Future quality improvement initiatives may repeat this study to demonstrate feasibility and positive effects in similar or varied settings, as well as investigate whether structured reminiscence therapy has effects on feelings of connectedness over the long term.

24. **Optimizing Clinician Confidence & Competence in Monitoring Patient Use of Continuous Glucose Monitors.** *Shepard, P*

BACKGROUND: Continuous glucose monitor (CGM) technology has shown to improve patient adherence rates for checking blood glucose levels and preventing T2DM progression and disease complications. However, clinician confidence in prescribing and monitoring CGM in the primary care setting has remained low.

PURPOSE: This project aimed to develop, implement, and evaluate an evidence-based protocol to assist clinicians in managing T2DM patients who use a CGM. The project aimed to improve and evaluate clinician confidence and competence in using the recommended protocol.

METHODS: A protocol was developed for monitoring CGM in a primary care setting. A CGM clinician competency checklist was developed to evaluate protocol compliance. An electronic health record (EHR)

progress note template was created. A retrospective audit of compliance to competency checklist measures in the EHR was performed, and feedback was shared with clinicians. A pre- and post-Likert scale survey ascertained clinician confidence in prescribing and managing the use of the CGM.

RESULTS: In an audit of EHR notes (n=14) pre- and post-implementation of a progress note template, the mean documentation score increased from 15 percent to 93.8 percent. Documentation in all 20 items addressing best practices in CGM monitoring improved. An increase in clinician confidence occurred per the pre- and post-Likert survey.

CONCLUSIONS: Audit and feedback, development of a standard note template, and clinician competency checklist improved clinician competency over time. Integrating quality improvement practices into the clinic routine with periodic review of clinician documentation will sustain change.

25. **Increasing the Completion Rate of Advance Directives in Primary Care.**
Singh, Maara; Garbarino, Jason; Wageman, Kate

Purpose: Completion of Advance Directives (AD) continues to be low nationwide, with only 30% of all Americans completing their advance directive (CDC, 2018). This quality improvement project aimed to increase the completion rate of advance directives by 10% in a target number of adult patients aged 50 and older who did not have an AD at a primary care facility.

Methods: A plan-do-study-act (PDSA) cycle was done with five patients resulting in newly defined inclusion criteria and modification of interventions. 31 patients who met inclusion criteria were given a packet containing a cover letter, instruction sheet, written information about AD from Vermont Ethics Network, and a pre-postage/pre-labeled envelope. Patients received calls within one week after their office visits to provide follow-up support with their AD. The percentage of completed ADs returned to the office after providing follow-up support was calculated.

Results: In total, 23% (7) of patients returned their completed AD form, which was then uploaded to their EMR. Only 29% (9) of patients were reached with follow-up calls. 100% (2/2) of patients who requested follow-up support completed their AD. 33% (3/9) of patients that answered the follow-up call returned their completed AD to the office, whereas 18% (4/22) of patients that were left Voicemails (VM) completed their AD.

Conclusions: This study did not significantly impact the completion rate of AD with only a 5.3% increase in completion rate. Prior to the intervention, the completion rate of AD was 23.7%. A persistent challenge for this study was getting in contact with patients. Recommendations for future study include increasing awareness of AD among patients and providers, investing in designated ACP staff on site, and embracing avenues to increase AD completion rate in primary care.

26. **Improving Care Coordination for Children with Attention-Deficit/Hyperactivity Disorder.** *Steenbeek, S. V., Laurent, J., Morgan, K.*
BACKGROUND: Attention-deficit/hyperactivity disorder (ADHD) has increasingly become one of the most common conditions treated by pediatric primary care providers. Despite clear evidence-based practice guidelines set by the American Academy of Pediatrics (AAP), many practices struggle to implement recommendations for ongoing ADHD care.
PURPOSE: Improve the quality and care coordination of ongoing ADHD patient care in the primary care setting using a web-based platform.
METHODS: Baseline evaluation of current practice approaches to ADHD care and provider surveys were utilized to identify gaps in care recommended by AAP guidelines. MeHealth© for ADHD platform was implemented. Stakeholder onboarding, return of patient health data, and open-ended feedback were assessed using PDSA method at two time points.
RESULTS: A total of 25 patients, 25 parents, and 13 teachers participated resulting in a 52% parent and 40% teacher rate increase in the return of validated ADHD screens. Post implementation themes were identified as improved efficiency, ease of use, improved communication, improved coordination with teachers, and drawbacks/difficulties.
CONCLUSIONS: Utilization of the MeHealth© for ADHD platform improved stakeholder communication, return of validated screens, and overall engagement while reducing existing barriers across settings, which suggests improved care coordination for children with ADHD. Future work should investigate optimal strategies for better engaging schools and teachers and long-term outcomes associated with MeHealth.

27. **Improving the Process of Latent Tuberculosis for New Americans.** *Tjong, Jessica H*

Purpose: Non-Native English speakers face significant barriers to medical education and are disproportionately affected by healthcare inequities. The Vermont Department of Health reports that about 35% of refugees test positive for tuberculosis. Poor understanding of Latent Tuberculosis Infection (LTBI) and treatment can lead to a misunderstanding of the diagnosis. There is a deficit in the necessary materials required to provide LTBI education to those whose native language is not English.

Objectives: The aim of this quality improvement project was to (1) increase patient knowledge of LTBI, (2) Increase the proportion of adults whose healthcare provider checked their understanding and, (3) assess provider likability of the developed materials.

Methods: New Americans completing their domestic health screen at an academic medical center in the northeast and tested positive for LTBI were invited to participate in the project. Two fully graphic educational materials were created about LTBI and common LTBI medication therapies. A teach back survey was created for the provider to administer to patients and assess patient knowledge through the method of teach back.

Results: Between June 2022 to the end of December 2022, a total of 25 New Americans were recruited. 40% tested positive for LTBI, 50% started medication, and 60% attended their 1-month follow up appointment. Compared to the previous year where 35.4% tested positive for LTBI, 88% started medication therapy and 58.8% attended their 1-month follow up visit.

Conclusion: Providing graphic medical educational materials for non-native English speakers who tested positive for LTBI increased knowledge about LTBI but did not affect medication therapy initiation.

28. **Reducing Screen Time in Adolescents.** *Leila Ziad*

PURPOSE: The advancement and development of technology over the last decade has resulted in a stark increase of screen time for adolescents. Research shows that adolescents today spend an average of 7.5 hours in front of various screens for entertainment each day in comparison to the American Academy of Pediatrics (AAP) recommended 2 hours. Studies have found that screen and media use has significant negative effects, resulting in adverse health outcomes in

adolescents. This project aims to decrease screen time in adolescents aged 13-18 years using an evidence-based tool known as the AAP Family Media Plan (FMP).

METHODS: In this quality improvement project, the Family Media Plan was implemented at annual Well Child Checks for patients 13-18 at a rural pediatric primary care office. Those who were exposed to more than two hours of screen time per day were eligible to participate. Participants were asked to implement the FMP for 30 days. Data was collected using pre-intervention surveys and electronic post-intervention surveys.

RESULTS: Ten pre-intervention surveys were administered and completed. Of the 10 electronic post-intervention surveys distributed, 5 were completed and returned. The FMP was successful in reducing screen time for 80% of participants who completed the pre and post-intervention survey. There was an average of 41.2% reduction in screen time for survey participants.

CONCLUSION: The FMP is an effective tool that has the potential to decrease screen time in adolescents. A larger sample size is needed to confirm its efficacy and further evaluate its benefits.

29. **Evaluating Methadone Induction Guidelines in People Who Use Fentanyl.**
Grimm, K., E.

BACKGROUND: Methadone is a medication provided to those with opioid use disorder. There has been a rise in people testing positive for fentanyl at medication for opioid use disorder (MOUD) clinics. The increased potency of fentanyl has created challenges for providers to stabilize patients on adequate doses of methadone.

PURPOSE: This project aims to improve the effectiveness of the methadone standard induction protocol (SIP) in patients who test positive for fentanyl at a MOUD clinic.

METHODS: A retrospective chart review was conducted to evaluate patients who sought treatment between November 2019-February 2020. In total, 80 patient charts were reviewed, and 13 different data points were collected.

RESULTS: Of the 80 patients reviewed, 50 patients were prescribed methadone. Of those, 23 patients (46%) tested positive for fentanyl on their first urine drug screen (UDS). There was a 2% difference in retention when comparing patients who initially tested positive for fentanyl compared to those who initially tested negative for fentanyl. Following SIP,

90% of patients tested positive for fentanyl. Mean methadone doses differed between those who tested positive for fentanyl (67 mg) and those who tested negative (75 mg). After one year, 53% of patients tested positive for fentanyl. Mean methadone doses differed between those who tested positive for fentanyl (82 mg) and those who tested negative (102 mg).

CONCLUSION: Areas of practice have been identified that would benefit from improvement, such as the assessment tool used and protocols for ancillary medication. Further research is needed to identify long-term solutions to the opioid epidemic with the rise of synthetic opioids, such as fentanyl.

30. **Implementing the TCARE® Protocol to Screen Informal Caregivers at a Memory Program.** *Knakal, Meaghan E*

Purpose: This project created a protocol for use of the Tailored Caregiver Assessment and Referral Evaluation (TCARE)® screening tool in a Memory Program for assessing for caregiver stress in informal caregivers.

Methods: The TCARE® screening tool was researched, and then a protocol for use by nurse practitioners was created. Approval from the academic and hospital organization was received and the TCARE ®protocol for use was implemented in a Memory Program. Two PDSA cycles were utilized to evaluate this intervention. Findings were analyzed for sustainability and contribution to the clinical setting.

Results: All caregivers (n = 5) who completed the TCARE® survey screened moderate to high risk for increased caregiver stress, qualifying for follow up with their local Office on Aging (OA) to offer further resources and support. Forty percent of caregivers (n= 5) referred to their local OA accepted services and resources. Caregivers and providers responded positively to our intervention during satisfaction interviews and surveys.

Conclusion: The ability to screen for caregiver stress serves as a helpful tool for nurse practitioners in a Memory Program. Its use appears ideal for clinics without social work support and presence, including primary care offices. Nurse practitioners managing cognitive impairment diagnoses may find the use of the TCARE® screening tool helpful for assessing caregiver stress and facilitating connections with community resources for those who qualify.

