Zeigler Research Forum 2024

College of Nursing and Health Sciences

May 8, 2024

8:00 AM – 12:15 PM

Grand Maple Ballroom & Livak Fireplace Lounge

Davis Center

Schedule of Events

Keynote Address

Research Incentive Grant Winner

Data Blitz 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

11:00-11:30 a.m. – Research Incentive Grant Winner

11:30-12:00 p.m. – Data Blitz Talks

12:00-12:15 p.m. – Awards and Closing Remarks

Keynote Address

MAKE LABOR VISIBLE: VALUING CARE WORK IN AN A.I. ERA

KEYNOTE SPEAKER: Dr. Rae K. Walker

Rachel (Rae) Walker, PhD, RN, FAAN

Associate Professor
Elaine Marieb College of Nursing
University of Massachusetts Amherst

Rae Walker (they/them) is an Associate Professor, Fellow of the American Academy of Nursing, and the only nurse Invention Ambassador for the American Association for the Advancement of Science. They direct the Nursing PhD Program at the University of Massachusetts Amherst and serve as an Associate Director of the Center for Personalized Health Monitoring, a translational science center specializing in critical analysis of A.I., sensors, and mHealth. Following service in the U.S. Peace Corps, they completed their nursing training, PhD, Certificates in Nursing Education and Health Inequities, and a Postdoctoral Fellowship at Johns Hopkins University in Baltimore. Their scholarship focuses on community-directed health innovation and digital defense against technologies and data regimes that cause harm. In 2023, they co-founded Health Tech for the People, a transdisciplinary collaborative focused on A.I. and tech ethics. Their advocacy for nurse-led innovation, design justice and more inclusive invention ecosystems has been featured on numerous podcasts, the TEDx stage, and in magazines such as Forbes, Scientific American, Science and on NPR.

Research Incentive Grant Winner

Melissa Scheiber, Ph.D., MLT (ASCP), MB, CM
Clinical Assistant Professor, Biomedical and Health Sciences
Zebrafish (Danio rerio): An Emerging Model for Cancer Metastasis

Data Blitz Talks

Biomedical and Health Sciences
Presenter: Shannon Prior
Metabolic rewiring promotes metastatic potential upon glutamine deprivation in STK11 null KRAS-driven lung adenocarcinoma

Communication Sciences and Disorders
Presenter: Madison Welte
A Comparison of Exercise-Based and Standard Care Dysphagia Treatment in Head and Neck Cancer Patients

Nursing
Presenter: Alexis Calcagni
Addressing Emergency Department Response to Hypertensive Disorders of Pregnancy

Rehabilitation and Movement Sciences
Presenter: Liliane Savard
Feasibility of a Motor Learning Study Protocol for Children on the Autism Spectrum

Posters at a Glance

Nursing

Livak Fireplace Lounge, poster numbers 1-29

Biomedical and Health Sciences

Grand Maple Ballroom, poster numbers 30-50

Communication Sciences and Disorders

Grand Maple Ballroom, poster numbers 51-64

Rehabilitation and Movement Science

Grand Maple Ballroom, poster numbers 65-70

Nursing

* Abstract selected for a Data Blitz Presentation

Poster Number	Author(s)	Title
1	Smith, J. E. & Pelski, J.	Blood Glucose Telemonitoring Lessons Learned from a Quality Improvement Initiative
2	Wells Auclair, TL	Implementing an Obesity Prevention Toolkit for Overweight Adolescents in Primary Care
3	Anna Ramsey; Teresa Cahill-Griffin; Elsa Ingpen	Integrating a Toolkit to Increase Health Promotion Knowledge in a Rural School-Based Health Clinic
4	Burtschi, C.M.	Improving the Use of LGBTQ+ Inclusive Language Among the Health Care Team
5	Fungon, Sean M	Promoting the Utilization of Campus Mental Health Resources by BIPOC University Students
6	Alyssa Tonks; Rebecca Nagle	Improving Pediatric Obesity Management in Rural Primary Care
7	Koeller, K. E., Dale, R. Jaynes, S.	Utilizing Well-Child Visits to Improve Screening Rates of Postpartum Depression: A Quality Improvement Project
8	Taylor, H, M	Silence Equals Death: Developing and implementing nursing education on the physiology and care of patients who deny the sex and gender binary
9	O'Neil, S.R.	Perspectives of the Role of the End-of-Life Doula
10	Venkatayogi, Tuhina; Leighton, Erin	Increasing Breast Cancer Screenings in the New American Population
11	Shepard, A, L	Optimizing Patient Outcomes in Individuals with Obesity Undergoing Joint Replacement
12	Cross, Charlie M	Improving University Student Access to Gender Affirming Care
13	Castner, N, L	School Nurse Adherence to Screening for Functional Constipation in the School-Age Child
14	McLaren, Ashley	Improving Transition of Care Through Education and Prenatal Planning: A Quality Improvement Project

Nursing

Poster Number	Author(s)	Title
15	Sarah Bevet; Rebecca Nagle	Provider Attitudes Toward Screen Time Discussions in Pediatric Patients Ages 2-5 And Utilization of the Family Media Plan
16	Michelson, A, A	Standardizing Transitional Care Management in Primary Care
17	Haskins, L	Implementing a Vaping Educational Toolkit within a Specialty Pediatric Population
18	Jacobs, P, N	Promoting Advance Care Planning in Primary Care
19	Giddings, X, B	Age Friendly Care in a Rural Community Health Center
20	Ciampa Zwicky, K.M.	Increasing Breast Cancer Screening Rates in Primary Care
21	Schut, D, G	Improving Medication Review for Adult Patients 65+ in a Rural Emergency Department
22	Weisheit, C. R.	Improving Dementia Care: Establishing an Acuity Classification System
23	Calcagni, A. E	Addressing Emergency Department Response to Hypertensive Disorders of Pregnancy*
24	Chon, Christina	Evaluating E-Consults in Primary Care to Improve Usability and Efficiency
25	Hersey, S.A., Keiffer, M.K.	Improving Knowledge of Trauma-Informed Care in the Emergency Setting
26	Adams, H, DC	Charting the Path to National Recognition: A Medical-Surgical Microsystem Audit for Nurse Burnout
27	Dubois, M, M.B.; Nagle, R; Walker-Borch, C	Optimizing Exclusive Breastfeeding in the Early Postpartum Period through Effective Transitions of Care
28	Kuki, A, C	Improving Depression Screening in a Primary Care Office with an Evidence-Based Depression Screening Protocol
29	Melissa Beaudry	Reducing 30-day Heart Failure Readmissions Utilizing Transitional Care

Biomedical and Health Sciences

* Abstract selected for a Data Blitz Presentation

Poster Number	Author(s)	Title
30	Mark, Z, F	Silencing of PDIA6 to increase IRE1 activation and determine its role in viral replication and the pro inflammatory response
31	Royer C.M., Bialek L.K., Sarausky H.M., Prior S.M., Nandagopal G., Deming P.B., Seward D.J., Scheiber M.N.	Mechanisms linking STK11 loss with metastatic potential in KRAS-mutated lung adenocarcinoma
32	Shepard, J, D	Implementation of a Novel Sandwich ELISA Laboratory Module in an Immunology Lab Course
33	Prior, SM. Sands, LE. Lenahan, S. Sarausky, H. Scheiber, M. Seward, DJ. Deming, PB.	Metabolic rewiring promotes metastatic potential upon glutamine deprivation in STK11 null KRAS-driven lung adenocarcinoma*
34	Gopika Nandagopal, Sean Lenahan, Tyler Hogan, Hannah Ross, Peyton Jenkins, Paula Deming, David Seward	Stk11 C-Terminal domain variants impact lung cancer biology independent of kinase activity
35	Douglas, Molly C	The Transport, Culture, and Identification of Neisseria gonorrhoeae from Patient Samples on InTray GC Media
36	Plasse, E. A.	Homelessness and Infectious Disease: Barriers, Facilitators, and Unmet Needs in Infectious Disease Testing
37	Giubardo,R,I; Byrne, S,T; Smith, S,L	Vermont Public Health Association

Biomedical and Health Sciences

Poster Number	Author(s)	Title
38	Christina C. Aiello, Madeleine J. Colton, Gal M. Rocabado-Sperberg, Christel M. Tonoki	Improving Cultural Fluency Efforts in Alzheimer's Care
39	Foley, T, K; White, O, G	Harvest Bill: Creating Greenhouses for Sustainable Futures
40	Hurlbert Cydney I, Luneau Evelyn, Westlund Jiji	My Health UVM: A Comprehensive Health and Wellness App
41	Speth, V, L; Hubbard, L, E	The Art of Midwifery: How the Artwork of Certified Professional Midwives can be Used to Transform the Maternal Health Landscape
42	P Silar, I Brennan, E Wu, M Kopelson, G Ardito	Improving Mental Health Outcomes Through Partnership Between Vermont Family Network and UVM Athletics
43	Christian A Samantha, Binger H Naomi, Fleuette S Isabelle, Wright H Greta	Rally Cat's Advocacy Team (RCAT)
44	Forester, F, A - Lepre, I, M - Shepard, M, S	Improving Disordered Eating Outreach at The University of Vermont
45	McPherson, J, H. Parento, B, S.	Student-Athlete Mental Health Peer Advocacy Program
46	Raymond, A, E, Scott, V, C, Valeriani, M, J	Affirming Doula Services for LGBTQ+ Vermonters
47	Burger, L, Groves, K, I, Dolzani, E, R	Air Quality Improvement using Phytoremediation: An Eco-friendly Approach to a Healthier Workplace

Biomedical and Health Sciences

Poster Number	Author(s)	Title
48	Diaz, M, C; Cramer, S, M; Taylor, J	Expansion of Entry Level Health Care Education
49	M Libuda, A Vasak, J Oviedo, M Bogue, A Von Rhedey, K Johnson	Pop-up Art Sites within the University of Vermont Medical Center (UVMMC)
50	M Libuda, A Vasak, J Oviedo, M Bogue, A Von Rhedey, K Johnson	AFTH x Meals on Wheels Collaboration

Communication Sciences and Disorders

* Abstract selected for a Data Blitz Presentation

Poster Number	Author(s)	Title
51	Frechette, Asher C	Long-Term Effectiveness of Gender-Affirming Voice Therapy for Transgender Individuals
52	Welte, M.M.	A Comparison of Exercise-Based and Standard Care Dysphagia Treatment in Head and Neck Cancer Patients*
53	Daigle, C. E.	Themes of Successful High School Peer Support Programs for Autistic Teens
54	Howrigan, M.G. & Moffroid, I.M.	The correlation of race and age of autism spectrum disorder diagnosis
55	Kenyon, M. & Pavlik, M.	Efficacy of Transition to Literacy on the decoding skills of individuals with complex communication needs
56	Paquette, L.C.	Prelinguistic Predictors of Expressive Language Growth in Minimally Verbal and Nonverbal Autistic Children: A Systematic Review of the Literature
57	Brough, L. E.	Effects of the COVID-19 on the communication abilities in 1-2 year-olds
58	Loftus, L.F., Marks, B.T.	How does caregiver training impact AAC device abandonment or rejection in children?
59	Lewallen, O. N. & McGlothlin S. J.	The effectiveness of pre-habilitative swallowing exercises on post-treatment swallowing function in squamous cell carcinoma head and neck cancer patients: A systematic review
60	D'Auria, C., Zane, E., Cohn, N., Booth, E., Chappell, H., Soong, C., Reichert, G. & Coderre, E.L.	Cross-modal examinations of narrative structural processing in autistic individuals
61	Coderre, E.L., Medeiros, S.B.	Association of Autistic Traits with Visual and Verbal Thought Patterns

Communication Sciences and Disorders

Poster Number	Author(s)	Title
62	Knobel, A, M; Jangraw, D; Grenon, K; Cannizzaro, M	Inferring Patient Fear from Word Properties in Pediatric Psychotherapy
63	Bookless, M. C., Severance, B. E., Simons, K., Guimaraes, V., Becerra, A., Velleman, S., Mervis, C.	Mean Babble Level and Canonical Babble Ratio: Relationships to Vocabulary in Williams Syndrome
64	Bliss, E., Grenon, K., Olszko, A., Jangraw, D., & Cannizzaro, M.	Cohesion Trends in Discourse Using Automated Analysis

Rehabilitation and Movement Sciences

* Abstract selected for a Data Blitz Presentation

Poster Number	Author(s)	Title
65	Lloyd, Natalie, Kasser, Susan	The Effects of Axial Loading on Real-World Ambulation in Persons with Multiple Sclerosis; a Pilot Study
66	Myeongjin Bae, Sydney Minnerly, Sadegh Khodabandeloo, Michael VanNostrand, Nancy Gell, Susan Kasser	Reliability and validity of the ratings of perceived stability scale as a measure of balance exercise intensity in persons with multiple sclerosis
67	Savard, L Tschaikowsky, E Gell, N	Feasibility of a Motor Learning Study Protocol for Children on the Autism Spectrum*
68	Savard, L, Kelly, B, Pham, C, Lodestone, Z, Shor, M, Smith, A,	Addressing accessibility barriers: how to effectively amplify autistic perspectives across disciplines
69	Gell, N, M, Seals, S, M	Motivating Factors and Physical Activity by Age Groups: A Nationally Representative Cross-Sectional Study
70	Barwin, WB. Beynnon, BD. Krug, MI. Borah, A. Gardner-Morse, MG. Vacek, PM. Tourville, TW. Geeslin, M. Choquette, R. Falla, M.	Effect of Biological Sex and Lateral Meniscus Tear on Quantitative Magnetic Resonance Imaging (qMRI) of the Meniscus Following Acute Anterior Cruciate Ligament (ACL) Injury of the Knee Joint

Poster Abstracts

*Abstract selected for a Data Blitz presentation

Nursing

1. **Blood Glucose Telemonitoring Lessons Learned from a Quality Improvement Initiative.** *Smith, J. E. & Pelski, J.*

   Purpose: Uncontrolled diabetes contributes significantly to morbidity and mortality in Vermont. Patients with suboptimal glycemic control require ongoing blood glucose monitoring and timely titration of medications by a healthcare provider. Remote monitoring of blood glucose readings, or "telemonitoring," is associated with significant improvements in glycemic control, reducing risk for adverse outcomes and hospitalization. This project aimed to establish and evaluate a standardized workflow strategy for telemonitoring patients with suboptimal glycemic control at an outpatient endocrinology clinic associated with a major academic medical center in Vermont.

   Methods: Participants included patients with type 1, type 2, or gestational diabetes. An order set for telemonitoring was integrated into the electronic health record, allowing providers to request remote blood glucose monitoring. A clinic workflow was devised to manage notifications.

   Results: Ten staff members completed a satisfaction survey. Sixty-six percent found the order set easy to use and were satisfied with it, while 83% found it functional for clinic needs. Similarly, 83% regarded the workflow as straightforward, logical, and functional, but only 50% were satisfied with it.

   Conclusion/Implications: Technological difficulties and delays led to a lack of blood glucose data for review. Future steps should include evaluating blood glucose trends after telemonitoring, simplifying the telemonitoring ordering process, and providing additional staff training. The dissemination of quality improvement initiatives enriches the literature

and informs future projects aiming to implement and sustain meaningful changes in healthcare delivery.

2. **Implementing an Obesity Prevention Toolkit for Overweight Adolescents in Primary Care.** *Wells Auclair, TL*

   Background: More than 25% of Vermont high school students were considered overweight or obese in 2019. Several factors contribute to obesity including poor nutrition, reduced physical activity and excess screen time. Obesity in adolescence increases the risk for obesity in adulthood with early onset of many cardiometabolic health conditions.

   Objective : Implementation of an evidence-based toolkit to increase patient and family knowledge about healthy behaviors.

   Methods: Adolescents with a BMI in the 85-95th percentile completed healthy behavior screenings prior to well visits. Primary care providers (PCP), guided by the screening, tailored implementation of the toolkit to educate patients and families on healthy behaviors. Adolescent knowledge was assessed using the teach back method. Patients, PCPs and nurses provided post-implementation feedback via surveys.

   Results: A total of 34 adolescents completed the healthy behavior screenings, with 53% identifying a desire for change. 3 (8%) adolescents completed the post-survey, 100% reported receiving helpful information. 5 PCPs and 7 nurses completed the survey. 80% of PCPs reported they were better able to discuss healthy behaviors and would use the toolkit in future practice. 80% of the PCPs and 100% of the nurses felt that the toolkit improved quality of care. All PCPs reported that patients demonstrated increased healthy behavior knowledge.

   Conclusion: The toolkit was acceptable, feasible and beneficial for discussing healthy behaviors during well visits. Clinicians reported an increase in care quality while patients indicated increased knowledge.

3. **Integrating a Toolkit to Increase Health Promotion Knowledge in a Rural School-Based Health Clinic.** *Anna Ramsey, DNPc, RN; Dr. Teresa Cahill-Griffin, DNP, RNC-OB; Dr. Elsa Ingpen, DNP, FNP-C*

   Purpose: Preventative health education for children is critical for promoting lifelong health and reducing both illness burden and medical care costs. Rural students face barriers to healthcare including ability to pay, transportation, and workforce shortages. School-based health clinics (SBHCs) have increased rural healthcare access by providing students

access to medical care while at school. While SBHCs are utilized primarily for acute concerns, the setting has the potential to be further utilized for preventative health education. This project sought to implement a health promotion toolkit in a rural Vermont SBHC and to assess both provider satisfaction and change in student perceived knowledge.

Methods: A health promotion toolkit was introduced to providers at a rural SBHC. Providers identified students 12 years of age and older who would benefit from teaching. Providers completed a pre-visit questionnaire with students before completing targeted health teaching. A post-visit questionnaire was completed to assess retained knowledge. Weekly questionnaires were completed by SBHC providers to assess their satisfaction.

Results: A health promotion toolkit was effectively implemented at a rural SBHC. Positive feedback was received from SBHC providers (n=3) and feedback to include students 8 years of age and older was used to drive an additional PDSA cycle. Student (n=13) perceived knowledge increased after the teaching.

Conclusion: The Nemours toolkit was well-liked by providers and proved to be effective at increasing student knowledge at this particular SBHC. Further utilization of health promotion toolkits and research in rural SBHCs is needed to demonstrate increased health education access in this population.

4. **Improving the Use of LGBTQ+ Inclusive Language Among the Health Care Team.** *Burtschi, C.M.*

Purpose: This quality improvement project aimed to increase the health care team's knowledge and comfort in the use of LGBTQ+ inclusive language by December 2023. Inclusive language is the avoidance of terms that are considered sexist or biased against any group of people. When providing care to LGBTQ+ patients, health care providers often struggle with the use of inclusive language. Evidence reveals education on inclusive language improves the knowledge and comfort of health care providers, nurses, and medical students. Patients report higher patient satisfaction and better clinical outcomes with providers who use inclusive terminology.

Methods: The project site was a rural primary care clinic in a northeastern state. Data was collected to determine whether preferred pronouns and gender identify was documented in the electronic health record.

Education on LGBTQ+ inclusive language was delivered to healthcare providers and supporting staff. Resources to support the use of LGBTQ+ inclusive language were distributed.

Results: The documentation of preferred pronouns and gender identity in the electronic health record was 100% (n=106). After the intervention, the post-education survey revealed 100% participant's (n=17) agreed that knowledge increased in relation to the use of LGBTQ+ inclusive language. Whereas, 94% participant's agreed comfort increased in relation to the use of LGBTQ+ inclusive language. Post intervention, 88% of participants planned to take action to apply gender inclusive language in the workplace.

Conclusion: Education on inclusive language improved the knowledge and comfort of health care staff. Taking action to apply gender inclusive care language is essential to providing patient-centered care.

5. **Promoting the Utilization of Campus Mental Health Resources by BIPOC University Students.** *Fungon, Sean M*

   Background: BIPOC university students face an elevated risk and prevalence of adverse mental health conditions. Despite this, BIPOC students underutilize campus mental health resources, a tendency that may be negatively influenced by bystanders' (i.e., student peers) lack of preparedness and confidence in mental health situations. The site of implementation indicated a lower utilization of the mental health services offered on campus by the BIPOC student population. Such underutilization may contribute to heightened instances of unreported and untreated mental health conditions within this demographic.

   Objectives: Increase BIPOC students' and peers' knowledge of bystander intervention and increase BIPOC students' utilization of mental health resources available on campus.

   Method: The intervention consisted of a 1-hr cultural-focused mental health bystander intervention program for a suburban university student population. Two workshops were held during the 2023 fall semester. The Gatekeeper Behavior Surveys (GBS) measured participants' self-rated confidence, preparedness, and likelihood to act pre- and post-workshop. A chart review of BIPOC students utilizing student health services for mental health concerns in the fall semester before and during the workshop implementation was collected.

Results: University students (n=18) participated in the bystander intervention workshop. A 38% increase in the utilization of campus mental health resources by BIPOC students was reported during the fall semester when the workshop was implemented. An overall improvement was observed by participants on the GBS.

Discussion: Both the primary and secondary aims of the intervention were achieved. The bystander intervention model/workshop, coupled with increased engagement from the university community, has the potential to positively influence the accessibility and utilization of mental health resources available on campus by BIPOC students.

6. **Improving Pediatric Obesity Management in Rural Primary Care.** *Alyssa Tonks, DNPc, RN; Rebecca Nagle, DNP, PNP-BC, RN*

Purpose: Childhood obesity is a major health concern, especially in rural US regions, where children are 26% more likely to develop obesity in comparison to their urban peers. Despite primary care clinicians' pivotal role in addressing obesity, poor adherence to clinical practice guidelines has impeded effective management. This project addressed this gap by implementing an education module to enhance providers' understanding and adherence to obesity-related clinical practice guidelines.

Methods: The educational module was implemented at a Federally Qualified Health Center in a rural north-eastern state. Electronic health record analysis assessed diagnosis accuracy (patients correctly assigned a Z68.54 diagnostic code if their BMI ≥ 95th percentile for age) and referral rates before and after the intervention. Post-intervention provider surveys were conducted to evaluate perceived effectiveness.

Results: Pre-intervention data (n= 242) revealed a 56% accuracy rate and a 20% referral rate, while post-intervention data (n=242) showed a 64% accuracy rate and a 29% referral rate. In both datasets, patients meeting BMI criteria for obesity but lacking a Z68.54 code were not referred to specialists. Providers (n=7) reported increased confidence and competence in pediatric obesity management.

Conclusions: The intervention increased provider adherence to clinical practice guidelines and resulted in an 8% increase in the accuracy of obesity diagnosis and an 9% rise in specialty care referrals. Data from provider surveys further underscored effectiveness. Future efforts should focus on widespread dissemination of the educational module and

evaluation of long-term implications of follow-up care, specialty referrals, and innovative approaches to care.

7. **Utilizing Well-Child Visits to Improve Screening Rates of Postpartum Depression: A Quality Improvement Project.** *Koeller, K. E., Dale, R. Jaynes, S.*

Purpose: Postpartum depression (PPD) is one of the leading causes of postnatal health complications, contributing to both poor maternal and child health outcomes. Standardized screening of PPD during Well-Child-Visits (WCV) serves as a unique opportunity to bridge the gap in maternal and postpartum health care. The purpose of this quality improvement (QI) project was to increase the screening rate of PPD over a 12-week period. Secondary aims included increasing provider awareness of PPD through delivering an educational module.

Methods: A retrospective chart review identified the screening rate of PPD prior to the QI project. An educational module was presented to all involved clinical staff. New mothers were screened for PPD using the Edinburgh Postnatal Depression Scale (EPDS) during the first year of WCV at the 1-, 2-, 4-, 6-, 9-, or 12-month visits.

Results: Prior to the QI project, 0 out of 23 new mothers were screened for PPD during the first year of WCV. There were 25 total screenings after the intervention. The screening rate increased after delivering an educational module to providers on the importance of utilizing evidence-based screening tools and the impact of PPD.

Conclusions: The QI project resulted in a permanent practice change. Screening new mothers for PPD during the first year of WCV is feasible and contributes to earlier detection of postpartum mental health complications. Earlier detection of PPD supports improved patient outcomes for both mother and baby.

8. **Silence Equals Death: Developing and implementing nursing education on the physiology and care of patients who deny the sex and gender binary.** *Taylor, H, M*

Background and Objectives: Sex and gender diverse individuals often face negative impacts on their safety and well-being due to interactions with healthcare professionals they perceive as inadequately educated. This project aimed to develop and implement a targeted gender and sexual diversity (GSD)-inclusive curriculum to address knowledge gaps

among senior-level nursing students in caring for sex and gender diverse patients.

Methods: Initially, students attended a lecture designed to address basic concepts of sex and gender diverse patient care. Anonymous surveys were then used to evaluate nursing student and faculty attitudes toward sex and gender diverse patients, as well as their knowledge of caring for this population. Subsequently, a GSD-inclusive curriculum was developed to challenge binary perspectives and biases identified in the surveys. This curriculum was then implemented with the same students in small group workshops that emphasized the importance of thoughtful care for this patient population and practical strategies for providing such care. Additional anonymous surveys were used to evaluate students' perceived educational growth, emotional impact, and overall satisfaction with the curriculum.

Results: The intervention resulted in increased knowledge and positive attitude shifts among students as measured by the post-implementation surveys. Furthermore, both nursing students and faculty expressed a desire for more education and guidance on addressing the needs of sex and gender diverse patients.

Discussion: The study underscores the effectiveness of GSD-inclusive curricula in enhancing nurses' understanding and care for sex and gender diverse patients, while also highlighting the persistent demand for more education in this area among nursing faculty and students. Future research should focus on refining educational methods and including more diverse participant populations to further improve care for sex and gender diverse individuals.

9. **Perspectives of the Role of the End-of-Life Doula.** *O'Neil, S.R.*
Death and dying is currently a taboo subject in our society and existing end-of-life systems are overwhelmed, limiting people's ability to plan for and then access the death they want to experience. End-of-Life Doulas are a tool to fill in the gaps in death and dying experiences, and encourage conversations about death to promote death positivity. However, End-of-Life Doulas do not currently have a standardized role definition, scope, or training, which inhibits the possible benefits during end-of-life. This study aims to contribute to existing literature that details perspectives on the role of the EOLD. Eleven participants were recruited for this qualitative study. Reflexive thematic analysis was used to analyze

the data, with an essentialist/realist paradigm and semantic approach. The findings corroborate the existing literature, detailed in six main themes: 1) inviting loved ones back to their familial roles and bringing a sense of emotional stability; 2) encouraging people to find the beauty in end-of-life and feel that a life had meaning; 3) giving the gift of time and human connection; 4) the importance of listening and conversation; 5) offering guidance in decision making and planning; and 6) advocating throughout the death and dying journey. These themes are pertinent to developing a clear role definition for the End-of-Life Doula, along with developing a standardized training to solidify the role within the healthcare system. Future research needs to identify a scope for the End-of-Life Doula both to prevent professional overlap that diminishes the benefits of the End-of-Life Doula, and to increase societal awareness of the End-of-Life Doula as a framework for pulling apart the death taboo to allow for better planning and death and dying experiences.

10. **Increasing Breast Cancer Screenings in the New American Population.**
Venkatayogi, Tuhina; Leighton, Erin
Purpose: Breast cancer poses a significant health risk globally, with routine screenings pivotal for early detection. The New American population in Vermont face many barriers to accessing mammogram screenings and have a 0% participation rate in breast cancer screening, thus necessitating targeted interventions. The purpose of this project was to improve mammogram participation among New Americans by at least 15% by January 2024.
Methods: The intervention at a New American clinic included an educational infographic presented during initial health center visits, supplemented by tangible pamphlets. Patient understanding was assessed through teach-back questions. Appointment scheduling was facilitated during the visit, with reminder cards provided. The project's analytical methods involved descriptive statistics, utilizing demographic data (age, ethnicity, language, education) which identified potential disparities influencing screening behaviors.
Results: 83% of participants (n=6) proactively scheduled mammogram appointments, supported by reminder cards. Visual representations highlight demographic characteristics impacting screening engagement. The results of the project support the effectiveness of the tailored interventions.

Conclusions: The project underscored the effectiveness of targeted strategies to address healthcare disparities within New American communities. The proactive role of graphic educational materials was emphasized in empowering patients to engage actively in their healthcare decisions. Despite limitations related to clinic constraints, the project surpassed its primary aim. Implications for practice include adopting tailored interventions and comprehensive healthcare strategies for diverse populations, emphasizing patient empowerment, and increasing accessibility. Further projects should explore the scalability and sustainability of similar interventions in diverse healthcare settings.

11. **Optimizing Patient Outcomes in Individuals with Obesity Undergoing Joint Replacement.** *Shepard, A, L*
Background: Obesity is a primary risk factor for osteoarthritis of the hips and knees, which over time may require total joint arthroplasty. There is an increasing use joint optimization programs to assist individuals with obesity to better qualify for surgery and limit potential post operative complications.
Purpose: Evaluation of a Joint Health Coaching Program (JHCP) to understand programmatic policies and procedures and identify barriers and facilitators to patient satisfaction of obese individuals
Methods: The project manager worked with stakeholder to identify practice procedures. Patients were identified through the Joint Health Coach. A survey, including qualitative and quantitative data identified barriers, facilitators, and overall patient satisfaction was sent to 102 participants with obesity through the electronic health record (EHR) and by telephone. One cycle of the Plan-Do-Study-Act (PDSA) cycle was utilized and data analysis included descriptive statistics and thematic analysis.
Results: Twenty-six participants responded to the survey, yielding a response rate of 25.5%. Participants in the JHCP report high satisfaction with the JHCP. All participants have completed the JHCP. There was successful weight loss amongst 71% of participants (n=17). 52% (n=13) received TJA. Areas of improvement included more formalized structure and nutrition counseling. Barriers included a low response rate, predominance of female respondents, and limited referral source to the JHCP.