31. **Examining and Improving Active Learning Strategies in an Undergraduate Nursing Curriculum.** *Monforte, K.T.*

Background: In April of 2021, the American Association of Colleges of Nurses (AACN) endorsed the Essentials: Core Competencies for Professional Nursing Education to inform curricular content and competency expectations for graduates of nursing programs. Nurse educators are redesigning nursing education with a competency-based pedagogical approach to close the gap between academia and practice in a rapidly changing healthcare system. Evidence reveals that active learning is a strategy which supports student achievement of competency. Despite evidence supporting active learning strategies to deliver classroom content, barriers to implementation exist including faculty lack of knowledge, experience, confidence, and skill.

Purpose: This quality improvement project sought to equip undergraduate nursing faculty with knowledge and strategies to facilitate competency-based education through active learning.

Methods: A three-part faculty development workshop was designed and implemented. A faculty focus group utilized S.O.A.R. (Strengths, Opportunities, Aspirations, & Results) and curriculum mapping strategies to evaluate the use of active teaching learning strategies in the current curriculum with the goal of increasing active learning teaching methods by 10%. Faculty participants (n=6) practiced active learning tasks and activities to increase faculty knowledge, confidence, and skill.

Results: Curriculum mapping revealed a 75% increase of intended use of active learning strategies after faculty participated in the workshops. Faculty scored 92% on the Post-Workshop Knowledge Survey.

Conclusions: Implementing faculty development workshops is essential in moving nursing curriculum toward competency-based education with active learning. Implications for sustainability of active learning strategies include the development of super-user faculty to train-the-trainer, drop-in learning sessions and ongoing faculty active learning workshops.

Biomedical and Health Sciences

32. **The Role of KIR2.1 Channels in Functional Hyperemia in Health and Disease.** *Cheung, W, E and Koide, M*

A well-maintained and precisely-controlled cerebral blood flow (CBF) in the brain is crucial for brain health, specifically preventing irreversible loss of brain function. One of the essential CBF regulatory mechanisms is functional hyperemia; local blood flow increases in the brain region with active neurons that require higher oxygen and more nutrients. The impairment of functional hyperemia is reported in various diseases. Functional hyperemia deficits damage brain function due to supply-demand mismatches of oxygen and nutrients, and lead to vascular cognitive impairment. In this systematic review, we will discuss three diseases that were recently reported to show functional hyperemia deficits in mouse models; Alzheimer's disease, Cerebral Autosomal Dominant Arteriopathy with Subcortical Infarcts and Leukoencephalopathy (CADASIL), and hypertension. Importantly, these diseases present the common mechanism, the downregulation of inward rectifier potassium (KIR2.1) channel, as underlying functional hyperemia deficits. In addition, these papers deeply dived into potential therapeutic targets. A healthy KIR2.1 channel function requires phosphatidylinositol 4,5-bisphosphate (PIP2), a phospholipid in the plasma cell membrane, to bind to the channel. In vivo and ex vivo experiments performed in these papers demonstrated that exogenously supplied PIP2 restores the KIR2.1 channel function and functional hyperemia in disease model animals. With further understanding of this novel pathway including its efficacy in humans, PIP2 may be a prominent and potential therapeutic target.

33. **Methodological comparisons for detecting metallo-β-lactamase (MBL) production in Gram-negative bacteria on patient outcome: A Systematic Literature Review.** *LaPress, Maylene*

Introduction: Metallo-β-lactamase (MBL) producing Gram-negative bacteria are an emerging biothreat as these enzymes cause bacterial resistance to all β-lactam drugs including carbapenems, the broadest spectrum β-lactam drug available. According to the Clinical Laboratory Standards Institute (CLSI) M100: Standards for Antimicrobial Susceptibility

Testing, the method of choice for detection of MBL producing bacteria is the modified carbapenem inactivation method (mCIM) in conjunction with an EDTA modified carbapenem inactivation method (eCIM). Being a culture-based method, this test requires a minimum incubation period of 16-24 hours, therefore delaying the prescription of an effective treatment to the patient. For this reason, there is a great need for a faster detection method for MBL producing bacteria.

Materials and Methods: This literature review was completed using a different search strategy for both the OVIDMedline and OVIDEmbase research databases. Articles were eliminated based upon relevance to the research topic, first by article title, then by article abstract, and lastly by a full read through of the article. The final count of articles that met all the criteria and could be analyzed to answer the aims set for this paper is 19 articles.

Results: Many differences in regard to sample type, methodology, sensitivity, specificity, and turnaround time were seen between each article that was included in the study. The included molecular methods were shown to have shorter turnaround times in comparison to the microbiological methods. Although some of the molecular and microbiological methods had comparable sensitivities and specificities, there was more variability in values for the microbiological methods, whereas the values for the molecular methods trended higher.

Discussion: This review aimed to study the comparison of microbiological methods and molecular methods for the detection of metallo-β-lactamase production by Gram-negative bacteria by their sensitivities, specificities, and turnaround times. Evidence shows that molecular methods have faster turnaround times which is essential for improved patient care, but some of the tests showed comparable sensitivities and specificities. Due to the faster turnaround time of the molecular methods, it is highly suggestive that these methods are utilized over microbiological methods.

34. **Metabolic rewiring and metastatic potential in STK11-null lung adenocarcinoma.** *Prior, Shannon, Lenahan, Sean, Sands, Logan, Sarausky, Hailey, Seward, David, Deming, Paula.*
BACKGROUND and OBJECTIVE: Lung adenocarcinomas (LUAD) with concurrent oncogenic KRAS and SKT11 loss-of-function mutations represent an aggressive subtype that is characterized, in part, by

increased metastasis and dependence on glutamine metabolism. Additionally, the hexosamine biosynthetic pathway (HBP) intersects STK11 and glutamine and has been shown to promote metastasis in various cancers. The purpose of this study was to elucidate the metabolic rewiring of STK11-null KRAS-driven LUAD cells and determine how such altered metabolism may promote metastasis.

METHODS and RESULTS: The Seahorse assay revealed a "metabolically exhausted" phenotype in ΔSTK11 cells compared to parental cells at baseline. Upon glutamine deprivation, both cell lines similarly decreased mitochondrial respiration, however we observed an increase in global O-GlcNAcylation, the product of the HBP, when comparing ΔSTK11 to parental cells using western blot analysis. To assess transcriptional characteristics of metastatic spread, KEGG pathway analysis was performed on RNA sequencing data obtained from parental vs ΔSTK11 cells subjected to +/- glutamine deprivation and revealed more significant upregulation of survival pathways such as NFkB and MAPK signaling in ΔSTK11 cells. Additionally, EMT markers downstream of such survival pathways, such as SNAI2 and ZEB1, were upregulated in ΔSTK11 cells upon differentially expressed gene (DEG) analysis via DESeq2. Trypan Blue staining was used as a preliminary method to measure an additional characteristic of metastatic potential, anoikis resistance, and revealed a significant increase in live detached cells upon glutamine deprivation-induced detachment in ΔSTK11 cells.

DISCUSSION: Future studies aim to further clarify the altered metabolic profile of ΔSTK11 NSCLC cells and identify the mechanism(s) by which such metabolic rewiring drives metastatic progression, specifically via EMT, anoikis resistance and invasion. In conclusion, this work has the potential to generate novel findings regarding the molecular mechanisms underlying STK11-loss, rewired glutamine metabolism and enhanced metastasis in NSCLC.

35. **Determining Eating Disorder Prevalence for Prevention Programs at UVM.**
Argentieri, C., Buerkett, A., Zehnacker, L.
BACKGROUND: The Center for Health and Wellbeing (CHWB) aims to provide equitable healthcare and promote wellbeing for UVM students and faculty, which includes addressing eating disorders and the destigmatization of body image issues.

OBJECTIVES: The magnitude of the issue of eating disorders and their effects on UVM students is unknown. While UVM can be considered a typical university with similar patterns in mental health behaviors as other American universities, there is no information that exists regarding the student body's eating disorder prevalence. This information is necessary to provide the best eating disorder centered care possible to the UVM community.

METHODS: We recommend including UVM in the National College Health Assessment and adding survey questions relating to students' relationships with their bodies and eating disorder behaviors. By gaining awareness of the students' needs the university will be able to provide better mental health and eating disorder care to all.

RESULTS & DISCUSSION: The most effective interventions are evidence-based and, without specific data from the target population, public health officials are left taking shots in the dark. In order to address the problems surrounding disordered eating among UVM students, they must first be identified and defined.

36. **Essex Community Health Initiatives and Program for Students (CHIPS) Activity Partnership.** *Blackburn, LG, Curry, CE, Detch, ME, Reynolds, SH.* Essex Community Health Initiatives and Program for Students' (CHIPS) mission is to support, engage, inspire, and empower youth to make healthy decisions and become active community members and leaders. CHIPS is a nonprofit organization based in Essex Junction, VT. We hope that our impact can support families and youth in the community. Our objective is to lay the groundwork for healthy habits of youth participating in Essex CHIPS by engaging them physically in surrounding recreational areas outdoors. We are doing this by bringing the CHIPS youth to local recreational areas to play and explore. We modeled our program after the (GO-ASAP) program, which is an afterschool program that documented the benefits of allowing students to spend time playing outside. The students who participated in this program had the following benefits: Increased Health-Related Competencies, improved social connection, and overall increased autonomy and intrinsic motivation by the end of the program. This collaboration can maximize the use of community spaces outside of school hours.

37. **Filter distribution to improve PFAS contamination in public water in Mount Holly, Vermont.** *Taubkin MR, Sinz KR, Cote GC*

Background: Vermont Public Interest Research Group (VPIRG) was founded in 1972 and has grown to be the largest nonprofit consumer and environmental advocacy organization in Vermont. Its mission is to promote and protect the health of all Vermonters through non-partisan consumer and environmental advocacy.

Objective: The water supply in the town of Mount Holly, Vermont, has the highest levels of PFAs in the state. As of October 27, 2022, the interim drinking water standard sum of 5 PFAS compounds in Mount Holly was 120.6 ppt, while Vermont's standard for this measure is maximum 20 ppt. PFAs have many harmful effects on the human body, including adverse birth outcomes, liver disease, lipid and insulin dysregulation, kidney disease, and cancer, and are considered "forever chemicals" as they remain in the body for a lifetime.

Methods: We are working on developing an intervention to distribute filters to improve PFAS in public water in Mount Holly, VT. Filters that remove PFAS from the drinking water will be distributed with the goal of all households and public buildings that source water from the town having and using a water filter. We will engage with key stakeholders such as Craig Hutt Vader, principal of Mount Holly elementary school, Paul Nevin, mayor of Mount Holly, and Paul Burns, executive director of VPIRG. Assets include accessible senators who want to engage with citizens and Vermont state values of environmental conservation.

Results and Discussion: Evidence shows that POU and POE water filters are both highly successful in reducing PFAs concentration in water. Under-sink, dual stage, and reverse osmosis filters were shown to have near complete removal of PFAs tested. This shows that filter distribution of these types of filters would be effective in preventing the consumption of PFAs through drinking water among Vermonters.

38. **Vermont Adaptive Accessible Yoga.** *Derosia, C, Ebertz, D, Sargent, L*

Background: Vermont Adaptive is a nonprofit organization committed to empowering individuals with disabilities and improving their physical activity. Individuals with disabilities as a population face deteriorating health due to lack of physical activity, have unequal access to recreation, have barriers to building many social relationships, and often

do not foster the skills to develop independence (Carbone et. al, 2021; Hawkins et. al, 2012).

Objectives: Our goal is to increase physical activity, independence, confidence, and emotional wellbeing in individuals with disabilities. Our objectives include identifying evidence-based approaches to achieve accessible health and fitness for the population.

Methods: We reviewed the literature and researched best practices around accessible yoga. We met with stakeholders and leadership, identified existing community assets, and followed programs that already exist.

Results and Discussion: We are recommending that Vermont Adaptive expand their program list to include an adaptive yoga program in order to achieve their goals. Evidence demonstrates that yoga is an beneficial source of physical activity, as it not only improves physical health, but promotes emotional wellness as well (Hawkins et. al, 2012; Thomas et. al, 2019). Yoga is also a skill that can be easily adaptable and accessible, as seen in Outdoor For All's yoga program. Participants can learn and perform new skills on their own, thereby improving their physical independence and confidence (Allison et. al, 2021). Lastly, we recommend that they utilize the Burlington waterfront as this site is already an asset to the community and a site at Vermont Adaptive.

39. **Fresh Produce Program.** *Doiron, A.P., Daci, E.E.*
Background: Vermont Adaptive is a nonprofit organization committed to empowering individuals with disabilities and improving their physical activity. Individuals with disabilities as a population face deteriorating health due to lack of physical activity, have unequal access to recreation, have barriers to building many social relationships, and often do not foster the skills to develop independence (Carbone et. al, 2021; Hawkins et. al, 2012).

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40. **Community Based Narcan Distribution Program: Downtown Burlington.**
Donovan, Grace, A; Racusin, Elijah, A
Background: The University of Vermont's Office of Emergency Management's mission is to maintain a safe, healthy campus for UVM and the greater Burlington community through the implementation of life-saving equipment, training, and policies. Our work with this agency has focused on the development of a comprehensive emergency care and training program to increase levels of preparedness on campus.
Objectives: From 2020 to 2021 a 33% increase in opioid-related overdose deaths of accidental or undetermined cause was witnessed in Burlington. (VTDPH, 2021). Burlington police data substantiates that the majority of overdoses occur in Burlington's downtown area, which serves students in multiple ways. Due to the interconnectedness between campus and downtown Burlington, interventions are clearly needed to mitigate the risk of disability caused by accidental opioid overdoses. Our objectives, which include providing Narcan and overdose first aid training to service workers in the downtown area, will create a vital safety net for UVM students extending off-campus.
Methods: Bar owners and service workers in the designated Burlington downtown area will be contacted in order to gauge support and establish participants for a Narcan delivery and training program. Key stakeholders such as the Vermont Department of Health and the Howard Center will be engaged to source Narcan and partner on the development of training curriculum.
Results & Discussion: Previous studies and literature reviews support the idea that community-based opioid education and Narcan distribution

(OEND) programs implemented at any level are effective in reducing fatalities from overdoses (Walley et al., 2013). Providing this knowledge and skill set is critical in populations that are likely to witness overdoses to best prevent deaths from opioid-related overdoses (Razaghizad et al., 2021). Training community members on OEND also provides an important opportunity to educate, and reduce harmful stigma surrounding the topics of substance use and addiction (Lewis et al., 2016).

41. **Right Place, Right Time, Right Treatment: An Intervention to Curtail the Use of Opioids.** *Flashman, D., Gaffin, S, L.*
Background/Problem: Use of opioids to treat pain rather than use of alternative medical practices lead to an overprescription of opioid medications in the U.S. (Vermont Department of Health, 2022). The use of naturopathic and alternative medicines to treat pain could effectively reduce the need for opioids in the treatment of certain conditions, however, many people hold the perception that alternative medicines are useless and potentially dangerous (Liem, 2019) and media reinforces these ideas as well with mass publications, such as that in the Washington Post (Consumer Reports, 2018).
Objective: The goal of this program is to incorporate social marketing techniques and aspects of the behavioral change model to provide patients with a standardized pain management information sheet at the right time and place, and coming from the right person so that the patient is effectively encouraged to follow up with complementary, integrative services to manage their pain. The implementation of this program will decrease the amount of opioids prescribed, and therefore it will decrease the amount of opioid addiction and opioid-related fatalities in Vermont.
Methods: A review of the literature was conducted to identify best practices for communication and marketing as well as to determine what types of pain can effectively be treated and/or complemented with alternative medicines rather than allopathic medication. An inventory of assets was taken, and stakeholders were engaged to inform the recommendation.
Results/Discussion: Delivering information about the benefits of alternative medicine by trusted professionals while a patient is in the appropriate mental and physical space will promote the use of integrative medicine as an alternative to opioid treatment (Richens et al., 2018). By utilizing

alternative practices, the use of opioids will decrease, and the rate of addiction and subsequent opioid-misuse casualties will decrease as well.

42. **Mindfulness-Based Stress Reduction Training (MBSRT) for Caregivers of Children and Youth with Special Healthcare Needs.** *Gearty, Evelyn, Vanacore, Emma, Patrick, Kylie, Gaboriault, Molly*

Background: The Vermont Family Network provides services to Vermont families, with a special focus on those with disabilities or special health needs. Their mission is to empower and support all families by giving a strong start, lifting family voices, and advancing inclusive communities. VFN provides resources for any needs or concerns families have about their child's health, education, and wellbeing. There are unique challenges that families of children and youth with special healthcare needs (CYSHCN) face that can result in adverse effects on caregiver mental health. Caregivers currently face elevated rates of depression, anxiety, and general poor mental health (Bujnowska et al., 2019; Foster et al., 2021; Hoyle et al., 2020; Mattson et al., 2019; Smith and Grzywacz, 2014).

Objective(s): The intervention we are recommending provides support and coping skills through mindfulness-based stress reduction training (MBSRT) for caregivers of CYSHCN, intending to improve mental health outcomes.

Methods: We have developed this approach by reviewing the literature to assess programs that improve parental health outcomes, taking an inventory of community assets, and engaging with stakeholders to gain insight and perspective. VFN's well-established connections will allow this program to reach parents of CYSHCN across Vermont.

Results and discussion: Evidence demonstrates that caregivers with increased mindfulness due to participation in MBSRT have reduced prevalence and severity of depression, anxiety, and generally increased psychological well-being (Petcharat & Liehr, 2017). When caregivers have more tools in their toolbox to cope with mental health issues that arise generally, as well as in conjunction with the challenges that arise with parenting a child with special health needs, improved outcomes are reported (Petcharat & Liehr, 2017; Dykens et al., 2014; Bellone et al., 2021). We are recommending that the VFN establish an MBSRT program to improve caregiver mental health outcomes.

43. **Peer-Based Sexual Violence Education Intervention.** *Gray, AGK, Murphy, EA, Hood, MA*

We are working alongside the Center for Health and Wellbeing at the University of Vermont to address and make an impact on the public health issue of sexual violence prevalance. We are working to recommend updating old methods with little success to new effective peer-based education. The Center for Health and Wellbeing's mission is to "provide respectful, dignified, affirming care that takes into account the enduring legacy of racism and other forms of inequity on health. We promote radical self-care, body liberation, and the value of a community-wide approach to health and wellbeing."Our goal is to decrease the rate of sexual violence that happens on UVMs campus. The population most at risk of sexual violence is first or second year students living on campus, and women. As of today, one in five female students are sexually assaulted on campus (Jozkowski, K. N., 2015). The impact of sexual violence presence on campuses is related to the increasing drop-out rate, lowering of grade point averages, as well as higher financial burdens (approximately $122,461, lifetime cost) on victims (Potter et al., 2018). We are working on developing an intervention by doing an in depth literature review of best practices in this topic area. We also have been doing an inventory of assets and collecting stakeholders' insight. This will allow us to make an informed evidence based intervention suggestion to reduce the prevalance of sexual violence on the University of Vermonts campus. Evidence demonstrates that peer-based education has proven to be most effective in the university setting. We are recommending a peer-based education program as an example of prevention at the interpersonal level of the socio-ecological model. This approach's success is evident through the removal of the power imbalance in learning as well as the close relatability of this approach.

44. **Rutland Community Needs.** *Greenwood, C,K, Markowski, S, Kalis, R, King, T,P*

Background: The Vermont Public Health Institute (VTPHI) exists to "promote innovative approaches to health equity through community-based and evidence-informed strategies to improve the health of all Vermonters' (VTPHI 2023). Through our internship we reviewed grey literature from resources regarding inequities in access to support those with Substance Use Disorder (SUD). The Rutland VT community was found to be impacted

by inequities/lack of resources, such as transportation, safe housing, racial inequities, and socioeconomic inequities.

Objective: To reduce SUD within the community of Rutland through a needs assessment conducted by the VTPHI that ultimately connects the community partners.

Methods: There is strong evidence to support that before making a program for a public health issue, the community first needs to be aware of what public health issue they are addressing (Hann, 2005). A needs assessment is used to determine what issue is present in a community. It also gives insight into community leaders, local policy, and systems that are already in place (CDC, 2013).

Result: The review of this information along with grey literature helped to determine a needs assessment should be conducted for Rutland in order to connect community partners through VTPHI (Crowley et. al., 2012). This proposed needs assessment is an intervention to address one of the essential PH services; strengthening, supporting, and mobilizing communities and partnerships to improve health.

45. **A Bill Proposing Housing Expansion to Youth.** *Cassandra Greenwood*
Background: Taylor Small's mission as a Winooski house representative, is to, "create systems of change to support our communities, through the use of policies and bills at the state level (Small, Taylor. Taylor Small for State Rep.). Research demonstrates that there is a lack of support and services for the youth in Vermont who are struggling with homelessness and Opioid Use Disorder (OUD). One of the 10 essential Ph services that this intervention is addressing is to create, champion, and implement policies, plans, and laws that impact health.