Conclusion: The JHCP appears to be successful in meeting goals of weight reduction pre-operatively, with high levels of patient satisfaction. Results suggest that more can be done to attain weight loss goals pre-operatively.

12. **Improving University Student Access to Gender Affirming Care.** *Cross, Charlie M*

Background & Objective: Transgender and gender diverse (TGD) individuals are at a higher risk for depression and suicidality than their cisgender, heterosexual peers and risk increases without access to desired gender affirming care. Gender affirming hormone therapy (GAHT) is one method of medical transitioning and is within the scope of practice for primary care providers to prescribe. This quality improvement project aimed to increase student access to gender affirming care by providing education on GAHT and how to access it.

Methods: At a New England university's LGBTQ+ student organization, in-person presentations and an accompanying infographic were created for students and staff regarding access to GAHT at the campus student health center. Students were surveyed after the presentation and staff were surveyed before and after the presentation to assess awareness of resources on campus and how to access them.

Results: Staff (n=5) and students (n=6) reported increased awareness of how to access GAHT on campus after the educational sessions. 100% of students reported an increase in knowledge of GAHT, and 67% agreed they were more likely to use the university student health center for gender affirming care after this programming. 100% of staff reported knowledge of how students can access gender affirming care on campus, an increase of 33%.

Discussion: Lack of knowledge and awareness of resources is a significant barrier in access to gender affirming care. Improving communication between student health services and TGD students and supportive staff may increase access to needed care, including GAHT.

13. **School Nurse Adherence to Screening for Functional Constipation in the School-Age Child.** *Castner, N, L*

Purpose: Pediatric functional constipation (PFC) is a common health issue affecting children's well-being and quality of life. This project aimed to improve the identification and management of PFC-related bowel and

bladder dysfunction in the primary school setting. The primary goal was to increase the percentage of children screened by school nurses for PFC, leading to timely referrals to primary care clinicians.

Methods: An evidence-based educational module was developed to educate school nurses of the connection between functional constipation and associated bowel and bladder dysfunction. A comprehensive workflow was implemented, utilizing standardized assessment practices, and validated pediatric-based functional constipation assessment tools.

Results: A retrospective chart review established baseline screening rates, which demonstrated a significant increase in the percentage of children screened for PFC (from 19% to 91%) and referred to primary care (by 25%) after the implementation of the educational module and assessment workflow.

Conclusion: This project demonstrates that increased screening for PFC in primary schools is achievable through education, evidence-based assessment strategies, and the dedication of school nurses. The adoption of comprehensive educational interventions and evidence-based practices enabled the identification, management, and timely referral to primary care clinicians for PFC in the school setting.

14. **Improving Transition of Care Through Education and Prenatal Planning: A Quality Improvement Project.** *McLaren, Ashley*

Background: Maternal morbidity and mortality rates in the United States are on the rise, with half of maternal deaths occurring during the postpartum period. Poorly managed transitions of care, the movement of patients between healthcare settings, contribute significantly to adverse healthcare outcomes. The American College of Obstetricians and Gynecologists (ACOG) underscores the importance of collaborative care between obstetrics and primary care providers (PCPs) to optimize maternal health and ensure safe care transitions. PCPs are integral in managing chronic care conditions and having an established PCP prior to pregnancy is linked to increased attendance at postpartum care visits.

Purpose: Enhance transitions of care for birthing individuals through evidence-based education and prenatal planning.

Objectives: Primary aim was to increase understanding and importance of safe care transitions among obstetrics staff. Secondary aims included improving documentation of established PCPs in the electronic health

record (EHR) by 10% and increasing ambulatory primary care referrals through the electronic health record by 10%

Methods: An evidence-based educational flyer focusing on prenatal care planning and safe postpartum care transitions was developed and distributed to obstetrics providers and support staff. Understanding was assessed using a Likert-scale survey. Pre- and post-intervention data on documented PCPs in the electronic health record (EHR) and referrals to primary care were collected.

Results: Participant (n=11) understanding of prenatal planning recommendations increased by 52%. Identification of PCPs in the EHR improved by 16% with 113 of 612 pre-intervention visits and 111 of 600 post-intervention visits without documented PCPs.

Conclusion: Targeted educational interventions enhanced healthcare professionals' understanding of ACOG recommendations for transition of care planning and increased rates of documented PCPs in the EHR. Future interventions should be responsive to evolving challenges and emerging evidence in postpartum care, exploring innovative communication strategies and technologies to facilitate enhanced care coordination.

15. **Provider Attitudes Toward Screen Time Discussions in Pediatric Patients Ages 2-5 And Utilization of the Family Media Plan.** *Sarah Bevet, DNP-c, RN, BA; Dr. Rebecca Nagle*

Purpose: The U.S. Department of Health and Human Services reports that from 2020-2021, over 60% of children ages 2-5 exceeded the Bright Futures guideline of a maximum of one hour of screen time per day. The Family Media Plan (FMP), created by the American Academy of Pediatrics, is designed to help families put limits on screen time and abide by those parameters. The goal of this project was to increase provider attitudes surrounding utilization and importance of the FMP in children ages 2-5.

Methods: At a pediatric clinic, providers were educated via presentation on how to utilize the FMP and best practice guidelines on screen usage in children ages 2-5. A pre-intervention survey was given to determine baseline provider attitudes toward this tool. Upon completion of the project, a post-intervention survey was distributed to examine changes in attitudes toward screen time and FMP utilization at well-child visits.

Results: Of the two participating providers, attitudes toward the importance of this topic showed an increase of 25%, 100% and 200% in

survey questions pre- and post-intervention. There was a 31% increase in FMP distribution.

Conclusion: There was an increase in the importance of which providers viewed screen time discussions, as well as distribution of the FMP. Limitations that could be addressed are the small number of participating providers and well-child appointment visits that are not sufficient in length to address screen time discussions. A wider distribution of the intervention at other local pediatric practices is recommended.

16. **Standardizing Transitional Care Management in Primary Care.** *Michelson, A, A*

Background: Transitional care management (TCM) refers to care delivered in the first 30 days following hospitalization during which an individual is discharged from the acute care setting to their home in the community. The primary purpose of this project was to develop and implement an evidence-based transition of care protocol in the primary care setting. The secondary purpose was to provide TCM resources and education for clinic staff. Primary care TCM encounters are reimbursed at a higher rate as they require additional non-face-to-face services than standard Evaluation/Management encounters. This project also explored the potential for increased clinic revenue through utilization of appropriate billing and coding for TCM.

Methods: A standardizable, evidence-based protocol was developed and implemented over a 3-month pilot phase. Independent review modules, in-clinic reference sheets with TCM practice guidelines, and new Epic templates were introduced to clinic staff. Epic admissions reports and chart review identified patient eligibility.

Results: In-network discharge reports in Epic were run three times weekly with set parameters to identify eligible individuals. These records (N=18) were then reviewed. Seven TCM visits were completed and billed. Six visits were assigned Evaluation/Management coding, however, three of these visits met the TCM coding criteria and were not billed as such. The seventh visit was appropriately assigned TCM coding. Eight participants were lost to follow-up.

Discussion: Improving care coordination from hospital to home is possible. This pilot highlighted that stronger care coordination may require expanding the reserve of clinic nurses or licensed clinical staff eligible to complete TCM encounters.

17. **Implementing a Vaping Educational Toolkit within a Specialty Pediatric Population.** *Haskins, L*

Background/Objective: The prevalence of vaping among American youth has increased in recent years, resulting in significant health implications. Vaping exposes adolescents to high concentrations of nicotine and other harmful chemicals, leading to potential long-term health risks, including respiratory and neurological damage. Vaping rates among Vermont youth remain high. This project aimed to implement evidence-based vaping educational materials and evaluate knowledge growth in a pediatric pulmonology clinic.

Methods: Evidence-based toolkit materials were compiled, and a survey was administered to assess pre- and post-toolkit knowledge amongst patients aged 12 and older. Access to age-appropriate quit resources were provided to patients.

Results: Surveys were completed (n=50), with an average age of 15, with a nearly equal gender split. The majority reported increased knowledge about vaping after interacting with the toolkit, with 98% identifying where to find quit resources. Respondents reported feeling more comfortable discussing vaping with friends and family post-intervention.

Discussion: The vaping education toolkit effectively addressed knowledge gaps and increased awareness of cessation resources. Respondents demonstrated significant knowledge growth after engaging with the toolkit. Positive feedback from clinic providers underscores the value of integrating such interventions into specialty care settings.

Conclusions: Integration of evidence-based vaping educational materials presents an effective strategy to mitigate vaping-related health risks among youth. The positive outcomes emphasize the value of such interventions and highlight the necessity of proactive measures to address the escalating youth vaping rates. Continued dissemination of the toolkit can amplify vaping education and cessation initiatives, contributing to healthier outcomes for pediatric populations.

18. **Promoting Advance Care Planning in Primary Care.** *Jacobs, P, N*

Background: Advance care planning (ACP) encourages patients to consider their healthcare goals and communicate them with family and healthcare providers. The ACP process promotes patient-centered care and decision-making in accordance with the patient's goals and wishes.

While about 50% of Americans adults have completed advance directives (AD), as few as 10% have had ACP discussions with their primary care provider (PCP).

Purpose: The purpose of this project was to increase the number of ACP discussions initiated during a routine office visit with a primary care by implementing a patient-centered intervention.

Methods: Patients meeting specific criteria were identified using a report created in the EHR. Eligible patients were mailed a letter describing the benefits of ACP. 8 of these patients also received a blank AD document. Two PDSA cycles were completing during the project and were used to evaluate and modify interventions.

Results: 68 unique patient charts were reviewed. Of these, 35 were eligible participants. During the project, 3 participants provided a previously completed AD, one participant completed an AD, and 3 participants were referred for future ACP discussion, accounting for 20% of eligible participants.

Conclusion: Preparing patients in advance of a scheduled appointment to consider an ACP discussion demonstrated a modest increase in referrals for future discussion. Patients should be encouraged to provide a copy of their pre-existing AD, if they have one. A referral process may improve ACP discussion rates.

19. **Age Friendly Care in a Rural Community Health Center.** *Giddings, X, B*
Purpose: The Institute of Healthcare Improvement (IHI) along with the John A. Hartford Foundation partnered to promote an initiative that designates health centers as "Age Friendly Health Systems" (AFHS). These AFHS focus on providing care founded on the 4Ms (what matters, medication, mentation, and mobility).

Methods: At a rural community health center, annual wellness visits (AWVs) were reviewed retrospectively both prior to and following implementation of the 4Ms assessment. Staff received education and resources related to the 4Ms assessments and Age-Friendly Health Centers. Following the chart review, a comparative analysis for completion of each of the 4Ms assessments showed the health centers growth towards "age-friendly" care.

Results: Analysis of Annual Wellness Visits (n=101) showed an increase in the usage of new aspects of the 4Ms and consistent performance in areas already in practice. The 'What matters?' question improved by 35

percent, while the Mentation and Mobility assessments remained in high usage Medication follow up occurred consistently or more frequently for the eight high risk medications. Staff surveyed following implementation expressed ease of use and generalizability with using the 4Ms assessment. Conclusions: Following implementation of the 4Ms assessment, a rural health center was able to make strides towards providing care that is "age friendly." This was the first steps towards designation as an "Age Friendly Health System" if the site is interested in pursuing this status. The self-reported ease of use and generalizability leaves room for the 4Ms assessment to be expanded to other rural health centers within the test sites network.

20. **Increasing Breast Cancer Screening Rates in Primary Care.** *Ciampa Zwicky, K.M.*
Background: Breast cancer is a leading cause of cancer-related death in women globally and is one of the most diagnosed cancers among women in Vermont. Early detection and intervention can significantly reduce morbidity and mortality rates associated with the disease. Professional organizations like the United States Preventive Services Task Force and the American College of Obstetricians and Gynecologists have developed clinical practice guidelines for breast cancer screening to improve patient outcomes. The Centers for Disease Control and Prevention has set a goal for 74% of women to meet these screening recommendations. However, screening rates among Vermont women are currently below this target. This Doctor of Nursing Practice quality improvement project aimed to increase breast cancer screening rates at a primary care clinic in Vermont.
Methods: An educational toolkit was developed based on the Health Belief Model theoretical framework, which was distributed to eligible participants. A script was developed to send in follow up to participants still overdue for screening. Screening rates were tracked through retrospective chart review in the clinic's electronic health record.
Results: After distributing the educational toolkit on Breast Care and Breast Cancer Screening, along with a follow-up script, there was an 11.8% increase in scheduled mammogram screenings. Clinic-wide, there was a 1% increase in screening mammograms.

Discussion: These findings suggest that a multimodal approach to patient education, outreach, and follow-up can positively influence screening mammogram rates for women in this Vermont primary care clinic.

21. **Improving Medication Review for Adult Patients 65+ in a Rural Emergency Department.** *Schut, D, G*

Purpose: Medication management in the geriatric population is often complex due to polypharmacy, drug-drug interactions, and slower rates of drug metabolism as the body ages (ACEP, 2014). It can be difficult for emergency department (ED) staff to obtain an accurate medication list. It is imperative for ED providers to have an accurate medication list as the cause for the visit can often be medication related and new medications prescribed in the ED may interact with another home medication. This audit and feedback quality improvement project took place in a small, rural ED and was paired with the launch of a new EHR.

Methods: The project gathered ED medication review data on patients aged 65 and older over a two-month period, presented the baseline data, introduced a new protocol for medication review, and provided audit and feedback every 2 weeks over a 2-month period.

Results: The pre-intervention data showed an average of 3.7 medications missed per patient by the ED medication review. Following the intervention, this number dropped to 1.4 medications missed. After the first audit and feedback status update it dropped to 0.2 medications on average. The rate of medication review at bed side remained low around 42.7% throughout the post-intervention.

Conclusions: Audit and feedback proved effective in this setting for raising medication review accuracy. This has implications for improving patient safety and reducing adverse drug events. This project also supports that a small, rural ED is capable of meeting Geriatric ED Accreditation (GEDA) standards.

22. **Improving Dementia Care: Establishing an Acuity Classification System.** *Weisheit, C. R.*

Background and Objective(s): To achieve the Healthy People 2030 goal of reducing preventable hospitalizations in older adults with dementia from 23.5% to 19.1%, this project implements the evidence-based UCLA Alzheimer's and Dementia Care acuity classification system at an academic medical center's memory program. The system will assist the

dementia care specialist in improving dementia care quality and minimizing potentially preventable hospitalizations.

Methods: A retrospective chart review and clinician reassessment at patients' follow-up appointments were conducted over a six-month period utilizing a SMART phrase containing the acuity classification questions which categorized dementia patients as low (green), intermediate (yellow), or high (red) risk for hospitalization.