Objectives: The proposed intervention will address the need to expand services and strengthen community support. Through connections and interviews of housing organizations, and house representatives the necessary needs for the youth will be determined. A proposed bill will be presented to the House committee on Human Services; to expand housing services to the youth in Vermont.

Methods: Through the use of interviewing key stakeholders and reviewing literature, highlighted the importance of the proposed bill.

Results: There has been strong evidence from recent studies that demonstrate the association between homelessness and OUD amongst children; a study found that housing children who were homeless

decreased the rates of OUD and substance misuse within six months (Kelleher, Kelly).

Discussion: Vermont youth are presented with a multitude of inequalities and lack of resources such as inability to qualify for housing, access to healthcare, safe housing, and lack of mental health services. Developing an established housing bill provides opportunities to decrease the rate of homelessness and OUD amongst the youth. A bill expanding housing services including but not limited to renting properties, access to housing organizations, and other services will not only decrease the rate of homelessness but also the rate of OUD in Vermont youth.

46. **National Association of Certified Professional Midwives Mentorship Program.** *Crosier, S, A; Hui, S, M; Weissburg, L*

Background: The National Organization of Certified Professional Midwives aims to provide a unified voice for midwives in order to enable a racially, ethnically, and socially diverse certified professional midwife workforce. Expanding the CPM workforce aims to provide better pre- and post-natal care for all childbearing people. NACPM has an educational initiative that aims to break down some of the financial barriers that prevent people of color, LGBTQIA2S+, and Indigenous peoples.

Objectives: The United States continues to have the highest maternal mortality rates in the developed world at 32.9 deaths per 100,000 per CDC data. The maternal mortality rate is 2.9 times higher for Black women compared to white women. Additionally, the lack of diversity among healthcare professionals affects patient care, leading to worse health outcomes among people of color. (Graham et al., 2016).

Methods: We are recommending an intervention to provide a mentorship program for future midwives of color. Midwifery students who are applying for NACPM scholarships will be matched with a current NACPM member who is a midwife and a member of an underrepresented community. Mentors will assist the mentees through the midwifery curriculum and licensure process. A review of the literature from PubMed using search terms such as "mentorship," "diversity," "healthcare mentorship," and "racial inequality," demonstrated that pairing people with mentors increased interest in the fields.

Results and Discussion: Research demonstrates that providing students with a mentor from the career field of interest helps encourage students to pursue that career. For example, high school students from

underrepresented racial backgrounds were paired with first and second-year medical students. As a result, students reported that their interest in medical professions increased. Two to three years after the study, many of the participants were in college on the pre-healthcare track (Patel et al., 2015).

47. **ACE Awareness.** *Lowitt, D, M*

Background: Healthy Lamoille Valley (HLV) is a non-profit serving Lamoille County Vermont. Lamoille County, located in the central part of northern Vermont, is a county of roughly 26,000 people. The goal of Health Lamoille Valley is to work "collaboratively to prevent and reduce youth substance misuse and encourage youth to make substance free healthy choices." (Healthy Lamoille Valley, 2022) This issue is pressing in Lamoille County as the county has much higher drug use rate than the national and state averages. However, the goal of youth substance abuse reduction is a large goal with many factors. Given that one major predictor of substance use is adverse childhood experiences (ACEs), the goal of this project would be to raise awareness for adverse childhood experiences. This project will serve to bring adverse childhood experiences more into the public eye.

Methods: As mentioned above the focus of this project is to raise awareness of these ACEs both in the general public and the local governments. This two pronged approach allows for useful information to be disseminated on both the relationship and policy levels. This would be done by creating a number of virtual resources including an infographic that links back to a bank of further resources allowing for in depth information and a large resource bank while maintaining readability in short form.

Results and Discussion: Healthy Lamoille Valley is in a difficult place for policy work. As a non-profit their ability to create or advocate for policy is limited is not zero. However, this work is crucial. Research has expanded and outlined the importances of preventing adverse childhood experiences. One statistic claims "People with a score of 5 or higher are seven to 10 times more likely to use illegal drugs and become addicted." (The Council on Recovery, 2021) Thus instead of lobbying for specific policy it is the goal of the project to advise on ACEs and allow local governments to make their own policy.

48. Art from the Heart. *Kilbrick, JM, Robles, KM, Normand, RE, Patterson, EB, Stigers, LD.*

Background: Art from the Heart is a program connecting volunteers, patients, caregivers, and art supplies at The University of Vermont Medical Center to make the hospital a more creative, compassionate, and connected place. Objectives: Art from the Heart's goal is to create a positive, mood-boosting activity for patients in the hospital. An important public health issue impacting residents of Chittenden County is poor mental health during and following hospitalization. Hospital stays can be disruptive to patients, and art-based interventions present the opportunity to provide additional post-hospital support to patients with poor mental health.

Methods: A mobile version of Art from the Heart was developed to tackle mental health issues in patients once they leave the hospital by creating positive environments and decreasing barriers to health created by inequities. The mobile program would travel to patients that lack resources or access to visit an art studio or a counselor. Whether patients are at their private residences, nursing homes, or support groups, Mobile Art from the Heart can reach diverse patients around Burlington. Program expansion will allow Art from the Heart to continue as a mental health intervention for patients after they leave the hospital.

Results and Discussion: Studies have shown that art can effectively intervene in the patient population (Heiney et al., 1999). The Light of The Heart, a community art therapy project, created a mobile art therapy program in Aurora, Illinois. With partner organizations, this program connected their community, particularly those of low socioeconomic status or seeking mental health services (Mobile art therapy, 2023; Mobile art therapy program, n.d.). Art from the Heart is not art therapy but hopes to positively impact outpatients' mental health by making art and creativity more accessible through transportation.

49. Winooski Senior Center Becoming Nonprofit. *Olszanski, Rachel, M; DeMichelis, Christa D*

Background: As seniors in the PH Sciences program, we have been working closely this semester with the Winooski Senior Center, whose mission is to empower older adults through activities, from healthy aging to social connection, and extended learning. The center is important to the community as it decreases loneliness in seniors while increasing end-

of-life health by providing physical and mental care. Unfortunately, the center is in financial jeopardy as the recent pandemic caused most of the center's revenue to be used without a sizable income.

Objective: Due to funding constraints, the senior center may not be able to continue to operate and opportunities for additional funding are scarce. Due to its current status, the Winooski Senior Center is not eligible for most grants and funding opportunities since it is owned by the city of Winooski. In order to support continued operation, we are working on a project to become a non-profit 501c3 organization in partnership with the Winooski township.

Methods: We have reviewed current literature, explored possible funding sources, engaged stakeholders, and observed other senior centers in different townships to understand how they receive funding and provide more resources for the seniors to enjoy. The literature strongly supports that in transitioning to non-profit organizations they increase their funds and revenue and because of their status are eligible for more grant opportunities.

Results and Discussion: Organizations that switched to becoming nonprofit entities received more funding and grant opportunities than government-owned organizations. Some of the other benefits of being a nonprofit are separate entity status, perpetual existence, limited liability protection, tax-exempt status, access to grants, credibility, U.S. postal service discounts, and professional registered agent. Therefore, it is advised that the Winooski Senior Center strongly consider transitioning to a non-profit organization to increase revenue and other funding opportunities.

50. **Characteristics of Informal Caregivers and Social Participation of People with Dementia.** *Palaza, A. E.*

Background: Dementia is characterized by decline in memory, language, executive and visuospatial function, personality, and behavior that affects how a person with dementia (PwD) engages in social interactions. Despite being observed to decline following diagnosis, social participation is associated with increased quality of life and well-being. Thus, there is need to facilitate social participation in this population. Due to caregivers' extensive role, understanding the impact of informal caregivers on social participation of PwD is vital.

Purpose: This study aims to identify characteristics of informal caregivers associated with social participation of PwD in meaningful activities.

Methods: Data from the National Health and Aging Trends Study (NHATS) and the National Study of Caregiving (NSOC) was analyzed (n=1,060). Survey weighted risk ratios of social participation of PwD by relationship type of informal caregiver and logistic regression models were used to identify characteristics of informal caregivers associated with participation of PwD in social activities.

Results: Social participation of PwD was not independently associated with relationship to the primary caregiver (spouse/partner, child, or other relative/non-relative). Social participation of the primary caregiver was associated with increased participation of the PwD in the same activity for visiting friends/family, attending religious services, and volunteering, while greater caregiver external support was associated with increased participation of PwD in organized activities.

Conclusion: Social participation of PwD is not mediated by relationship type of informal caregiver. Characteristics of informal primary caregivers found to promote social participation of PwD include being socially active themselves, utilizing support services, and traveling to the PwD home.

51. **UVM Capstone Poster: Mass Incarceration as a Public Health Issue.**
Pencek, J, M

Mass incarceration is a public health crisis, shortening the overall U.S. life expectancy by 5 years. Mass incarceration disproportionately impacts individual health, communities and families. Individuals who have been incarcerated face higher rates of mental illness, substance misuse, communicable and chronic disease. Recidivism rates in the U.S. are some of the highest in the world with 44% of criminals released returning to prison within one year. Marginalized communities are more likely to interact with the criminal legal system. Leading to specific populations having both higher incarceration rates and increased health issues proliferated by experiencing incarceration. The impact of incarceration is extensive, and there are far better ways to reconcile harm. The Burlington Community Justice Center addresses the roots and impacts of crime and conflict so that everyone experiences dignity, safety, and justice. BCJC envisions a community that creates restorative and transformative paths toward equity and accountability, connection and repair of harm. The BCJC uses Restorative justice, a theory that aims to break this cycle, through repairing the harm created by crime and conflict. Global Indigenous communities have a long history using restorative practices to

resolve community crime. Research has found that restorative justice was more successful in improving victim and offender satisfaction, decreasing recidivism of offenders and increasing offender compliance with restitution when compared to more traditional criminal justice programmes. One of the main barriers to wide-spread restorative practices across the US is a lack of accessible information that these practices are possible in all communities. In order to support BCJC's work, I will be creating an evidence-based educational presentation that is designed for the BCJC to use that addresses incarceration through a public health lense and supports restorative justice, highlighting data that shows the impact of incarceration on population health, families and communities in the US.

52. **UVM Community Based Narcan Distribution Program.** *Donovan, Grace, A. and Racusin, Elijah, A.*
Background: The University of Vermont's Office of Emergency Management's mission is to maintain a safe, healthy campus for UVM and the greater Burlington community through the implementation of life-saving equipment, training, and policies. Our work with this agency has focused on the development of a comprehensive emergency care and training program to increase levels of preparedness on campus.
Objectives: From 2020 to 2021 a 33% increase in opioid-related overdose deaths of accidental or undetermined cause was witnessed in Burlington. (VTDPH, 2021). Burlington police data substantiates that the majority of overdoses occur in Burlington's downtown area, which serves students in multiple ways. Due to the interconnectedness between campus and downtown Burlington, interventions are clearly needed to mitigate the risk of disability caused by accidental opioid overdoses. Our objectives, which include providing Narcan and overdose first aid training to service workers in the downtown area, will create a vital safety net for UVM students extending off-campus.
Methods: Bar owners and service workers in the designated Burlington downtown area will be contacted in order to gauge support and establish participants for a Narcan delivery and training program. Key stakeholders such as the Vermont Department of Health and the Howard Center will be engaged to source Narcan and partner on the development of training curriculum.

Results & Discussion: Previous studies and literature reviews support the idea that community-based opioid education and Narcan distribution (OEND) programs implemented at any level are effective in reducing fatalities from overdoses (Walley et al., 2013). Providing this knowledge and skill set is critical in populations that are likely to witness overdoses to best prevent deaths from opioid-related overdoses (Razaghizad et al., 2021). Training community members on OEND also provides an important opportunity to educate, and reduce harmful stigma surrounding the topics of substance use and addiction (Lewis et al., 2016).

53. **Art on the Road** *Whitney, Kristin, M, Palaza, Abby, E & Pelletier, T, Lauren*
Background: The mission of AgeWell is to provide support and guidance that inspires the community to embrace aging with confidence. AgeWell and Alzheimer's Association share similar mission statements as they both work towards providing better care to the elderly population and provide support services to individuals with Alzheimer's Disease and Dementia. Furthermore, the mission of Art from the Heart is to connect volunteers, patients, and caregivers with art supplies. Bridging a program between these organizations would be valuable to each of their missions and the population they serve.
Objective: The aim of this project is to address increased risk of loneliness, worsening mental health and lower quality of life among people with Dementia living in Chittenden County Vermont.
Methods: Art on the Road was developed by reviewing the current literature, surveying the community, identifying community assets, engaging with key stakeholders, and evaluating evidence-based practices to address social isolation among people with Dementia living in the community.
Results: Oftentimes those who are homebound begin to feel isolated and depressed. Evidence demonstrates that bringing art and music to people with Dementia has many positive benefits. These range from decreasing loneliness to increasing happiness, personal connection, fulfillment, learning and discovery. Mental stimulation, sensory activities and fine motor movement are important components to dementia care. Providing in-home art activities will address these objectives while also fostering companionship.

Communication Sciences and Disorders

54. Effects of Cognitive-Based Therapy Approaches on Adults Who Stutter.
Benevento, A, V

Purpose: Stuttering is often accompanied by negative emotions that impact a person's quality of life and their interactions with others on a daily basis. Intervention for stuttering is currently a controversial topic with conflict between two main approaches: fluency-promoting approaches and cognitive-based approaches, the latter of which focuses on effective communication and client values as the desired outcomes rather than fluency. The purpose of this systematic review is to investigate the effects that cognitive-based approaches have on adults who stutter.

Methods: Publications were extracted from two databases: CINAHL and Ovid Medline, alongside a hand search of peer-reviewed journals. The search produced 96 articles, which were reduced to 10 following the removal of duplicates and a review of the articles based on inclusion and exclusion criteria. In total, 186 adults aged 18 or older who stutter were examined across five different approaches. The impact of cognitive-based approaches was examined through analysis of scores on the Overall Assessment of the Speaker's Experience of Stuttering (OASES) and the Unhelpful Thoughts and Beliefs About Stuttering (UTBAS).

Results: Main findings demonstrated a percent decrease in stuttering impact (based on OASES scores) of 19.64% from pre-treatment to post-treatment, and 24.18% from pre-treatment to follow-up. Unhelpful thoughts and beliefs surrounding stuttering (based on UTBAS scores) decreased 22.61% from pre-treatment to post-treatment.

Discussion: This review indicates that cognitive-based approaches for stuttering significantly decreased the impact of stuttering and the number of unhelpful thoughts and beliefs associated with stuttering, both post-treatment and at follow-up assessments. The results suggest that these approaches are appropriate for stuttering treatment; however, further investigation of cognitive-based approaches that do not include fluency-shaping or stuttering modification aspects is recommended. This paper also proposes the potential benefit of assessment measures related to quality of life as a replacement for measures of stuttering frequency.

55. **Conversation in the Wild: Automating Analysis for Cognitive-Communication Impairments.** *Grenon, Katie; Dooley, Spencer; Olszko, Ardyn; Cannizzaro, Michael; Jangraw, David*

Background: Acquired brain injury often causes cognitive-communication impairments (CCI), but speech-language pathologists lack a standardized normed assessment for conversational communication. Large-scale quantification and characterization of natural conversation patterns will inform diagnosis of CCI and facilitate identification of evidence-based treatment targets. The objective of this project is to automate measurement of clinically important interactional and structural features of conversational stories.

Methods: We applied Natural Language Processing tools to the StoryCorps Archive, a very large corpus of minimally constrained conversational stories.

Results: Our analysis revealed altered interactional dynamics and structural features of conversational stories told by people with memory loss, in comparison to control groups.

Discussion: This research demonstrates the feasibility of automating clinical feature measurement for ecologically valid analysis of conversational story-telling.

56. **Understanding the Psychsocial Impacts of Childhood Apraxia of Speech in Adolescents.** *Hempel, L,C, Velleman, S, Abbiati, C*

Childhood apraxia of speech (CAS) is the inability to correctly sequence the motor movements that are necessary to articulate sounds properly for oral communication (Catrini & Lier-DeVitto, 2019). Although it is a motor speech disorder, psychosocial implications of CAS can impact individuals across the lifespan. It is important to address psychosocial challenges experienced by children with CAS to help them develop into successful communication partners. Due to the nature of CAS, social learning may be made more challenging for children from a very early age due to the complex communication difficulties they experience (Tarshis et al., 2020). These consequences include fewer social interactions, stunted social learning, and reliance on caregivers for communication (Lewis et al., 2021). Due to these challenges, children with CAS are often more isolated throughout their lifetime due to limitations in oral communication that interfere with the use of social and linguistic skills. A questionnaire and an interview are the sources of data in this study. The questionnaire is being

used to gather basic information about the demographics, family histories, current speech abilities, speech therapy histories, and the effects of CAS on the participants. Narrative analysis will be conducted using the Burke Pentad Method (1945). The Burke narrative method for data analysis highlights five elements of the participants' CAS stories. These five elements are the act, scene, agent, agency, and purpose. Pilot data gathered thus far indicate that CAS's psychosocial implications persist into adolescence. Impacts on the individual's mental health, how they interact with new people, relationship formation, and the way they view themselves are just a few examples of how CAS can continue to impact individuals well into their adolescent years. Further analysis of additional questionnaires and narratives will give insight into the struggles and achievements of pre-teens and teens with CAS in their daily lives.

57. **The Effects of Primary Caregiver Education on Preterm Born Children's Standardized Language Scores.** *Hemsted, E & Michaud, J*
Introduction: Low maternal education level and preterm birth are considered risk factors for poor language outcomes. Multiple studies have concluded that maternal educational level directly affects children's language development and outcomes. However, few have examined the relationship of primary caregiver (e.g., paternal or maternal) on preterm children's language outcomes. The purpose of this study is to evaluate the effects of primary caregiver (e.g., paternal or maternal) education level on preterm born children's performance on standardized language assessments.
Methods: Databases were searched for eligible articles based on inclusion and exclusion criteria. The search yielded 192 articles. After additional terms, ranges, and independent evaluation, the total number of eligible articles were 12. These participants weighed 1500 grams or less at birth and were of 36 weeks or less gestational age. Eligible studies analyzed preterm born children's language outcomes as evidenced by standardized assessment scores as a result of primary caregiver education level, ranging from primary to doctoral. Language scores within these studies were collected through 42 months of age.
Results: The findings of this systematic review indicate that low primary caregiver education level negatively affects preterm born children's language performance on norm-referenced assessments. All 12 studies found participants with low primary caregiver education level scored

lower on language assessments compared to peers with high primary caregiver education level. A trend was also noted in some studies that low primary education level may be associated with low socioeconomic status.

Discussion: This review concludes low primary education level negatively impacts preterm children's language development and outcomes. Primary caregivers with a low education level who birth preterm children should receive supplemental education of children's language development and how to facilitate language in the household.

58. **Sex-based differences on the Autism Diagnostic Observation Schedule in children under 6.** *Norton, M. J.*

Background/Objective: Research has found that autistic females are under-diagnosed and diagnosed at a later age. There is a gap in the literature on whether this could be due to diagnostic assessments that are not sensitive to potential sex-based differences. Because early intervention is critical for positive outcomes later in childhood, it is important to know why females are being under-diagnosed. The purpose of this literature review is to examine whether male and female autistic children under the age of 6 receive different scores on the gold-standard diagnostic assessment, the Autism Diagnostic Observation Schedule, or ADOS.

Methods: A search was completed for relevant literature on two databases, Ovid MEDLINE and CINAHL. One hundred articles were initially screened, 11 articles met inclusion and exclusion criteria and were ultimately included in the literature review.

Results: Results showed no significant differences in scores on the Social Affect (SA) or the Calibrated Severity Scale (CSS); however, only 3 articles included results for the CSS. Four studies found that males had significantly higher Restrictive and Repetitive Behaviors (RRBs), and 4 found no difference.

Conclusion: The results of this literature review contradict some previous research which suggest that sex-based differences do not appear before the age of 6. Contrastingly, the results of this study suggest that autistic males below age 6 may have higher rates of RRBs. These results indicate a need for additional high-quality studies on larger populations that are sampled from the general population rather than through a pediatrician referral.

59. **Cross-linguistic transfer effects of language intervention in L2 to L1 for linguistically diverse children: A systematic review.** *Panganiban, B. & Stuart, B.*

Purpose: Only 8.2% of speech-language pathologists are multilingual, despite the fact that 20.8% of people in the United States speak one of the over 300 languages present. According to ASHA Code of Ethics (2023), services cannot ethically be withheld on the basis of language. However, it is not always possible for every multilingual individual to receive services in their language. Because of this, it is essential that SLPs use accessible methods to provide language intervention to linguistically diverse populations. The treatment principle evaluated in this review is cross-linguistic transfer. Cross-linguistic transfer is a principle based on the presumption that language intervention provided in a child's L2 has the potential to transfer to the child's L1.