Results: After implementation, 64% (n=57) of initially classified patients were reevaluated, with 63% (36) reclassified as green and 37% (21) as yellow. Six patients were initially determined to be red, with three lost to follow up and three reassessed as yellow due to decreased emergency department visits and behavior changes. Yellow and red patients had more emergency department visits and falls, need increased supervision, and their caregivers' report higher stress and more safety concerns. Caregiver stress correlated with acuity, as 76% (16) of yellow patients' caregivers reported moderate to severe stress compared to 17% (6) for green patients.

Discussion: This project provided baseline information for a memory program transitioning towards a more comprehensive dementia care model, but could benefit from extended data collection to further investigate its effects on potentially avoidable hospitalizations, investing in a designated dementia care specialist, and initiatives to reduce caregiver stress for future care improvement.

23. **Addressing Emergency Department Response to Hypertensive Disorders of Pregnancy***. *Calcagni, A. E*

Purpose. Hypertensive disorders of pregnancy (HDPs) are among the most common pregnancy complications in the United States and pose significant risks to maternal and fetal health. Recognition in all healthcare venues utilized by pregnant and postpartum individuals, such as Emergency Departments (ED), is essential to prompt intervention. Current guidelines recommend ED proficiency in recognition and response to maternal emergencies. This quality improvement project aimed to improve ED recognition and response to HDPs.

Methods. An educational toolkit was compiled based on published materials from nationally recognized HDP bundles and presented to ED registered nurses (RNs). The modules included basic HDP education, a succinct infographic, and introduction of evidence-based algorithms that

align with the hospital's obstetric unit. A Likert-type survey was used to quantify the success of project aims using identical pre- and post-intervention surveys and short answer questions.

Findings. Total scores increased across all participants (n=8). The surveys represented a substantial increase in participants' perceived knowledge and confidence. Qualitative answers confirmed necessity for education on obstetric care and feedback for future implementation.

Conclusions. The findings indicate early success of HDP educational toolkits in healthcare venues outside obstetrics. This project implementation highlighted the importance of flexible education strategies tailored to the ED setting. The time-intensive nature of the intervention presented limitations in scalability. In addition, further research is needed to assess long-term patient outcomes. Continued efforts to enhance ED HDP response and streamline education are essential for mitigating the significant maternal and fetal morbidity associated with HDPs in emergency care settings.

24. **Evaluating E-Consults in Primary Care to Improve Usability and Efficiency.**
Chon, Christina

Background: Patients in a rural state face challenges in accessing specialty healthcare providers including provider shortages, travel distance, cost, lack of insurance coverage and lack of internet access. Electronic consultations provide an opportunity to improve access to specialists without local specialty and subspecialty healthcare services. The usability and outcomes associated with the electronic consult workflow at a university-affiliated primary care clinic (average provider time to complete the consult, time to consultation, number of avoided specialty visits, type of consult and provider or patient satisfaction) was unknown. The aim of this project was to evaluate the process of e-consults in primary care to improve usability and process efficiency over a 12-month time frame.

Methods: The e-consult process flow was evaluated to understand the usability and outcomes associated with the clinic's workflow. Education on the e-consult process was presented and providers were surveyed about facilitators for and barriers to the process.

Results: The number of e-consults increased over time (n=12) during the project time frame; 58% (n=7) of specialty consults were resolved electronically allowing patients to be co-managed without an additional

patient visit to a specialty provider, and 75% (n=9) of primary care providers received a consultant response within 24 hours of the consult initiation. Providers surveyed agreed the process was efficient.

Conclusion: E-consults are an efficient tool to integrate specialty care with primary care and improve availability of specialty services in rural areas. Additionally, this process provides opportunities for primary care providers to collaboratively manage patients with specialists.

25. **Improving Knowledge of Trauma-Informed Care in the Emergency Setting.**
Hersey, S.A., Keiffer, M.K.

Background: Trauma is widespread and has significant impacts on an individual's health and engagement in healthcare services. Initial or re-traumatization in healthcare settings can decrease patient safety, empowerment, and trust, and can worsen health outcomes. Current best-practice suggests that a trauma-informed care (TIC) approach be utilized in all healthcare encounters as a universal approach, particularly during sensitive exams.

Objectives: The aims of this project were assessing the need for TIC education, developing an evidence-based education program, and improving knowledge of TIC among emergency clinicians at a Level 1 trauma center in New England. This project served as a pilot for a larger TIC learning program for a local non-profit organization that provides domestic and sexual violence advocacy to survivors of violence in the state.

Methods: Stakeholders were interviewed to assess the need for TIC education. Current best-practice guidelines were utilized to develop an education program and post-education survey, including a 10-question knowledge assessment. An electronic toolkit intended to promote clinician engagement in TIC was disseminated.

Results: Ten clinicians participated in the education. Nine participants completed the post-education survey. Of the respondents, 88% reported no prior TIC education. Following the education, clinicians demonstrated knowledge of TIC best-practice, achieving a 91.7% average on the knowledge assessment.

Discussion: TIC education is beneficial for improving clinician knowledge of the topic. Implications for future quality improvement and practice include expansion of education across different clinical roles,

development of simulation learning experiences, and the implementation and evaluation of standardized TIC processes in all patient encounters.

26. **Charting the Path to National Recognition: A Medical-Surgical Microsystem Audit for Nurse Burnout.** *Adams, H, DC*

Purpose: Clinical nurse burnout poses significant challenges, impacting patient outcomes and staff retention. The American Medical Association's Joy in Medicine Health Systems Recognition Program provides a framework for best practice to reduce burnout within the workplace. This project adapts its bronze level criteria to a Medical-Surgical setting, leveraging the Clinical Nurse Leader role to assess microsystem practices and collaborate with leadership.

Aims: The aims of this project were to conduct a unit audit for burnout; identify and provide recommendations to leadership which would align unit practices with Joy in Medicine standards; and assess leadership for knowledge and competency of burnout reduction strategies.

Methods: The nursing leadership team completed an audit of current practices around burnout reduction. Participants received a one-hour educational in-service to discuss audit findings, provided recommendations to align the unit with Joy in Medicine Bronze level criteria, and completed a composite survey evaluating knowledge and competency of burnout, personal experiences of professional burnout, and self-efficacy related to undertaking a burnout quality improvement project within 6-12 months of completion of this project.

Results: Knowledge of burnout increased from moderate to significant after the educational in-service and feelings of burnout within their work environment decreased. There were individual differences in self-rated self-efficacy scores, but all three participants had increased confidence to undertake a burnout-related QI project within 6 to 12 months.

Discussion: The Clinical Nurse Leader role can be effective in collaborating with nursing leadership to improve burnout reduction efforts within a clinical microsystem. Providing education and support to nursing leadership can improve feelings of self-efficacy and encourage change and adoption of best practices. Continuous assessment is needed to understand influencing factors for nurse burnout.

27. **Optimizing Exclusive Breastfeeding in the Early Postpartum Period through Effective Transitions of Care.** *Dubois, M, M.B.; Nagle, R; Walker-Borch, C*

Background: While the evidence supporting exclusive breastfeeding is abundant, parents meet several challenges in the early postpartum period that place them at risk of early breastfeeding cessation. In the U.S., exclusive breastfeeding rates drop from 83.2% to 62.6% in the first week postpartum. Step 10 of the Baby-Friendly Hospital Initiative (BFHI) outlines the importance of care coordination upon discharge to ensure outpatient lactation support.

Objectives: This project aimed to determine whether implementation of a proactive lactation care workflow affects the percentage of breastfeeding dyads receiving lactation support in the early postpartum period. Staff confidence with using the workflow was assessed using a Likert-scale survey.

Methods: Infants were identified for inclusion based on whether they were born at the medical center and had an in-network primary care provider. A smart phrase integrated into the patient after-visit summary was used by staff lactation consultants to document outpatient lactation supports. Primary care provider notes were reviewed to determine whether lactation supports were received within 7 days postpartum.

Results: 49 infants met inclusion criteria in the reactive group and 20 infants met inclusion criteria in the proactive group. Half of the infants in the proactive group received outpatient lactation care within 7 days postpartum. Primary care providers proved to be the most utilized form of outpatient lactation care.

Discussion: IBCLC staff reported an increase in confidence in using the proactive workflow. Despite efforts to connect families with lactation resources, further research is needed to determine if families are receiving support in the early postpartum period.

28. **Improving Depression Screening in a Primary Care Office with an Evidence-Based Depression Screening Protocol.** *Kuki, A, C*
Background: Depression is among the most common mental health conditions in the US and negatively impacts quality of life, co-morbid chronic conditions, and healthcare costs. Screening for depression in the adult population with a validated tool is recommended by the USPSTF and associated with improved rates of treatment, but screening rates remain low in many primary care settings. This project aimed to increase depression screening with the Patient Health Questionnaire-2 for adults at a primary care office by 15% over a six-week period through the

implementation of a standardized protocol. A secondary aim was to increase adherence to best practice guidelines through the protocol and education for medical assistants.

Methods: A review of practice policy, a pre-intervention survey of medical assistants and providers, and determination of baseline screening rates via chart review was performed. A standard protocol was developed and implemented at the site. Post-intervention screening rates and survey responses were collected.

Results: Depression screening rates did not significantly improve post-intervention (31% vs 34%). Screening rates varied widely among providers and by visit type. Screening rates did steadily improve during the planning phase of this project and the overall screening rate for the year was double the previous year's rate (61% vs 30%).

Discussion: The standardized protocol and educational session were not effective in immediately increasing screening rates or adherence to guidelines. Further quality improvement projects or research could investigate the impact of ongoing education and staff engagement on depression screening rates.

29. **Reducing 30-day Heart Failure Readmissions Utilizing Transitional Care.**
Melissa Beaudry

Purpose: Heart failure has a high prevalence and is associated with increased healthcare spending. The cost is driven by the frequency of hospitalizations and high rates of 30-day readmissions. The American Heart Association identified transitional care management (TCM) as effective in reducing hospitalizations. The purpose of this quality improvement (QI) project was to increase outreach to patients being discharged from the hospital with HF over 6 weeks in a rural primary care practice. A secondary aim was to evaluate how this impacted 30-day readmissions and ER utilization. Methods: A retrospective chart review was conducted 12 weeks before implementation to obtain baseline TCM data. A one-hour educational training session was provided to nurses on TCM activities. These included post-discharge phone calls made within 48-72 hours and office visits 5-7 days after discharge. A retrospective chart review was performed during the intervention period and for 12 weeks post-intervention. Results: The number of post-discharge phone calls increased by 26% and office visits decreased by 3% during the intervention period. The number of 30-day readmissions and ER visits were reduced by 29%

and 14% respectively. No patients received TCM activities in the post-intervention period. Results were limited by the low number of participants. Conclusion: TCM represents a feasible way to prevent 30-day readmissions and ER utilization, thereby reducing healthcare spending. TCM requires office resources to be successful, notably adequate nursing staff with clear roles/responsibilities and appointment availability. Measuring patient quality of life or understanding of disease self-management is an area of future study.

Biomedical and Health Sciences

30. **Silencing of PDIA6 to increase IRE1 activation and determine its role in viral replication and the pro inflammatory response.** *Mark, Z, F*
Rationale: The primary cause of complications and death following influenza infection is not the virus itself, but rather the body's response to the virus. One host enzyme that plays a role in many of the processes leading from viral infection to a robust pro-inflammatory response is protein disulfide isomerase (PDI). PDIA6, in particular, is known for its role in inositol-requiring enzyme 1 (IRE1) signaling and the unfolded protein response (UPR). During viral infection, the UPR allows the cell to have increased transcriptional abilities and the ability to degrade and clean up misfolded proteins, benefiting the virus and potentially resulting in greater viral replication and pro-inflammatory signaling. As a thiol isomerase, PDIA6 interacts with and reduces specific disulfide bonds that become conformationally available when IRE1 is activated, leading to IRE1 inhibition and reduced UPR signaling. We hypothesized that inhibition of PDIA6 will cause an upregulation of IRE following influenza infection, leading to increased viral replication and cytokine levels.
Methods: Mouse transformed club cells (MTCC) were infected with PDIA6 shRNA adenovirus to knock down PDIA6. The RNA was collected and analyzed using RT-qPCR for changes in PDIA6 transcription. MTCC were further infected with PR8 influenza virus to study the cellular response to IAV infection in the absence of PDIA6. The RNA and protein were collected from these experiments to analyze PDIA6 and cytokine gene expression using RT-qPCR. The RNA was also analyzed to measure changes in viral polymerase transcription, indicating the amount of viral

propagation. Mice were infected with PDIA6 shRNA adenovirus to evaluate the effects of decreased PDIA6 in the lung tissues. The lung tissue was harvested, flash frozen, and crushed to evaluate the degree of transcriptional and protein changes using RT-qPCR and western blot. Results: The MTCCs did not show a robust PDIA6 knockdown following adenovirus infection, as well as weak influenza viral propagation following infection. Following adenovirus infection in mice, no change was seen in PDIA6 protein or transcription levels in the total lung tissue. Conclusion: MTCCs have not shown to be the proper cell type for these experiments as they do not have similar responses to adenovirus and influenza infection as we have seen in human cell lines or in mice. Preliminary experiments show that these studies should be repeated using Mouse Tracheal Epithelial Cells (MTEC) to model more robust responses and obtain results for interpreting the cellular response to IAV infection in the absence of PDIA6 and the mechanistic relationship between PDIA6 and IRE1. Further evaluation of the mouse lung tissue following adenovirus infection by immunofluorescence is needed to determine if PDIA6 transcription was decreased in the epithelial cells specifically. Additionally, an effective PDIA6 inhibitor was also identified and would be a good alternative to adenovirus in both cell culture and mouse experiments.

31. **Mechanisms linking STK11 loss with metastatic potential in KRAS-mutated lung adenocarcinoma.** *Royer C.M., Bialek L.K., Sarausky H.M., Prior S.M., Nandagopal G., Deming P.B., Seward D.J., Scheiber M.N.*
Metastasis occurs in ~50% of lung adenocarcinoma (LUAD) patients at the time of diagnosis. Late-stage diagnosis of LUAD results in the accumulation of a myriad of mutations in tumor cells, with altered oncogene KRAS and co-mutation of the tumor suppressor STK11 occurring in 10-15% of KRAS-driven LUAD. Retrospective studies demonstrate concurrent oncogenic KRAS and STK11 loss-of-function mutations are associated with metastasis and poorer survival. The purpose of this study was to identify molecular mechanisms by which STK11 loss results in greater metastatic potential in KRAS-driven LUAD. KRAS-mutated, STK11-intact human LUAD cell line NCI-H2009 was utilized. Both parental and ΔSTK11 (generated by CRISPR/Cas9) H2009 cells were seeded in Transwell® inserts. H2009 ΔSTK11 cells displayed a 1.6-fold increase in trans-well migration compared to the parental line (SEM 14393 ± 877.3 cells, n=6; p<0.0001). To assess invasive properties of these cells in a three-dimensional environment, spheroids generated by

hanging drop culture were embedded in Matrigel and imaged at zero and 24-hours post-embedding. Analysis demonstrates a 2.4-fold increase in invasion in ΔSTK11 cells compared to parental cells (SEM 0.03 ± 0.01 mm2, n=19-21;p<0.0001). qRT-PCR analyses of H2009 spheroids demonstrate loss of STK11 promotes expression of lung cancer stem cell markers CXCR4, NANOG, CD44, and OCT4 (n=3-6;p<0.002). These markers - known to support stem cell maintenance, chemoresistance, and metastatic potential - suggest a mechanistic link between STK11 and their transcriptional regulation. To assess the impact of STK11 loss on metastasis in-vivo, we will use an embryonic zebrafish xenograft model. Zebrafish possess a high number of conserved human homologs - most notable being the CXCR4/CXCL12 axis which models cross-communication between zebrafish endothelium and cognate human tumor ligands. Current and future studies focus on investigating the role of STK11 in regulating stem cell markers; thereby identifying potentially novel therapeutic targets for STK11 and KRAS co-mutated LUAD patients.