Methods: A total of 10 publications from 1997-2015 were selected for this review after exclusion criteria were applied to the original 9,667 results. All results were extracted from Pubmed, CINHAL, UVM Library, and citation-chaining. All studies included participants who are multilingual, <18 years, and had measurable language deficits. Publications included case studies and randomized controlled trials.

Results: Most studies included in this review did not find that cross-linguistic transfer occurred. Results indicate language intervention provided to multilingual children in their L2 did not reliably transfer to their L1, but cross-linguistic transfer may occur more readily depending on the language target.

Conclusion: The studies indicate further research is needed to determine the exact effects of cross-linguistic transfer. Additionally, more evidence-based practices for targeting language in multilingual children are needed.

60. **Objective versus perceived social anxiety in adults who stutter vs. low socially anxious controls.** *Quinn, E. G., Bauerly, K. R.*

Introduction. This project investigated the relationship between objective and perceived physiological responses in adults who stutter versus low socially anxious controls. Methods. Participants were connected to Biopac MP 160 (Biopac Systems, Inc.) to acquire skin conductance levels (SCL) while they participated in low- vs. high-socially stressful virtual reality

speaking situations. Following each condition, participants completed a self-report anxiety questionnaire. Results. No significant differences were reported for SCL between the low- and high-social stress condition for either group. However, the adults who stutter showed higher scores on the self-report for anxiety when speaking under the high social stress. Discussion. A discussion will focus on the importance of understanding the mechanisms underlying social anxiety in AWS to build more effective communication strategies in treatment.

61. **The Efficacy of Technology in Teaching Turn Taking Skills to Children with ASD: A Literature Review.** *Spence, M., Drohan, M., Holt, A., & Bauerly, K.*
Purpose: Technology is ever-changing and has become highly accessible in today's world. In recent years, the expansion of technology in speech therapy has significantly increased. There is currently a gap in the literature regarding the use of different forms of technology to treat pragmatic difficulties in children with autism spectrum disorder, specifically turn taking behaviors. The purpose of this literature review is to evaluate the efficacy of technology (videos, robots, and apps) in teaching turn-taking skills to children with autism spectrum disorder and to probe how technology can be utilized to create and implement successful intervention strategies.
Methods: Relevant studies were extracted from two online databases (CINAHL & PubMed). 11 studies met the inclusion and exclusion criteria and passed quality assessments. Participants included children with a diagnosis of autism spectrum disorder under the age of 12 with deficits in turn taking behaviors.
Results: Of the 11 reviewed studies, all 11 determined technology to be effective in teaching or promoting turn taking behaviors in children with autism spectrum disorder. The highest efficacy noted was from studies using iPads or video-based learning. These methods also showed to maintain the participants' increases in turn taking skills over time and promoted social behaviors such as joint attention and participation in group activities. Further research is needed to compare the use of technology versus traditional methods when teaching turn taking behavior, as well as to investigate the efficacy of technology in teaching other pragmatic skills to children with autism spectrum disorder.

62. **Most Effective Oral Care Interventions in Reducing Risk of Aspiration and Aspiration Pneumonia.** *Walkowiak, K. R., & Gruber, C. L.*
Background and Objective(s): Research has proven oral care as an effective intervention in reducing the risk of aspiration pneumonia, but there is a lack of research surrounding which types of oral care are most beneficial. The purpose of this systematic review is to investigate which types of oral care are most effective in reducing the risk of aspiration and aspiration pneumonia.
Methods: A total of 15 peer-reviewed articles from 2004 — 2022 that were obtained through CINAHL, PubMed, and backward chaining. The total number of participants across all studies, with the exception of Han et al. (2022), was 968 with an average age of 73.28 years. Intervention approaches in this systematic review included toothbrushing (6), toothbrushing and mouthwash (5), chlorhexidine (3), and oral moisturizer (1).
Results: Of the 15 studies, eight studies had statistically significant results. The most common statistically significant intervention type was toothbrushing. There was one study with chlorhexidine mouthwash intervention that did not show statistically significant results but showed substantial overall improvements. Four studies containing toothbrushing, toothbrushing and mouthwash, and chlorhexidine mouthwash interventions resulted in mixed significance indicating some variables of the study were statistically significant, while some were not. Two studies with toothbrushing and toothbrushing and mouthwash interventions did not report statistical significance.
Discussion: Given the current research, it is known that oral care is a highly important procedure that helps reduce risk of aspiration and aspiration pneumonia. Based on this systematic review, toothbrushing is the most common and effective intervention.

63. **Reading skills and COVID-19 school closures: How students were impacted.** *Lamothe, E., M. & Ware, K. E.*
Background and Objective(s): The COVID-19 pandemic has caused schools across the globe to close for various amounts of time. These school closures forced teachers to provide different types of instruction, which impacted students' academic abilities, such as literacy skills. This systematic review aimed to summarize the available literature on the

effects of COVID-19 related school closures on the literacy abilities of school-aged students.

Methods: 155 studies were identified from four research databases (PubMed, OvidMEDLINE, APA PsychInfo, Google Scholar) and backward chaining. Ten studies from various countries met the inclusion criteria and passed the quality assessment. Included studies compared pre-COVID literacy assessment scores with post-COVID scores for students in kindergarten through eighth grade.

Results: Out of ten studies, seven determined a significant negative effect on the literacy skills of school-aged students due to the COVID-19 pandemic. Studies were categorized into three groups based on length of school closure: (1) short closure, (2) medium closure, and (3) long closure. Studies within the medium closure and long closure groups determined more significant effects of the closures on student's literacy skills. Two studies within the short closure group and one study within the medium closure group did not find a significant impact on students' literacy skills.

Discussion: In sum, students who experienced longer periods of school closure had lower post-COVID scores on literacy assessments. These results offer important clinical implications for speech-language pathologists assessing students' literacy skills. Speech-language pathologists must consider the effects of school closures related to the COVID-19 pandemic during the differential diagnosis of reading disorders. Future research should examine the impact of these deficits on the daily literacy activities of students.

64. **The prevalence of aspiration pneumonia in hospitals, home health care, and nursing homes seen in the adult population.** *Emery, R. L. & Thompson, T. Q.*

Purpose: Pneumonia is the second leading cause of death worldwide (Mokdad et al., 2013). Aspiration pneumonia (AP) is a subtype of pneumonia. Knowing which healthcare setting AP is occurring at the highest rate is important to Speech Language Pathologists (SLPs). SLPs play a crucial role in screening, diagnosing, and treating AP in patients. While AP is seen in different settings, there are no studies comparing the prevalence of AP between them. The purpose of this systematic review is to increase awareness of AP's prevalence across different environments and identify risk factors associated with each location. Therefore, our final research question states: "What is the prevalence of aspiration

pneumonia among the adult population in nursing homes, hospitals, and home health care, and what factors are involved with each setting?"

Materials & Methods: The following databases were utilized: CINAHL, Google Scholar, and PubMed, along with backward and forward citation chaining. Two reviewers independently screened all titles and abstracts that fit the following inclusion criteria: study participants were 18 years or older, resided in one of the target settings (nursing home, hospital, home health care), diagnosed with aspiration pneumonia; the prevalence of aspiration pneumonia is represented in a percentage. In total, 18 articles were finally chosen (6 articles for each setting), each meeting the inclusion criteria.

Results: Main findings of this systematic review resulted in an average AP prevalence of 10.3% in nursing homes, 38.5% in hospitals, and 29.2% in home health care.

Conclusion: Based on the research, the prevalence of AP is highest in hospitals and lowest in nursing homes. This study's discussion also addresses the contributing factors for each setting.

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65. **Predicting Participation in Social Roles and Activities in Adults with Multiple Sclerosis Using Patient-Reported Measures.** *Bae, M., Kropiewnicki, J., Lloyd, N., Vannostrand, M., Kasser, S.*

Background: Decreased social participation is an important aspect of overall health and well-being in adults with multiple sclerosis (MS). While it is known that physical and cognitive impairments affect social participation, it remains unclear how self-efficacy for community mobility and dual-task mobility further impact this outcome. The purpose of this study was to identify the most significant self-reported predictors of participation in social roles and activity in this population.

Methods: This cross-sectional study recruited 785 individuals with MS who completed a survey of seven patient-reported measures: Multiple Sclerosis Walking Scale-12 (MSWS-12), Modified Fatigue Impact Scale (MFIS), Community Mobility Self-Efficacy (CME), Perceived Deficits Questionnaire (PDQ), Patient Determined Disease Steps (PDDS), Dual-Task Impact on Daily-living Activities (DIDA-Q), and Social Role and Activities. This study

employed a backward stepwise multiple linear regression analysis with PDDS, MSWS-12, MFIS, PDQ, DIDA-Q, and CME in the initial model, gradually eliminating variables that were not significant (p>.05) to determine the most parsimonious set of predictors.

Results: Of the total participants (mean age: 50.4 ± 12.8, female: 81%), 70.3% were identified as having at least mild disability that affects their lifestyle. All measures were significantly correlated with social participation (p<.001). The final backward multiple regression model (F (3,781): 494.58, p<.001) included the MFIS (B= -.21, 95% CI: -.22, -.19) and CME (B= .77, 95% CI: .64, .90), DIDA-Q (B: -.07, 95% CI: -.10, -.04), such that perceived fatigue and community mobility self-efficacy, and dual-task mobility best predicted social participation in persons with MS. The final model accounted for 66% of variance of social participation by MFIS, CME, and DIDA-Q.

Conclusion: Our study offers evidence of the importance of self-efficacy for community mobility and dual-task ability to social participation. These would aid in developing novel interventions to improve social participation and enhance overall well-being in this population.

66. **Physical function in older adults with and without a cancer history: Findings from the National Health and Aging Trends Study.** *Gell, N., Bae, M.*

Background: Previous studies identified physical function limitations in older cancer survivors, but few have included objective measures and most focused on breast and prostate cancer survivors. The current study compared self-reported and objective physical function measures between older adults with and without a cancer history.

Methods: Our cross-sectional study used a nationally representative sample of community-dwelling, Medicare beneficiaries from the 2015 National Health and Aging Trends Study (n = 7,495). Data collected included self-report physical function, such as a composite physical capacity score and limitations in strength, mobility, and balance, and objectively measured physical performance metrics, including gait speed, five time sit-to-stand, tandem stand, and grip strength. All analyses were weighted to account for the complex sampling design.

Results: Thirteen percent of participants (n=829) reported a history of cancer, of which more than half (51%) reported a diagnosis other than breast or prostate cancer. In models adjusted for demographics and health history, older cancer survivors had lower Short Physical

Performance Battery scores (unstandardized beta (B)=-0.36; 95% CI: -0.64, -0.08), slower gait speed (B=-0.03; 95% CI: -0.05, -.01) and reduced grip strength (B=-0.86; 95% CI: -1.44, -0.27), in agreement with worse self-reported composite physical capacity (B=-0.43; 95% CI: -0.67, -0.18) and upper extremity strength (B=1.27; 95% CI: 1.07,1.50) compared to older adults without cancer. Additionally, the burden of physical function limitations was greater in women than in men, which may be explained by cancer type.

Conclusions: Our results extend studies in breast and prostate cancer to show worse objective and self-reported physical function outcomes in older adults with a range of cancer types compared to those without a cancer history. Moreover, these burdens seem to disproportionately affect older adult women, underscoring the need for interventions to address functional limitations and prevent further health consequences of cancer and its treatment.

67. **Mobile Technology to Support Physical Therapist Exercise Prescription for People with Osteoarthritis: A Pilot RCT.** *Bloch, T, A; Dee, J, M; Sargent, E; Wingood, M; O'Brien, S, E; Dee, M, C; Tschoepe, B, A; Gell, N, M.*

Purpose: Exercise is an evidence-based intervention that is recognized to improve pain and disability in adults with osteoarthritis (OA), yet adherence to prescribed exercise is low. Mobile applications could support adherence through evidence-informed components and enhanced communication between physical therapists and patients. We aimed to compare mobile app (MA) vs. paper-handout (PH) exercise prescription for improvement in OA-related pain, physical function, and exercise self-efficacy for patients undergoing physical therapy for knee or hip OA.

Subjects: Forty-one adults (Mean age 63.7 ±5.8; 79% female) seeking physical therapy for knee or hip OA.

Methods: Participants were randomized to receive their home exercise prescription through the Wellpepper mobile app (n=20) or paper handout (n=21). All participants received the same dose and frequency of physical therapist visits (1x/week for 6 weeks with follow-up at 12 weeks); treatment was standardized to follow clinical guidelines for knee and hip OA. Outcome measures collected at baseline and 12 weeks included intermittent and constant pain (ICOAP), physical function (5-time-sit-to-stand, 4-square dynamic balance test, gait speed, 2-minute walk test)

and the Exercise Self-Efficacy Scale. We compared pre-post changes within and between groups using paired t-tests and linear regression, respectively.

Results: After 12 weeks, both groups significantly improved their constant pain (MA (n=17): -13.8 points±20.8, p=0.02; PH (n=17): -10.6±15.6), p=0.01), 5-time-sit-to-stand (MA: -2.8 secs±4.0, p=0.02; PH: -3.0±1.3, p=0.03), and the 4-square test (MA: -1.8 points±1.7, p=0.001; PH: 0.8±1.3, p=0.04). The MA group had significant improvements in intermittent pain (-18 points± 24.5, p=0.01), gait speed (+0.3m/sec±0.2, p=0.001) and the 2-minute walk test (+28 meters±44.2, p=0.03).The PH group had no significant changes on these measures. Adjusted models showed a significant change between groups for gait speed only (p=0.05). Neither group demonstrated change in exercise self-efficacy.Neither group had significant changes in exercise self-efficacy.

Conclusions: Both groups demonstrated significant improvement in OA-related constant pain, functional strength, and balance. However, only the group provided home exercise instruction with a mobile app showed significant improvements in intermittent pain, gait speed and endurance. More targeted intervention approaches, beyond the exercise prescription, are needed to improve exercise self-efficacy in patients with OA. A larger trial will allow for meaningful assessment of between group differences for mobile and paper prescription methods.

68. Impact of Visual Perception in Persistent Postural – Perceptual Dizziness.

Ayres, J, H; Choate, J, A; Cote, H, W; Dix, J, R; Reed, W, R; Rizzo Cascio, J, G

Background/Objectives: Persistent Postural Perceptual-Dizziness (PPPD) is a syndrome unifying related chronic dizziness disorders. Our research aims to investigate whether modifying visual input; eyes closed (EC) and eyes-open (EO) conditions would alter the CoP displacement with PPPD participants.

Methods: Two patients with PPPD and three healthy controls participated in this study. An external perturbation device was utilized to disrupt standing posture during various visual perceptual conditions while an instrumented force platform recorded Center of Pressure (CoP) data.

Results: No difference in peak CoP displacement was found between conditions across groups due to limitations in methodological design execution.

Conclusion and Discussion/Implications: This pilot study demonstrated that without accounting for auditory stimuli, we cannot conclude whether those living with PPPD will have greater CoP displacement than healthy controls in conditions with limited visual stimulus.

69. **Vermont Adaptive Insights: Elevating Research for Enhanced Adaptation.** *Hirschbuhl, Wade, J.*

Background: Vermont Adaptive (VA) is a nonprofit organization that is committed to empowering individuals with disabilities. Although VA is already a prominent organization throughout Vermont that has shown to produce positive outcomes for their participants, this organization does not currently participate in research.

Objectives: Understanding how and why Vermont Adaptive can have such a positive effect on their participants through research will not only provide VA valuable information on how they can improve their program, but it will also help address many public health problems related to individuals with disabilities.

Methods: Through a rigorous review of the current literature published on the National Library of Medicine, with the applied search terms, disabilities, recreation, adaptive, and skiing, a lack of research was discovered. To understand how research can improve a program, another search was conducted with the terms research, program improvement, and program development.

Results: It was found through research on how research can improve a program, that integrating research into Vermont Adaptive can help to improve their program.

Discussion: Through integrating research into VA's program, the findings from the resulting research articles will enable this organization to provide the best support possible to their adaptive athletes. Integrating research into VA will also provide those with disabilities, researchers, clinicians, and policy makers with the information necessary to make evidence based decisions to address the public health problems related to those with disabilities.

70. **How Do Two Different HHD Protocols Influence the Accuracy of Shoulder Strength Measures.** *Barbo, M*, Hardacre, J*, Lamberton, L*, McBrayer, M*, Rahimi, A*, Vogel, N*, Failla, M*

Background: Strength assessment methods include Manual Muscle Testing (MMT), Handheld Dynamometry (HHD), and isomechanical dynamometry (Biodex). MMT, the current clinical standard, has poor reliability and accuracy compared to the gold standard Biodex. HHDs are reliable and accurate, but lack standardized protocol, impacting their validity.

Objective: Determine the accuracy of HHD with 2 different stabilization protocols on assessing shoulder rotational strength and comparing it to the Biodex.

Methods: 10 healthy subjects were recruited; for each, shoulder external rotation (ER) and internal rotation (IR) strength were assessed via the Biodex, a therapist-supported (PT) HHD, and a fixed HHD, on both arms. For HHD testing conditions, subjects were seated, arm at their side, elbow flexed to 90o, and devices stabilized distally at the wrist. Three 5 second contractions were recorded, and peak torques were averaged over the three respective trials.

Results: The mean torque (ft·lb) with the Biodex was 18.386 ± 1.232 (95% CI, 15.806-20.966) for ER, and 41.982 ± 2.708 (95% CI, 36.314-47.650) for IR strength; the fixed HHD torque was 21.408 ± 0.944 ($p<0.001$; 95% CI, 19.432-23.383) for ER, and 37.772 ± 2.662 ($p<0.001$; 95% CI, 32.200-43.344) for IR; the PT HHD torque was 22.972 ± 1.051 ($p<0.001$; 95%, CI 20.771-25.172) and $32.355+/-1.910$ ($p<0.001$, 95% 28.358-36.353) for ER and IR strength, respectively. The Pearson correlation for ER strength of the fixed HHD and PT HHD vs Biodex was 0.84 and 0.75, respectively. The Pearson correlation for IR strength of the fixed HHD and PT HHD vs Biodex was 0.84 and 0.85, respectively. The Lin's Concordance Correlation for ER of the fixed HHD and PT HHD vs Biodex was 0.68 and 0.53, respectively; for IR with fixed HHD and PT HHD vs Biodex are 0.78 and 0.57, respectively.

Conclusions: The HHD, when fixed, produced a more accurate and consistent measurement of shoulder rotational strength than the therapist-supported when compared to the Biodex.

71. **Health Risk Behaviors, Status, And Outcomes Between U.S. States With And Without Professional Sports Teams.** *Tompkins, C, L; Martin, A, R; Shoulberg, E, K.*

Background: The connection (or lack thereof) between a professional sports team and the health of a community is unknown. Although some may argue that professional sports teams encourage positive health

behaviors, there are also some unhealthy behaviors associated with attending professional sports games and events.

Objective: To compare health risk behaviors, status, and outcomes in U.S. States with vs. without professional sports teams

Methods: Age-adjusted estimated prevalence of health measures based on Behavioral Risk Factor Surveillance System 2019 or 2020 data were obtained from the 2022 PLACES dataset. A total of 3 health risk behaviors (binge drinking, current smoking, no leisure-time physical activity), 3 health status (perceived general, mental, and physical health), and 5 health outcomes (high blood pressure and cholesterol, coronary heart disease (CHD), depression, diabetes, obesity) were examined. Independent samples t-test were used to compare health measures between states with vs. without professional sports teams. Significance was set at p<0.05.

Results: As of July 2022, there were a total of 140 professional sports teams in the U.S. located within 27 states with no teams in 23 U.S. states. No significant differences were observed in binge drinking (17.8 vs. 17.9%), smoking (19.9 vs. 20.2%), general health (16.0 vs. 16.0%), physical health (11.0 vs. 10.9%), high cholesterol (29.6 vs. 29.5%), CHD (6.3 vs. 6.4%), and diabetes (10.5 vs. 10.4%) between states with vs. without professional sports teams. Both depression and self-reported poor mental health prevalence was significantly higher in states with sports teams compared to those without (22.3 vs. 21.3% and 16.0 vs. 15.3%, p<0.0001, respectively). Significantly lower prevalence of no leisure-time physical activity (25.4 vs. 26.1%), obesity (35.8 vs. 36.9%) and high blood pressure (32.1 vs. 33.7%) was observed in states with vs. without professional sports teams, respectively (all p<0.001).