32. **Implementation of a Novel Sandwich ELISA Laboratory Module in an Immunology Lab Course.** *Shepard, J, D*
Enzyme-linked immunosorbent assays (ELISAs) are commonly employed in both clinical and research settings within the immunology and medical fields. Education in medical laboratory science (MLS) programs must provide students with the knowledge and confidence to perform and troubleshoot these tests. Herein, we report the development and evaluation of a three-hour laboratory module that required undergraduate and graduate students to perform a sandwich ELISA using raw materials while also advancing conceptual knowledge associated with assay basics and troubleshooting. This module was offered during one semester of the Immunology Lab course as part of the University of Vermont Medical Laboratory Science program. Students were introduced to ELISAs through online presentations followed by an in-person activity in which they performed a newly-developed sandwich ELISA targeting human coagulation Factor XII. During incubation periods and following the in-class module, students worked on ELISA troubleshooting activities. In order to assess the efficacy of this module, students completed pre- and post-surveys that assessed both confidence in knowledge and skills as well as actual knowledge gain. To assess the efficacy of this module, it was performed concurrently with the previously used kit ELISA module in the

Immunology Lab course with post-surveys distributed after each module. There was no significant improvement in student confidence or actual knowledge gain following the original kit ELISA module. The second, novel module of this study is still in progress. Limitations to the implementation of the module included low student recruitment, the possible confounding of the kit ELISA module improving student learning prior to the novel module, and the limited timeframe which did not allow students to also acquire skills in assay development. This complex, hands-on laboratory activity, supplemented with additional exercises during incubation times, aims to be successful in improving student knowledge and confidence in the field of immunology.

33. **Metabolic rewiring promotes metastatic potential upon glutamine deprivation in STK11 null KRAS-driven lung adenocarcinoma*.** *Prior, SM. Sands, LE. Lenahan, S. Sarausky, H. Scheiber, M. Seward, DJ. Deming, PB.*
Background and Objective: Lung adenocarcinoma (LUAD) with concurrent KRAS/STK11 mutations (KS) is characterized by poor prognosis and enhanced dependence on glutamine. Recently, it was shown that KS LUAD cells develop an immune evasive phenotype when deprived of glutamine suggesting they may become more aggressive under this stress. This study aims to identify how the rewired metabolism and utilization of glutamine in STK11-null LUAD cells promotes metastasis.
Methods: Cell Detachment: At varying glutamine concentrations, detached KRAS (K) and KS LUAD cells were collected and stained with Trypan Blue to assess live/dead cells. Based on live cell count, cells were then replated in full media and allowed to grow for 4 days before being stained with methylene blue.
3D Invasion: K and KS LUAD spheroids were generated via the hanging drop method and imbedded in Matrigel +/- glutamine. Spheroids were imaged following 24 hours of invasion.
Metabolic Assessments: A pulse chase experiment was performed in which pulsed heavy labeled glutamine was chased with complete glutamine deprivation for 6 hours. Metabolites were assessed via LC-MS/MS. Flux through the hexosamine biosynthetic pathway (HBP) was assessed using lectin-based far western blot and inhibition of the HBP was achieved using FR054.
Results: Upon glutamine deprivation, KS cells developed the following pro-metastatic features: 1) Increased cell detachment and survival, 2)

Increased ability of detached cells to re-establish in full media, 3) Increased single cell dissemination and 4) Early endogenous glutamine shunt to the HBP. Inhibition of the HBP decreased pro-metastatic features. Discussion: While KS cells heavily depend on glutamine to fuel growth, glutamine depletion promotes development of pro-metastatic characteristics that seem to be dependent on flux through the HBP. This should be considered in the clinical setting where glutaminase inhibitors are being trialed for glutamine-dependent cancers as they could have undesired effects in this patient population.

34. **Stk11 C-Terminal domain variants impact lung cancer biology independent of kinase activity.** *Gopika Nandagopal, Sean Lenahan, Tyler Hogan, Hannah Ross, Peyton Jenkins, Paula Deming, David Seward*
STK11 mutations in KRAS-driven lung adenocarcinomas (LUADs) are associated with aggressive tumor phenotypes characterized by increased risk of metastasis and lower overall and progression free survival. STK11 is a serine-threonine kinase that is comprised of an N-terminal, kinase, and C-terminal domain (CTD). In LUAD, STK11 loss of function impacts many aspects of coordinated cell motility and promotes alterations characteristic of metastasis. Our objective was to develop a reliable method to identify pathogenic STK11 mutations. We evaluated the functional impact of variants identified from archival data from the UVM medical center on STK11 kinase activity using an in-vitro kinase assay, as well as a luciferase reporter assay. Through this work we saw that CTD variants retained kinase activity and the ability to form the STK11 heterotrimeric complex. Although the CTD has no catalytic activity, it is thought to be integral for STK11 localisation, moreover, it has been reported that the polybasic motif of STK11 (aa403-426) is key for its localization and activation of AMPK at the plasma membrane. Therefore, when characterizing STK11 variants, it is important to consider kinase independent STK11 functions. We show through immunofluorescent microscopy that expression of a truncated construct encoding STK11 with a CTD deletion results in nuclear sequestration. Additionally, point mutants in 3 of the polybasic motif residues (R409W, K416E and K423E) retain kinase activity and heterotrimeric complex formation, but also lead to nuclear sequestration – highlighting the importance of a multipronged approach when assessing STK11 function. Current work focuses on utilizing the TurboID system to identify CTD dependent STK11 interactors. Future studies

will assess the ability of these CTD mutants to phosphorylate cytoplasmic substrates, and their impact on cell migration and invasion.

35. **The Transport, Culture, and Identification of Neisseria gonorrhoeae from Patient Samples on InTray GC Media.** *Douglas, Molly C*
Neisseria gonorrhoeae, the causative agent of the common sexually transmitted infection gonorrhea, is a fastidious anaerobic Gram-negative bacterium that has demonstrated antimicrobial resistance to antibiotics in various drug classes. Due to its fragility, it has shown to be difficult to reliably isolate, therefore selective media such as InTray GC (ITGC) media is recommended for culture. Gonorrhea impacts an estimated 1 million US people and 80 million people globally every year. The disease is often asymptomatic, and the social stigma associated with being infected with an STD leads to hesitation in getting tested or treated. As a result of the growing resistance N. gonorrhoeae has been demonstrating, the CDC has deemed it an urgent threat in the CDC's Antibiotic Threats Report. Culturing is the only lab method that can grant the ability to perform antimicrobial resistance testing, and as such it is crucial for labs to have the capacity to culture N. gonorrhoeae. InTray GC media uses modified Thayer Martin agar to selectively grow Neisseria species and inhibit non-Neisseria species. The Vermont Department of Health Laboratory (VDHL) currently uses the GeneXpert CTNG system to positively identify Neisseria gonorrhoeae from patient samples, and though there hasn't been failures reported with this method, the ability to isolate and culture gonorrhea from patient samples would be beneficial for antibiotic susceptibility testing. This verification will allow the VDHL to adopt InTray GC as a media for use in transporting and identifying N. gonorrhoeae from local clinical labs. Pure organisms from frozen back stock were inoculated to chocolate plates, subcultured to ITGC media, and identified on the Bruker MALDI-TOF. These findings demonstrated an 89% growth rate of Neisseria species, a 100% growth rate of Neisseria gonorrhoeae, and an 86% inhibition rate of non-Neisseria species. A follow-up trial was conducted in which nasal and throat swabs were collected and swabbed to ITGC and chocolate plates to compare the growth and inhibition of normal flora. These findings demonstrated a 100% inhibition rate of non-Neisseria species on throat swab inoculated plates and an 86% inhibition rate on nasal swab inoculated plates and allowed for the VDHL to adopt InTray GC as a viable transport media.

36. Homelessness and Infectious Disease: Barriers, Facilitators, and Unmet Needs in Infectious Disease Testing. *Plasse, E. A.*

Introduction: Homelessness is a multidimensional and complex issue that has a direct impact on health status and access to healthcare. The overall health status of a person experiencing homelessness (PEH) is worse than their housed counterparts. Due to poor living conditions, common risky behaviors, and limited access to healthcare services, PEH are at increased risk for a variety of infectious diseases. Despite this population's increased risk of infection, PEH face great disparities in accessing healthcare compared to their housed counterparts.

Objective: The objective of this review was to assess the need for infectious disease testing in PEH while investigating how testing services could be modified to improve the care provided. This review additionally aimed to identify factors that impact PEH's ability to acquire infectious disease testing services.

Methods and Materials: This literature review was completed using three search strategies in three databases: CINAHL, PubMed, and MEDLINE. Using a PRISMA format, articles were eliminated from the search. The final search left nine articles that met all the criteria and were analyzed to answer the objectives laid out for this review.

Results: Nine articles were identified for this review. Testing type included blood-borne pathogens (HBV, HCV, HIV) and sexually transmitted infections only (Syphilis, Gonorrhea, Chlamydia, Trichomonas vaginalis). A lack of all other types of infectious disease testing was identified. Of the nine articles included, eight papers identified factors that impacted both testing and result type. PEH having a regular or accessible source of medical care was the most common positive significant factor to impact testing. Six papers identified and discussed barriers and facilitators for infectious disease testing. Common barriers to testing services identified included limited knowledge of infectious diseases, lack of regular care or case management, lack of trust from health providers and shelter staff, and financial burden. Common facilitators to testing services included financial incentives, availability of affordable care and treatment, and recent access to medical care and testing.

Conclusion: Several factors were identified as barriers or facilitators to seeking and receiving infectious disease testing. The studies identified by this review, and their limited number of infectious disease types,

demonstrated limited research on infectious disease testing in PEH. There is a lack of diversity in the literature regarding the location of PEH, demographic diversity, and infectious disease variety. Further research needs to be conducted on infectious disease testing in PEH to facilitate better access to infectious disease care for this vulnerable population. Limitations: Limitations included scarcity of literature on infectious disease testing services for PEH. The studies identified were mostly based in Skid Row, California.

37. **Vermont Public Health Association.** *Giubardo,R,I; Byrne, S,T; Smith, S,L*
Non-profit organizations (NPOs) play a crucial role in society by addressing social, environmental, and humanitarian issues. For NGOs to continue to succeed, proper funding is extremely important as it is the largest source of income. The majority of funding is allocated through grants however the application process can be tedious and time-consuming, which in turn can be the downfall of these organizations. Non-profit organizations applying for funding through grants gives them the potential to receive a large portion of money from national, state, and local levels.
We propose the Vermont Public Health Association becomes a "grant hub", and collaborates with non-profit organizations throughout the state of Vermont to help these NGOs apply for grants to advance their missions. Along with the support of hired grant writers, the Vermont Public Health Association will be a central hub for organizations working to facilitate and achieve their goals. Vermont currently has 6,395 non-profit organizations established throughout the state focusing on a variety of issues. (Common Good VT Data, n.d.). With an average of 2,700 grant proposals submitted daily only 200 of these proposals receive funding (Society for Nonprofits, 2020).
Through the involvement with the Vermont Public Health Association, non-profit organizations have the potential to receive a stable and significant stream of revenue that can be used to benefit and improve their organization through grants. The Vermont Public Health Association becoming a "grant hub" for non-profit organizations will facilitate connections and collaborations. VtPHA will facilitate partnerships with non-profit organizations that share a common mission. Once connected, a grant through The Vermont Public Health Association will be written to help benefit both organizations that collaborate together.

38. Improving Cultural Fluency Efforts in Alzheimer's Care. *Christina C. Aiello, Madeleine J. Colton, Gal M. Rocabado-Sperberg, Christel M. Tonoki*

Background: Our site is the Alzheimer's Association, specifically their Vermont chapter. The public health problem we are addressing is a lack of cultural fluency in Alzheimer's and other dementia care. The target population includes those with Alzheimer's/dementia in Vermont, their caregivers, and healthcare providers treating those with Alzheimer's and other dementia.

Objectives: The objective of our work is to design an intervention to address the lack of easily accessible and culturally fluent online resources available to those with Alzheimer's, their caregivers, and the healthcare providers working with those with Alzheimer's.

Methods: A growing number of diverse patients in the U.S. continue to experience health inequities, especially those with Alzheimer's disease. Cultural humility education strengthens relationships within the community, illuminates racial and historical injustices, and contributes to equitable care (Solchanyk et al., 2021). Access to culturally fluent resources reflects themselves in patient-centered care (Epner, D. E., & Baile, W. F., 2012). The implementation of an online database in clinical practice bridges the gap between providers and patients of differing cultural backgrounds by creating accessible materials that promote patient-centered care.

A 2005 systematic review of provider educational interventions found that cultural competence education improves the knowledge of health professionals, improves the attitudes and skills of health professionals, and has a positive impact on the satisfaction of patients (Beach et al., 2005). Thus, our suggested intervention should be effective in these areas as well.

Results: We recommend creating and implementing a culturally fluent online resource that bridges the gap between patients and providers of differing cultural backgrounds in order to address inequities in Alzheimer's and dementia patient-centered care. This online source will be easily accessible to providers, free of cost, and easy to understand.

Discussion: The intervention will prove to be effective when improvements in cultural fluency efforts within Alzheimer's-related care are demonstrated and better patient outcomes are achieved within our target population. For an example of a quantifiable improvement, we would like to see that 50% of Alzheimer's patients feel respected and heard by providers, spanning across a multitude of cultural affiliations.

39. **Harvest Bill: Creating Greenhouses for Sustainable Futures.** *Foley, T, K; White, O, G*

Food insecurity is a pressing public health issue in Vermont, where a significant proportion of the population lacks consistent access to sufficient, nutritious food. Vermont faces a persistent challenge with food insecurity, affecting individuals and families across urban and rural areas. Recent data reveals that approximately 57,000 Vermonters experience food insecurity, indicating a significant need for sustainable solutions to ensure access to fresh, healthy food year-round. To address this issue, a proposed intervention we are looking to implement is the "Harvest Bill," which aims to allocate funding towards the construction of community greenhouses. Through conducting research and looking at evidence based interventions that community gardens are effective, using the funds from the bill to create community greenhouses would provide similar benefits. These greenhouses would enable the cultivation of fresh produce throughout the cold winter months, increasing local food production and reducing reliance on imports during the off-season. By investing in greenhouse infrastructure, Vermont can enhance food security, promote healthier diets, and strengthen community resilience against hunger. In summary, the implementation of the Harvest Bill presents a promising approach to combat food insecurity in Vermont by supporting innovative agricultural initiatives. This intervention would help with the urgent need to address food security and show the potential impact of greenhouse-based agriculture in ensuring year-round access to nutritious food.

40. **My Health UVM: A Comprehensive Health and Wellness App.** *Hurlbert Cydney I, Luneau Evelyn, Westlund Jiji*

The Center for Health and Wellbeing (CHWB) is an organization at UVM that promotes health and wellness around campus. An obstacle that CHWB has while promoting health is health literacy. Health literacy is to what extent individuals have the ability to understand health information, and make informed decisions about their health. A large portion of U.S college students have been shown to have basic or low health literacy levels. The objective of this program is to design an intervention that increases health literacy levels among college students at the University of Vermont. Through work done at UVM CHWB we learned that there is a gap in health literacy among college students. It was found that there is a

lack of health information on campus that is well received by students. In order to gauge ways to increase health literacy levels on campus a survey was conducted among UVM students. Stakeholders and professors were also interviewed to get another perspective on the challenges when promoting health literacy. The results of this study showed that there is a strong trend in favor of receiving health information and learning about health through technological means. The health communication methods that were primarily relied on by students were social media, and word of mouth. The results of the interviews showed a clear gap in health literacy among students. Based on the results, the intervention that is being proposed is a health app that connects students to health information and health resources both on and off campus. This health app would improve health literacy, because having easy access to health information has been proven to improve health literacy. There is evidence that the use of health apps allows individuals to become more informed about their health, and helps them make informed decisions about their health.

41. **The Art of Midwifery: How the Artwork of Certified Professional Midwives can be Used to Transform the Maternal Health Landscape.** *Speth, V, L; Hubbard, L, E*

Background: The National Association of Certified Professional Midwives' (NACPM) mission is to provide a birth system in which all birthing people have access to competent, respectful care through midwifery. Currently, the overwhelming majority of professional midwives are White (84.9%). In addition, there is a lack of social and political awareness regarding CPM practice and the impact it has on the maternal health outcomes of diverse populations.

Objectives: Our objective was to design an intervention that addressed this lack of awareness. We utilized various methods in developing this intervention. Through our service learning experience, we gathered invaluable insight into NACPM's existing work toward improving birth equity, upon which we could expand.

Methods: We created a map of the assets that currently exist for the birthing and CPM communities which would inform our understanding of the gaps which could form the basis for our initiative. We also conducted thorough research of the current best evidence based practices for improving health and political outcomes.

Results & Discussion: Based on the current research and gaps in the work of NACPM, we recommend an art-based intervention which will uplift the voices of the unheard, illuminate the struggles and aspirations of CPMs, and share their work with a wider community in order to enact meaningful social and political change. Art is inherently expressive. It gives artists the ability to challenge the status quo and to shed light on topics that are typically overlooked or underrepresented. Art has the ability to portray larger societal issues in a more meaningful and provocative way than any factsheet can. Therefore, this intervention will work towards the expedition of changing societal and political discourse surrounding CPM care, and facilitate expansion of CPM care in order to make care accessible to a wider array of communities.

42. **Improving Mental Health Outcomes Through Partnership Between Vermont Family Network and UVM Athletics.** *Payton Silar, Isabel Brennan, Elise Wu, Mia Kopelson, Grace Ardito*

Through working with our community partner, Vermont Family Network, we have identified the public health problem of poor mental health outcomes for families of children with special health needs and/or disabilities. Parents and siblings of children with disabilities experience poorer mental health outcomes. Children with disabilities may struggle with social inclusion among peers, which may also result in poor mental health outcomes. One of our objectives is to foster an inclusive athletic environment among children with disabilities and athletes by collaborating during a game day at least three times during the 2024-2025 academic year. Lastly, we want to create social connections between the athletes and children with disabilities and their siblings by having 20 VFN kids attend the events. We found that families of children with special health needs have poorer mental health outcomes. Children with special health needs and disabilities benefit from participating in athletic events. These events provide an opportunity for children with disabilities to be involved in sports culture – a community that may often be exclusive or unwelcoming to those with disabilities. Research has shown that these events help foster social inclusion, develop emotional and social skills, and improve mental health outcomes. To address this public health problem, we recommend an intervention focused on fostering an inclusive athletic environment and positive relationships between UVM athletics and families involved with VFN. Children at VFN along with their siblings will be

invited to participate in special activities alongside the team on designated game days. If this intervention is completed, it will lead to increased social connection, relationship-building and development of social/emotional skills for children with disabilities. In 2-4 years we expect this intervention to establish a relationship between VFN and UVM athletics, as well as increase mental health outcomes for children with disabilities and their families.

43. **Rally Cat's Advocacy Team (RCAT).** *Christian A Samantha, Binger H Naomi, Fleuette S Isabelle, Wright H Greta*

At the University of Vermont, 1 in 5 students have experienced food insecurity, and food insecurity disproportionately affects students living off campus and from marginalized backgrounds (Niles, 2024). Food insecure students report higher levels of stress, depression, and other poor mental health outcomes, as well as lower GPAs (Brescia & Cuite, 2022; Gundersen & Ziliak, 2015). UVM has a population of 81.2% White, 4.8% Hispanic or Latino, 3.44% Asian, 3.36% Two or More Races, 1.35% Black or African American, and 1% other (Data USA, 2021). In collaboration with Rally Cat Cupboard, the on campus food pantry, we connected with community stakeholders to develop an intervention to address food insecurity at UVM. Our partners included Maeve Forbes, Director of Rally Cat's Cupboard, Jamie Lombardo, Vermont Foodbank Community Resource Manager, Alex Hazzard, Student Services Advisor for UVM Mosaic Center, and Erica Caloieria, UVM Vice Provost for Student Affairs. The goal of our intervention, Rally Cat's Advocacy Team (RCAT), is to create space for students to connect with resources and to destigmatize the experience of food insecurity through peer-to-peer advocacy. We hope this program will raise awareness and eventually decrease rates of food insecurity at UVM by building community partnerships and expanding student knowledge and self-efficacy. We modeled our intervention off of programs like the University of Iowa student-run food pantry which expanded into a basic needs hub with a full-time staff member to oversee the peer-led program (Broton et al, 2022). Additionally, the peer-to-peer advocacy model has been validated at Georgetown University as "crucial in overcoming perceived stigma around accessing nutrition benefits and other support systems" (Georgetown University, 2021). With this supporting evidence, we believe RCAT holds strong potential to

generate sustainable and impactful change in how UVM students access food resources and support their needs.

44. Improving Disordered Eating Outreach at The University of Vermont.

Forester, F, A - Lepre, I, M - Shepard, M, S

The University of Vermont (UVM) has established resources supporting disordered eating and weight inclusivity that are currently underutilized by the student population. The Center of Health and Wellbeing (CHWB) provides physical and mental health services while promoting evidence-based health initiatives. Resources include dietician help, nutrition courses, the Body Positive initiative, and campus health providers.

This will be accomplished by creating an internship between Health Science students and the UVM CHWB. This initiative will improve communication outreach of existing educational resources and promote a sense of community for UVM students.

First, we developed a list of primary, secondary, and key stakeholders who have professional/academic backgrounds in health sciences or disordered eating/weight inclusivity. After conducting interviews with key stakeholders we developed an intervention based on stakeholder recommendations and evidence-based research that supported three intervention strategies: health communication, community mobilization, and health community service. These strategies helped to develop an intervention that would promote our agency's goal and reduce lack of utilization of their current programs. This guided us to propose a partnership between UVM's Health Science program and CHWB for an annual internship that supports a senior Health Science student to promote engagement and awareness within the student body about current resources surrounding disordered eating and weight inclusivity.

We recommend our site incorporate this intervention as engagement and awareness of evidence-based programs currently available can impact students' engagement and health behaviors. This can help reduce the prevalence of disordered eating habits, focus on primary prevention, and impact campus culture surrounding the utilization of resources.

The goal of our intervention is to increase awareness and utilization of established programs around disordered eating and weight bias on the UVM campus. Creating an annual internship that bridges the Health Science Department and CHWB will target the under-utilization of resources currently offered through UVM.

45. **Student-athlete Mental Health Peer Advocacy Program.** *McPherson, J, H. Parento, B, S.*

Background: The stigma surrounding mental health and the lack of support for student-athletes have contributed to poor mental health outcomes. In 2021 the American College of Sports Medicine found that roughly 30% of female and 25% of male student-athletes reported having anxiety and 35% of student-athletes both male and female suffer from disordered eating, burnout, depression, and/or anxiety. Previous research on the NCAA found that suicide represented 7.3% of all deaths among NCAA student-athletes. Within this 7.3% male athletes have a significantly higher rate of suicide compared to female athletes with football athletes having the highest risk.

Objective(s): To implement a peer advocacy program that provides additional mental health support and awareness for student-athletes to reduce poor mental health outcomes. Previous research on peer-to-peer support groups has shown significant results in reducing depression, psychological stress, and anxiety as well as significant improvement in mental well-being, stress, loneliness, perceived social support, school-related stress, and psychological adaptation. Implementing this program will help improve the overall well-being of student-athletes at UVM.

Methods: Surveys and interviews were conducted to collect data about the population. This data was then evaluated to identify the need for additional support.

Results: The data collected from surveys and interviews showed significant results for the need for additional support for student-athletes' mental health.

Discussion: This data confirms that additional mental health support for student-athletes is crucial. The findings from this research indicate that peer-to-peer support groups can be a great resource that reduces poor mental health outcomes and improves the overall well-being of student-athletes. Thus this program has proven to be effective and essential to the student-athletes at UVM.

46. **Affirming Doula Services for LGBTQ+ Vermonters.** *Raymond, A, E, Scott, V, C, Valeriani, M, J*

Background: Inclusive language within obstetrics and gynecology can help promote a safe space for patients to express their concerns. When

affirming care for LGBTQ+ folks is lacking it can increase dysphoria and distress greatly. This is furthered by LGBTQ+ folks, especially non-binary and genderqueer people, continuously being left out of research and educational information. Birth trauma is described as physical or emotional stress experienced during or after childbirth. These are just a few factors contributing to more than half (51%) of LGBTQ+ birthing people reporting in a study that the quality of their experience with pregnancy, birth, and postpartum care was impacted by bias or discrimination.

Objectives: Increase the prevalence of affirming care and reduce adverse birth outcomes among LGBTQ+ Vermonters.

Methods: Through service-learning experience with the Pride Center, it was determined that there is a lack of support for LGBTQ+ Vermonters who are pregnant or would like to have children. After interviewing stakeholders and conducting research, it was found that LGBTQ+ individuals often experience poor birthing outcomes and heightened stress.

Results: A collaboration between the UVMMC Volunteer Doula Program and the Vermont Pride Center can provide support for LBGTQ+ birthing people, along with strengthening the program already in place by improving the inclusive nature of the program.

Discussion: We recommend collaboration between the Volunteer Doula Program at UVMMC and the Vermont Pride Center. This program aims to improve self-efficacy for both doulas and Vermonters by providing affirming cost-effective informational, emotional, and physical support. LGBTQ+ patients who are navigating pregnancy often encounter enhanced scrutiny and bias in medical settings. Addressing social support as an issue faced by the LGBTQ+ community involves providing inclusive and affirming environments. Doulas have the skill set to provide this support in many ways to listen, advocate, and provide educational resources improving health literacy.

47. **Air Quality Improvement using Phytoremediation: An Eco-friendly Approach to a Healthier Workplace.** *Burger, L, Groves, K, I, Dolzani, E, R* The Vermont Department of Buildings and General Services (BGS) is committed to supporting state agencies by overseeing state-owned facilities' construction, renovation, maintenance, and security, aiming to enhance the quality of life for all building occupants. Our primary goal

with this project was to address substandard indoor air quality prevalent in state-owned and leased buildings. Poor indoor air quality and mold proliferation pose significant health risks to occupants, leading to respiratory ailments among employees and visitors. We conducted stakeholder interviews and an extensive literature review to identify optimal interventions for improving indoor air quality. Additionally, budgetary estimates were derived using Vermont State Department building blueprints and publicly released salaries and budgets. Online sources were utilized to gather average commercial HVAC costs, with the acknowledgment that further budgetary research consulting specialists would be necessary for project implementation. Our research highlights the efficacy of indoor plants in improving indoor air quality and mitigating health risks associated with mold and organic pollutants. Indoor plants possess air-purifying properties, absorbing volatile organic compounds and regulating humidity levels through transpiration. This dual function ensures that indoor humidity remains within the optimal range of 30-60%, which is crucial for regulating mold growth. Certain species also exhibit antimicrobial properties, further suppressing mold and bacteria growth. We recommend strategically implementing indoor plants in state-owned and leased facilities to combat mold proliferation and organic pollutants, thereby enhancing respiratory health among building occupants. We anticipate significant improvements in indoor air quality through the proposed intervention, fostering a healthier and more productive environment for occupants. We aim to mitigate respiratory ailments and enhance overall well-being by employing evidence-based strategies. Continuous evaluation will provide insights into the effectiveness of this initiative, guiding future decision-making and resource allocation.

48. **Expansion of Entry Level Health Care Education.** *Diaz, M, C; Cramer, S, M; Taylor, J*
Northern Vermont Area Health Education Center (NVTAHEC) is a nonprofit organization that works to improve healthcare quality and access in rural Vermont. NVTAHEC provides health education programs and other support services focused on health care provider recruitment and retention. Vermont has a provider shortage, which increases the rates of burnout and low job satisfaction within the current workforce. Rural Vermonters are most affected by this shortage with reduced access to care and barriers to enter the healthcare workforce. We recommend that

NVTAHEC partner with MedCerts, an online health certification organization, and Vermont State Univeristy to provide certification programs to rural university students.Our intervention aims to address this issue by increasing accessibility to entry level healthcare careers in rural Vermont, which will support current providers. The key stakeholders include: Lanie Billings, Program Director at NVTAHEC; Maureen Herbert, Director of Partnerships at UVM PACE; and Samantha Rufenacht, High School Guidance Counselor. Some but not all of our assets include VSAC's scholarships, UVM PACE, and Rural Community Transportation.The success of previously established community partnerships between MedCerts and UVM PACE, illustrates the ability of this program to be implemented and advance entry level healthcare education within Vermont. MedCerts offers numerous Unlicensed Assistive Personnel (UAP) certifications which relieves the workload for licensed providers in turn improving patient health outcomes. These certifications allow for the opportunities to pursue medical licenses. We read through many peer-reviewed articles and gray literature to fully understand the depth of the issue and best practices for our recommendation. We will know that this was effective when there's an increase in enrollment in the MedCerts certification program from rural Vermont students. Additionally, this will be successful when there has been an increase in certified students who can begin work in entry-level UAP positions.