Conclusion: A broad examination of population-estimated health measures from states with and without professional sports teams revealed conflicting results. More detailed analyses are warranted to determine whether or not the presence of professional sports teams impact the health of the community.

72. **Employee Wellness Program Targeting Frontline Workers During COVID-19: A Phenomenological Analysis.** *Normand, Remy; Westervelt, Karen; Rose, Gail; Whitman, Susan*

Background: In the wake of Covid-19, frontline professionals such as healthcare workers and university professors faced unique work conditions, bringing increased responsibilities and stress. Research on

health and wellness coaching in the workplace is limited but some studies indicate that health and wellness coaching can be effective in improving the success of employee wellness programs (EWPs). Purpose: This study investigates the efficacy of an EWP implemented at the University of Vermont and University of Vermont Medical Center. Methods: This focus group-based study explored health coach perspectives on a novel employee wellness program. The study consisted of two focus group sessions conducted over Zoom, followed by a phenomenological analysis. The meetings were guided by facilitators using semi-structured discussion questions. The de-identified transcripts were then analyzed separately by 3 members of the research team. Results: Four major themes emerged from the analysis. The data collected in this study provides hopeful evidence that the OSW model and the use of integrative health and wellness coaches may be an effective intervention as an EWP in the university and hospital setting. Additionally, facilitators provided useful insight for potential program modifications based on accessibility, outreach, structure, and content. Conclusion: These results may be useful in developing wellness interventions in a broad employee population. Further research should be conducted in order to confirm these findings and develop highly effective strategies to combat burnout and improve the health of university and hospital employees.

73. **Differences in self-efficacy for community-mobility, falls efficacy, and dual-task mobility across non-fallers, one-time fallers, and frequent fallers in adults with multiple sclerosis.** *Bae, M., Mcclure, C., Ligon, A., Vannostrand, M., Kasser, S.*

Background: Despite the evidence that individuals with multiple sclerosis (MS) are at high risk of falls, little is known about how previous fall experience influences perceived self-efficacy for community-mobility, fear of falling, and dual-task mobility. This study aimed to identify differences in dual-tasking ability, community mobility efficacy, and falls efficacy in adults with MS across varying fall status.

Methods: Seven-hundred and eighty-five people with MS completed a survey about their Patient Determined Disease Status (PDDS), Community Mobility Self-Efficacy (CME), Falls Efficacy (FES), and Dual-Task Impact on Daily-living Activities (DIDA-Q). Participants reported their previous fall history within the past 3 months and were categorized into three groups: 1) non-fallers (n=438), 2) one-time fallers (n=198), and 3) frequent fallers

(n=149). A one-way ANOVA and Tukey post-hoc tests were conducted to compare CME, FES, and DIDA-Q across fall groups.

Results: Participants, of which 81% were female, had a mean age of 50.4 (SD=12.8) years. There were no significant differences in age and years post diagnosis across the three groups. The frequent faller group showed significantly higher proportion of gait disability and usage of cane (61.7%) in comparison to the non-faller (22.8%) and faller (41.9%) groups. The ANOVA analysis demonstrated significant differences in CME, FES, and DIDA-Q across the three groups (p<.001), and post-hoc tests indicated significant differences across all three fall groups for all variable comparisons.

Conclusions: Our study offers clinically relevant insight into important aspects of mobility impacted by falls in people with MS. This underscores the need to develop individualized fall-prevention strategies in this population.

74. **Quality of life in people with intellectual and developmental disabilities and their care partners: Assessing how geographic barriers in a rural state affects resource needs and community integration.** *Smith, A, M., Caudill, A, D.*

BACKGROUND: It is best practice to engage people with intellectual and developmental disabilities (IDD) in Quality of Life (QoL) research to understand their lived experiences (Shogren et al., 2021). Additionally, rurality is presented in the literature as having the potential to lower an individual's QoL (Oguzturk, 2008; Usha & Lalitha, 2016). People with IDD living in rural areas face additional challenges accessing resources to improve their QoL; programs and institutional supports may also differ between urban and rural IDD populations (Davidsson & Södergård, 2016).

PURPOSE: The purpose of this study was to analyze resource needs between rural and urban respondents with IDD and their care partners from a survey in a rural state in the United States.

METHODS: A secondary data analysis reviewed survey data of respondents with IDD or their care partners. Cross tabulation and binary linear regression statistics analysis was performed between groups (n=140). A thematic analysis was then conducted to analyze open-response data into overall themes. Using Schalock and Verdugo's (2002) QoL framework, parallels were drawn between the themes and listed domains to contribute ecological validity of the model to our sampled population.

RESULTS: Results indicated no statistical significance between urban and rural groups regarding resource needs, belonging, or impairments of diagnosis. Homogenous open-response data indicated similarities across all groups regarding social inclusion, material resources, and values within the community.

DISCUSSION: Results demonstrated agreement with the literature on the resource disparities of rural IDD populations (Fortney & Tassé, 2021). However, our findings contribute a unique perspective of comparable resource needs for people with IDD in both rural and urban sectors of rural states.

CONCLUSION: These results indicate a need for more informed resource development related to QoL of individuals with IDD and their care partners in both rural and urban geographic settings.

75. **Validity of a Telerehabilitation Physical Therapy Examination in an Ambulatory Setting.** *Freitas, E.*

Background and Objectives: Positive physical therapy (PT) outcomes from intervention via telerehabilitation (TR) are well documented. However, there is little evidence regarding validity of the TR examination compared to face-to-face (F2F) PT examination.

Methods: PubMed, Ovid, CINAHL, and Web of Science databases were searched for studies comparing a TR to F2F PT examination. Eligibility criteria included randomized-controlled trials including participants >18 receiving PT in an ambulatory setting. Publication date was set as 2003-2022 to investigate the most current evidence. Findings were not limited by language. The search strategy resulted in 207 articles. After removing duplicates, 102 abstracts were screened for relevance. Thirteen articles were assessed for eligibility by two independent researchers and 7 articles met the criteria. Outcome measures included in each article were assessed for validity of a TR examination. Data were organized into a data extraction tool. Risk of bias was assessed via the PEDro scale.

Results: Seven studies were included for analysis and demonstrated moderate-to-excellent validity for diagnosis, ROM, dynamic balance, endurance, posture, and shoulder orthopedic special tests.

Conclusion: Telerehabilitation appears to offer a valid mode of examination for some PT examination outcome measures. The availability of TR can reduce barriers and improve accessibility for patients seeking PT.

Further research is necessary to assess the validity of other outcome measures utilized in clinical practice via TR.

76. **A Model Health and Wellness Coaching Program for Employee Health and Student Experience.** *Whitman, A.*

Introduction: Health and Wellness Coaching (HWC) is an emerging profession with limited research on student practicums. Students struggle to gain practical experience, and employees can benefit from HWC programs in the workplace. This research explores the impact of HWC on behavior change in the workplace and investigates whether students can effectively deliver HWC under faculty supervision.

Methods: Students and employees of the university and hospital enrolled in the Fall 2022 12-week Employee Coaching Connection Program were invited to participate in the study. Students completed surveys at baseline and week 12 assessing confidence in coaching skills. Employees completed surveys at baseline and weeks 5, 12, 18, and 24 which recorded Patient-Reported Outcomes Measurement Information System 10-Question Short Form (PROMIS-10), Perceived Stress Scale (PSS-10), and goal attainment percentage. At program completion, a low contact maintenance strategy was implemented.

Results: Students reported increased confidence in coaching skills following practical experience. Statistically significant increases in employee PROMIS-10 Physical Health were seen from baseline to week 5 ($p=0.006$), week 12 ($p <0.001$), week 18 ($p <0.001$), and week 24 ($p <0.001$). Clinically significant changes in PROMIS-10 Physical Health were seen from baseline to week 18. Clinically and statistically significant increases in employee PROMIS-10 Mental Health were seen from baseline compared to week 18 ($p=0.036$). Statistically significant decreases in employee PSS-10 scores were seen from baseline compared to week 12 ($p=0.001$), week 18 ($p=0.002$), and week 24 ($p=0.002$). An upward trend was observed in goal attainment from week 5 to 18. Effects from the maintenance strategy were inconclusive.

Discussion/ Conclusion: This novel program resulted in mutual benefits of increased student confidence and improved employee self-reported health. The results justify continued research evaluating HWC coaching practicum, goal attainment, and maintenance strategies within university and hospital settings.

77.The Effects of Aerobic Training on Patients with Breast Cancer Experiencing Chemotherapy-Induced Cardiotoxicity: A Systematic Review. *Amell, C., Cassanelli, A., McDonald, J., Ritchie, N., Snow, E., White, L., Ouellette-Morton, R.*

Objective: The purpose of this systematic literature review is to investigate the impact of aerobic exercise and resistive training on cardiovascular endurance following chemotherapy treatment.

Methods: Four databases (2015 - March 2023) were searched for studies including exercise interventions for women with breast cancer who are at increased risk for or are experiencing cardiotoxicity as result of chemotherapy treatment. The search yielded 164 studies. Inclusion criteria included women with breast cancer, 18 years or older, at increased risk for or are experiencing chemotherapy induced cardiotoxicity, and assessed aerobic fitness via outcome measures. Nine articles met this criteria.

Results: Six studies suggest aerobic exercise can significantly improve cardiovascular fitness measures in women with breast cancer who have received chemotherapy. One out of the four studies examining fatigue levels reported significant improvements in levels of cancer related fatigue in the aerobic exercise group. Interventions including resistance training in combination with aerobic exercise reported significant improvements in strength and endurance outcome measures. Moderate to high intensity resistance training and aerobic exercise yielded superior improvements in cardiorespiratory fitness. Low intensity exercise also increased cardiovascular endurance compared to the control group; however, the results observed were not as substantial when compared with moderate to high intensity exercise groups. Exercise interventions that continue post chemotherapy treatment have superior cardiovascular health outcomes at long-term follow-ups.

Conclusion: The findings demonstrate supervised aerobic exercise is a feasible and effective intervention to improve cardiac function, strength, and fatigue for patients with breast cancer at increased risk for or experiencing chemotherapy induced cardiotoxicity. It is recommended that patients exercise during chemotherapy treatment, and transition to community health programs to continue improving physical function after the completion of treatment. Additional research is needed to standardize outcome measures and determine optimal dosing, mode,

and frequency of supervised exercise to mitigate the effects of cardiotoxicity.