49. **Pop-up Art Sites within the University of Vermont Medical Center (UVMMC).**
Megan Libuda, Avey Vasak, Jazlyn Oviedo, Meredith Bogue, Alena Von Rhedey, Kayla Johnson
Art for the Heart is a volunteer program with Burlington City Arts (BCA) and UVM Medical Center Volunteer. The goal is to make the hospital community more comfortable and creative by providing the art tools necessary to support patients, their families, and staff members. Art from the Heart is not a resource of art therapy, the role of the program is for volunteers to deliver art supplies and visit with patients and their families. Our intervention addresses the need for a safe space that allows people to enjoy artistic freedom, engage in community building, and gain a positive experience to reduce negative mental health within the hospital. We plan to collaborate with AFTH Program Coordinator Rebecca Schwarz, UVM Medical Center of Board of Trustees, and the perspective of program users. Using these insights and evidence-based peer review

resources, we have developed an expansion of the AFTH program that aligns with goals and objectives.

How AFTH will expand more within the hospital is by utilizing the pop-up creation spots that will provide one consistent area for patients, staff, and families to engage in accessible art opportunities.

To evaluate the program's success art pop-ups will record the number of participants utilizing the site and receive participant's feedback. By implementing this program there will be an increase in positivity of the hospital environment making it more comfortable for visitors and staff and services as a resource for community engagement.

50. **AFTH x Meals on Wheels Collaboration.** *Megan Libuda, Avey Vasak, Jazlyn Oviedo, Meredith Bogue, Alena Von Rhedey, Kayla Johnson*

Art for the Heart, a collaboration between Burlington City Arts (BCA) and UVM Medical Center, aims to uplift the spirits of hospital patients.

Research indicates that hospitalized individuals often face mental health challenges due to pain, isolation, and anxiety. By providing art supplies and fostering meaningful interactions, volunteers from AFTH will enrich the hospital community, supporting patients, families, staff, and caregivers. To extend the program's reach beyond the hospital, we propose partnering with Meals on Wheels.

An objective of this collaboration is to create more of an opportunity for people to hone in on their artistic creativity outside of a hospital setting. Through tapping into their artistic creativity, the objective is to empower community members and reduce negative mental health outcomes.

To develop the program, we conducted stakeholder interviews for feedback on the effectiveness of the current AFTH program. Using these insights, along with evidence-based recommendations from peer-reviewed sources, we have developed a program that not only aligns with the goals and objectives of AFTH but also extends its reach to support the broader Burlington community outside the hospital environment.

In order to bring Art from the Heart to communities outside of the hospital, collaborate with Meals on Wheels, a service providing essential support to those with limited access in Burlington. Participants in Meals on Wheels will be offered a form listing available art supplies, which they can select from. Upon completion, during their next food delivery, participants will receive the chosen art supplies along with their meals.

The amount of participants will be the determining factor to evaluate program effectiveness. This not only provides insight into participation rates but also reflects the frequency of interest in the program, as indicated by the number of completed forms.

Communication Sciences and Disorders

51. **Long-Term Effectiveness of Gender-Affirming Voice Therapy for Transgender Individuals.** *Frechette, Asher C*
Background: Current research shows that gender-affirming voice therapy is effective for transgender individuals immediately following treatment, but it is unclear if these outcomes are maintained in the long-term. It is important to analyze how to maintain treatment outcomes so that the transgender population can continue to experience the improved quality of life and decreased misgendering that occurs immediately following voice therapy.
Objectives: The purpose of this systematic review is to identify and analyze the long-term outcomes of gender-affirming voice therapy for the transgender population.
Methods: Three electronic databases (PubMed, CINAHL, and OVIDMed) were searched and evaluated for inclusion/exclusion criteria and quality of evidence. Articles that assessed fundamental frequency, self-perception of voice, and listener ratings both immediately and after a follow-up period were considered for review.
Results: Out of the 121 articles identified, 9 were judged to meet the criteria. Two studies reported on all three outcome measures, while the remaining seven studies reported on two outcome measures. Preliminary evidence was found indicating maintenance of treatment outcomes over time when resonance training (i.e. instruction on shaping/positioning the vocal tract) had been included as a treatment objective. Evidence also suggested that long-term outcomes may improve when participants are satisfied with the intervention length.Discussion: Gender-affirming voice therapy that incorporates resonance shows promise as an intervention for transgender individuals in the long-term. Evidence is limited by the lack of high-quality studies (i.e. randomized control trials) measuring longitudinal outcomes for this population. Future research should include full

descriptions of program objectives, larger sample sizes, and multiple outcome measures.

52. **A Comparison of Exercise-Based and Standard Care Dysphagia Treatment in Head and Neck Cancer Patients*.** *Welte, M.M.*

Background: Dysphagia is among the most common secondary conditions resulting from head and neck cancer. There are several effective treatment strategies for dysphagia secondary to head and neck cancer, including exercise-based and standard care measures, but a lack of direct comparison exists in the literature.

Objective: To identify whether exercise-based or standard care measures are more effective for treating dysphagia in individuals with head and neck cancer based on the pre-existing literature.

Method: A literature review was conducted of three databases: PubMed, OVID Medline, and Academic Search Premier, resulting in 188 total studies. Following a quality assessment and review of inclusion/exclusion criteria, 8 eligible studies remained.

Results: This systematic review found that both exercise-based treatments and standard care treatments are effective in treating dysphagia in head and neck cancer patients. When comparing each form of exercise-based treatment, McNeill Dysphagia Therapy Program was found to be most effective overall in comparison to the Shaker exercise and tongue-strengthening exercises. When comparing average differences pre and post treatment in each study, there were not enough consistent statistically significant differences to state that exercise-based treatments are overall more effective than standard care treatments.

Discussion: This systematic review aimed to identify the most effective type of dysphagia treatment for head and neck cancer patients. While exercise-based treatments had minor increased effectiveness in comparison to standard care, neither treatment type was ineffective. Therefore, it is important to include both forms of dysphagia treatment in care for head and neck cancer patients. Future research should include more participants in studies with included control groups; additionally, direct comparison of exercise-based treatments within the same study should be researched to increase understanding of each treatment's effectiveness. Patient quality of life when entering and exiting exercise-based treatment programs for dysphagia should also be further researched to understand the patient's perspective.

53. **Themes of Successful High School Peer Support Programs for Autistic Teens.** *Daigle, C. E.*

Background: Peer support programs are becoming a popular way to support autistic adolescents' social and academic goals in the high school setting. These programs have been known to increase social interactions between autistic students and their typically developing peers.

Purpose: To gather themes of successful peer support programs based on measurable increases in social interactions for autistic adolescents.

Methods: 254 articles were compiled from electronic databases, including JSTOR, Science Direct, and Google Scholar. Seven studies that met the inclusion and exclusion criteria for trialed peer support programs within a high school for autistic adolescents were included in the review. Data were extracted from these studies, and the effect sizes on social interaction results were compiled and reviewed.

Results: The percentages of social interactions between autistic adolescents and their typically developing peers were found to be the highest in nonstructured peer support programs including advisory, elective, and lunch periods. These programs were facilitated by teacher-selected peers, included peer and participant training meetings, and had presented the students with the goals for social interaction between the students in the peer program.

Conclusion: Peer support programs promote peer connections, offers individualized support, and can be integrated within structured and unstructured periods of the school day.

54. **The correlation of race and age of autism spectrum disorder diagnosis.** *Howrigan, M.G. & Moffroid, I.M.*

Purpose: As the first step in ensuring timely diagnoses and resources for all individuals with autism, the aim of this study was to identify whether or not there are differences in age of autism diagnosis across races.

Methods: PubMed, PsychInfo, and Academic Search Premier were systematically searched and a total of 87 studies were found. After systematically reviewing these studies, as well as studies obtained from a general search of google scholar, a total of seven studies met the inclusion and exclusion criteria. Age of autism diagnosis was examined as it compared to the race of the child diagnosed.

Results: A descriptive analysis of the results presented multiple different trends of rates of autism diagnosis across races. One study found that Black children are more likely to be diagnosed later than White children. Two studies found that Hispanic children are more likely to be diagnosed later than White children. One study concluded that Black, Hispanic, and Asian children were diagnosed earlier than White children. Three studies found no significant difference in the age of diagnosis across races.
Conclusion: There is no clear difference in the age of diagnoses for autism spectrum disorder across different races. More research is needed in this area to have a clear understanding if certain populations are not receiving timely diagnosis and support.

55. **Efficacy of Transition to Literacy on the decoding skills of individuals with complex communication needs.** *Kenyon, M. & Pavlik, M.*
Background: People with complex communication needs (CCN) often reach adulthood without developing functional literacy skills. Previously reviewed literacy interventions are highly structured and require trained professional interventionists. The Transition to Literacy (T2L) software which can be added to the augmentative and alternative communication (AAC) device used by an individual with CCN may provide a means of increasing the accessibility of literacy intervention.
Objectives: To determine the efficacy of the T2L application in supporting minimally verbal people in acquiring literacy skills.
Methods: Five databases (CINAHL Complete, ERIC, PubMed, Web of Science, and Academic Search Premier) were searched using the terms transition to literacy, T2L, dynamic text, augmentative and alternative communication, and AAC. Of the 158 studies generated, 10 were included based on relevance.
Results: Participant's accuracy in decoding single words was observed to increase after intervention with the T2L software compared to baseline across the majority of the studies. Intervention using grid displays yielded stronger results than those using visual scene displays. Individuals with autism spectrum disorder, developmental disabilities, Down syndrome, and cerebral palsy tended to experience a positive effect. Individuals aged 6-20 tended to display improved accuracy than those older or younger.
Discussion: The T2L software appears to support literacy skills acquisition for some individuals with CCN. Future research should focus on larger sample

sizes with comparative aspects across populations to isolate the effectiveness of T2L.

56. **Prelinguistic Predictors of Expressive Language Growth in Minimally Verbal and Nonverbal Autistic Children: A Systematic Review of the Literature.**
Paquette, L.C.

Background and Objective(s): Expressive language outcomes vary widely amongst autistic children, and have been shown to be highly connected to behavioral and functional outcomes later in life. A significant portion of the autistic population never develops functional language output, and are labelled as minimally verbal (MV) or nonverbal (NV). While several studies have assessed the importance of targeting prelinguistic skills in treatment to improve expressive language outcomes in verbal autistic children, research assessing whether these prelinguistic skills benefit treatment outcomes for MV and NV children is limited. The purpose of this literature review is to examine prelinguistic factors that predict expressive language growth in MV and NV autistic children, and determine which have been found to have the strongest impact

Methods: A literature search was conducted using OVID Medline, CINAHL, and Web of Science. Fifty-four studies were initially screened and following a review for quality assessment and inclusion/exclusion criteria, 12 were found to meet criteria.

Results: Eleven studies yielded statistically significant results regarding prelinguistic skills that are associated with expressive language growth in minimally verbal and nonverbal autistic children. The only prelinguistic skill reported across multiple studies was phonetic repertoire (i.e., which speech sounds the individual can produce accurately), which was found to be significantly associated with expressive language growth in three research articles.

Discussion: Prelinguistic skills that had been identified as predictors of expressive language growth in verbal autistic children, such as joint attention, were found to be insignificant concerning expressive language growth in MV and NV children. However, skills such as phonetic repertoire was shown to be a significant predictor of expressive language in MV and NV children. The use of phonetic repertoire in language intervention programs may improve language output over time, and therefore overall outcomes for this population.

57. Effects of the COVID-19 on the communication abilities in 1-2 year-olds.
Brough, L. E.

Background: The COVID-19 pandemic led to worldwide quarantines that disrupted social environments. Research has reported on developmental differences between pre-pandemic and post-pandemic groups with contradicting conclusions. Likewise, studies have highlighted these differences specifically in the realm of communication. The lack of variation in social contexts and communication partners, along with many other factors, may have affected the communication abilities of infants.

Purpose: This review aims to determine whether there is sufficient evidence to suggest that the shutdowns during the COVID-19 pandemic impacted the communication abilities of infants ages 1-2.

Methods: Through ProQuest, PubMed and Google Scholar, 26 studies were identified and following quality assessments, 6 studies were chosen to be included based on inclusion and exclusion criteria. Positive screening percentages and unadjusted odds ratio percentages on the Ages and Stages Questionnaire-3 (ASQ-3) in the area of communication were extracted for comparison across studies.

Results: A descriptive analysis indicated that children ages 1-2 years old during the COVID-19 shutdowns were more likely to generate a positive screening on ASQ-3 measures. This conclusion was shared across 5 of 6 total studies.

Conclusion: Preliminary evidence supports the notion that the COVID-19 shutdowns impacted the communication skills of 1-2 year olds. Findings are discussed in reference to clinical implications. Future research should more deeply investigate the ways in which these resulting communication deficits interact with resulting social-emotional deficits highlighted by the data.

58. How does caregiver training impact AAC device abandonment or rejection in children? *Loftus, L.F., Marks, B.T.*

Background: The prevalence of augmentative and alternative communication (AAC) abandonment is high in children with complex communication needs (CCN). Individuals with CCN often require additional modes of communication when verbal output is not adequate. Research has shown that family-centered therapy and home carryover are best practices for generalization.

Objective: The purpose of this review is to determine if caregiver training is a recurring theme in the current literature surrounding device abandonment.

Method: Three databases were searched (Web of Science, PubMed, and CINAHL) using keywords related to AAC system abandonment and caregiver training. Articles were evaluated using inclusion criteria and a quality assessment was conducted. Articles were selected if they met the criteria. This resulted in 14 articles.

Results: In all 14 articles, caregiver training was a recurring theme. Inclusion of caregiver training led to an increase in AAC success, while lack of training influenced abandonment/rejection, as reported by caregivers of children with CCN. Additional themes surrounding AAC abandonment/rejection are also described.

Discussion: Although caregiver training is a recurring theme promoting successful use of AAC in the literature, it is not consistently being applied in the AAC implementation process to promote successful communication among children with CCN. Quantitative research is needed in determining best practices for caregiver training when implementing AAC for children with CCN. Implications for clinical practice for speech-language pathologists are discussed.

59. **The effectiveness of pre-habilitative swallowing exercises on post-treatment swallowing function in squamous cell carcinoma head and neck cancer patients: A systematic review.** *Lewallen, O. N. & McGlothlin S. J.*

Background: Patients diagnosed with Head and Neck Cancer who receive chemoradiotherapy and/or surgery are at high risk of developing dysphagia along with dehydration, malnutrition, and aspiration pneumonia. Current research shows benefits of swallowing exercises to strengthen the oropharyngeal muscles during the pre-treatment stages; however, results are broadly reported with less focus on pre-intervention protocol specificity (e.g., pre-habilitation onset time, exercise type, and duration). This systematic review focuses on squamous cell carcinoma HNC of non-HPV origin, and how prophylactic treatment of dysphagia differs from traditional post-treatment alone for improving swallowing outcomes.

Methods: Utilizing two databases, PubMed and CINHAL, 91 articles less than 15 years old were identified. After excluding duplicates and filtering

through quality assessment categories (e.g., study design, quantitative outcome measures, and post intervention follow-up), 9 articles were included in this review.

Results: HNC patients who received pre-intervention swallowing exercises had better post-intervention outcomes compared to patients who only received therapy post-treatment. Out of the 9 articles reviewed, 8 showed an improvement in swallowing function and/or reduction in incidence/duration of dysphagia, 5 were statistically significant, and 1 showed no difference. Only 7 articles differentiated between the specific location of cancer (e.g., nasopharynx, oral cavity, oropharynx, hypopharynx, larynx) but not enough data was found to make a connection between exercise type and efficacy beyond the general 'head and neck' umbrella classification.

Conclusion: A preventive protocol, rather than a responsive one, should be adopted in HNC medical teams to prevent dysphagia. More research is needed to construct location specific treatment plans to provide patients with the best care and foster positive outcomes.

60. **Cross-modal examinations of narrative structural processing in autistic individuals.** *Carolyn D'Auria, Emily Zane, Neil Cohn, Emily Booth, Holly Chappell, Caitlyn Soong, Gwendolyn Reichert, & Emily Coderre*
Background and Objectives: Understanding the structure, or narrative arc, of a story is critical for narrative comprehension, whether a narrative is presented verbally (e.g., written or spoken stories) or pictorially (e.g., comics). Our previous work finds that autistic adults show reduced sensitivity to narrative structure in comics, which could help explain oft-reported differences in narrative comprehension by autistic individuals. Here, we extend that work to explore structural processing in written and pictorial narratives and compare between modalities.
Methods: In an electroencephalography (EEG) study with autistic and non-autistic adults, we manipulated the presence of narrative grammar in comics and written stories. "Structural-only" narratives contained narrative structure but no comprehensible meaning. These were created by shuffling sentences (in written narratives) or comic panels (in visual narratives) across stories but maintaining their relative positions. "Scrambled" narratives were created by shuffling sentences/panels across stories and positions, thus eliminating both structure and meaning.

Results: Preliminary analyses (n=21) showed that level of autistic traits (as measured by the Autism Quotient (AQ) questionnaire) affected the difference between Scrambled and Structural conditions in both modalities. Specifically, greater autistic traits were associated with less negative/more positive differences in the Scrambled – Structural Only difference wave. This effect may have been driven by participants with higher AQ scores, who showed a flipped effect at later time windows such that the Scrambled condition was more positive than the Structural Only condition. This may indicate that autistic participants are able to recognize narrative structure but use different cognitive mechanisms to process it.

Discussion: These preliminary data suggest that autism affects the processing of narrative grammar, which could contribute to narrative comprehension differences in this population.

61. Association of Autistic Traits with Visual and Verbal Thought Patterns.

Coderre, E. L., Medeiros, S. B.

Background: The Visual Ease Assumption (VEA) refers to the widespread assumption that pictures, being "easier" to process, are beneficial for individuals who experience difficulties with language processing, such as many autistic individuals. However, recent evidence has demonstrated similar processing patterns across visual and verbal modalities in autism, particularly for more complex stimuli such as narratives. This raises the possibility that the VEA may stem from more anecdotal evidence of autistic individuals being "visual thinkers" and "thinking in pictures". To date, no studies have been conducted to explore autistic experiences of being "visual" versus "verbal" thinkers.

Objective: Compare thought patterns across participants with varying levels of autistic traits.

Methods: As part of a larger data collection initiative, participants with varying levels of autistic traits (measured using the Autism Quotient questionnaire; scores can range from 0 to 50) were asked an open-ended question about thought patterns and personal reflection styles. More specifically, we asked whether they tended to think more concretely, or visually, such that they saw detailed images when asked to imagine something or more abstractly, or verbally, such that they heard their own voice working as an inner dialogue for their thoughts. Using a mixed

methods approach, responses were analyzed for themes and descriptive statistics (i.e., means and ranges).

Results: Participants who responded with verbal and visual thinking styles equal parts of the time (N=5) had the highest average AQ score, 23. Participants who tended to think more verbally (N=7) displayed the second highest average AQ score, 21. Finally, participants who tended to think more concretely, or verbally (N=3), had the lowest average AQ score, 17.

Discussion: As part of an ongoing effort to examine the validity of the VEA, our results do not support this assumption. No clear patterns emerged suggesting that individuals with higher levels of autistic traits more frequently reported "thinking in pictures". These findings question the basis of the VEA and suggest that visual stimuli may not necessarily be easier to process than verbal stimuli for autistic individuals.

62. **Inferring Patient Fear from Word Properties in Pediatric Psychotherapy.**
Knobel, A, M; Jangraw, D; Grenon, K; Cannizzaro, M
Pediatric psychotherapy, specifically cognitive behavioral therapy (CBT), is a promising treatment for Obsessive-Compulsive Disorder (OCD). Clinical fear ratings obtained during pediatric psychotherapy provide valuable information about patient progress and have been associated with clinical outcomes. Evidence-based treatments rely on patient fear ratings, but no methods have been developed that can automatically extract fear ratings during psychotherapy. Advancements in computational methods have shown promise in detecting stress from written text that could be used to inform mental health diagnoses. We use a tool made to find the essential meaning of written text and machine learning models to predict patient fear ratings during 434 recorded pediatric OCD therapy sessions. Results indicate there are correlations between clinical fear ratings and the semantic features of words spoken during pediatric OCD therapy. Certain patients are prone to providing consistently low fear ratings, thus impacting the efficacy of machine learning algorithms applied to this dataset. When patients could be in the training and testing data of the machine learning models produced in this study, the area under the receiver operating characteristic (ROC) curve was higher than when patients were separated into either the training or testing data. These findings suggest that it may be possible to extract personality traits

from the words spoken during therapy, indicating a correlation between the words spoken during therapy and patient fear.

63. **Mean Babble Level and Canonical Babble Ratio: Relationships to Vocabulary in Williams Syndrome.** *Bookless, M. C., Severance, B. E., Simons, K., Guimaraes, V., Becerra, A., Velleman, S., Mervis, C.*
Background: Williams syndrome (WS) is a neurodevelopmental disorder resulting from deletion of ~26 genes on chromosome 7 and associated with language deficits. Babbling maturity is predictive of lexical development in children and therefore may help predict speech/language delay in WS children. Canonical babble ratio (CBR) and mean babble level (MBL) are reliable measures of phonetic maturity. A CBR of 0.15 indicates canonical babble onset. In TD infants, this is typically seen between 6-12 months old. Delayed canonical babbling onset predicts smaller expressive vocabularies at 18, 24, and 30 months of age. The MBL of TD 23-month-olds averages 1.90. Although CBR and MBL have been used to study early vocal development in children with various syndromes, studies of children with WS have been few. Earlier identification of babble differences in children with WS may lead to earlier, more effective interventions for this population.
Objectives: Do WS children display typical babble maturity?
Methods: Thirty-nine 24-month-olds with WS and eleven TD were recorded in a 30-minute play session. Recordings were phonetically transcribed using the International Phonetic Alphabet. Transcripts were entered into Phon 3.1 Computer Software and analyzed for MBL and CBR.
Results: Williams syndrome children produced mean CBR of 0.438, and mean MBL was 1.69. Five WS children (14%) failed to meet the 0.15 criterion for canonical status.
Discussion: Mean babble level and CBR levels in WS children were below TD norms reported in the literature. Fourteen percent of WS children did not meet the criterion for canonical babble onset. Comparisons to TD 24-month-olds revealed non-statistically significant differences. Comparisons were limited by the small size of the TD group. The clinical implications are clear: Early speech-language intervention for children with WS, especially those with immature babble, is essential to both concurrent and later language development.

64. Cohesion Trends in Discourse Using Automated Analysis. *Bliss, E., Grenon, K., Olszko, A., Jangraw, D., & Cannizzaro, M.*

Background: Conversation is the most abundant and natural form of discourse and is a necessary form of communication for completing everyday tasks, occupational success, and developing meaningful relationships. Conversation is a complex form of communication, requiring higher cognitive, linguistic, and social skills, and is commonly disrupted in individuals with cognitive-communication impairments (CCI). Individuals with CCI may have deficits in cohesion, or the way larger chunks of language are connected, which can have implications for everyday social and occupational requirements. Due to the gap in literature regarding conversational norms, discourse types with less ecological validity are most frequently used in the assessment and treatment of individuals with CCI instead of conversation samples. Advances in machine learning and automated natural language processing (NLP) now makes large-scale conversation analysis feasible. Larger sample sizes may contribute to identifying normative data in healthy populations and indicate differences between healthy controls and participants with memory loss.

Methods: Nearly 10,000 language samples were collected from a public database dedicated to preserving diverse personal stories and experiences (8312 healthy controls; 705 with memory impairments; 929 who previously had serious illness not including memory impairments). Audio files were transcribed using automated NLP. Cohesion software was used to analyze lexical density and organization through type-token ratio, connectives, and repeated content and pronouns.

Results: Results indicated significant differences in all three cohesion measures. The memory loss group was observed to have lower type-token ratio and frequency of connectives; however, repeated content and pronouns were observed to be higher in the memory loss group.

Discussion: Automated NLP is a powerful tool for optimizing language sample analysis and revealing differences in discourse in the most naturally occurring form of communication. Possible interpretations of these differences in cohesion and limitations of computational linguistics are discussed along with clinical implications for speech-language pathology.

Rehabilitation and Movement Science

65. **The Effects of Axial Loading on Real-World Ambulation in Persons with Multiple Sclerosis; a Pilot Study.** *Lloyd, Natalie, Kasser, Susan*
Background: Impaired sensory integration contributes to mobility challenges and increased fall risk in individuals with multiple sclerosis (MS). Interventions to improve gait through sensory modulation, such as axial loading, have been effective, although only acutely and solely in lab-based contexts. The utility of this approach for real-world ambulation remains unclear.
Objective: The purpose of the study was to examine the effect of at-home axial-loading using a weighted vest on gait metrics in adults with MS.
Methods: In a pre-post pilot study, real-world gait was assessed in nine participants with MS. During baseline, each participant wore a wireless body-fixed inertial sensor on their lower back for three consecutive days on two separate occasions two weeks apart. Participants then wore a weighted vest at 2.5% of body weight for thirty minutes each of three days per week for four weeks. Following the intervention, gait was reassessed similarly to baseline data collection.
All walking bouts equal to or greater than thirty seconds were identified from the tri-axis accelerometry data, and developed algorithms were used to calculate gait metrics from these bouts. A linear mixed model was used to determine the effects of the intervention on gait speed and stride regularity with time and subject entered as fixed and random effects respectively. Comparisons of estimated means with Sidak correction for multiple comparisons were examined.
Results: Significant differences were observed in gait speed and stride regularity between both baseline collection periods and between baseline and post-intervention testing, although the initial baseline session showed the fastest walking speed and more consistent gait.
Significance: While there was no evidence to suggest the effectiveness of axial loading on real-world ambulation in this study, continued examination of torso weighting utilizing various prescriptive variables of duration, frequency and intensity may be warranted. Furthermore, differences in gait metrics across all three time points may depend on the specific purpose of the walking bout or on other contextual factors

irrespective of time. As both gait speed and stride regularity significantly differed between the two baseline periods, determination of real-world ambulation as a treatment outcome must consider intra-individual variability across time and employ strategies to assure a consistent comparative baseline.

66. **Reliability and validity of the ratings of perceived stability scale as a measure of balance exercise intensity in persons with multiple sclerosis.** *Myeongjin Bae, Sydney Minnerly, Sadegh Khodabandeloo, Michael VanNostrand, Nancy Gell, Susan Kasser*

Purpose: The study purpose was to determine the reliability and validity of the Ratings of Perceived Stability (RPS) scale as a measure of balance exercise intensity in persons with multiple sclerosis (MS).

Methods: Twenty participants with MS (mean age: 58.1±15.29; 60% female) performed 14 balance tasks on two separate occasions wearing body-worn inertial sensors and offering a rating of perceived stability for each task. Sensor data included sway velocity and angle, gait speed, turn velocity, and lean angle. Intraclass correlation coefficients (ICC) and Spearman rank correlations (rs) were employed to assess reliability and validity, respectively.

Results: The RPS showed good to excellent test-retest reliability (ICC> .75) on 12 out of the 14 tasks. The stability ratings revealed moderate relationships with postural sway outcomes in static balance tasks (rs: .49- to .77) and weak to moderate associations with gait speed (rs: -.69 to -.14). Ratings of stability were also strongly related to turn velocity (rs= -.77) and moderately related to lean angle (rs= .58).

Conclusions: The RPS scale offers a promising clinical tool to measure balance exercise intensity for persons with MS. This standardized scale may allow for more individualized balance training and better exercise monitoring and progression in this population.

67. **Feasibility of a Motor Learning Study Protocol for Children on the Autism Spectrum*.** *Savard, L Tschaikowsky, E Gell, N*

Background and objectives: Children on the autism spectrum have movement challenges that affect their daily activities. However, motor learning studies in autism usually exclude children with more support needs. In this research, we iteratively modified an existing protocol for

testing motor learning in children to accommodate those with autism severity level 3.

Method: A motor learning protocol was modified from throwing a bean bag at a wall target to throwing at a "cornhole" board placed flat on the ground. Instructions were supplemented by video modeling. Video recordings and wearable movement sensors were used to measure performance. Children 7 to 13 years were recruited and completed 3 weekly study sessions each. The primary investigator and a research assistant completed a descriptive analysis of the children's reactions and the prompts provided.

Results: Five children completed the study: two with autism level 3 (intense support needs), one at level 2 (moderate support needs) and two at level 1 (minimal support needs). All children completed all planned trials per protocol. Neither child with autism level 3 consistently watched the instruction video. Additional spontaneous verbal, gestural or physical prompts were occasionally used beyond the planned protocol to support participants with autism level 2 and 3. This led to modifying and standardizing the allowed prompts and supports. The traditional generalization task of moving the target further away was not well tolerated by one of the participants. An alternative generalization task involving changing the weight of the bean bag was added.

Discussion: The original protocol was modified extensively until well tolerated. The protocol is ready for a descriptive study of movement performance, but it is not completely suitable for a motor learning trial comparing different instructional interventions. Additional supports to promote attention to the instruction will need to be explored.

68. **Addressing accessibility barriers: how to effectively amplify autistic perspectives across disciplines.** *Savard, L, Kelly, B, Pham, C, Lodestone, Z, Shor, M, Smith, A,*
Background and Objectives: Autistic people face barriers to access and inclusion in healthcare and educational settings. Despite this, diversity, equity, and inclusion advocacy inadequately includes the perspective of autistic people. Our work seeks to better understand what improved inclusion means for autistic youths and adults. It also seeks to improve awareness of the autistic experience and effect change in professional practices.

Methods: This project used qualitative analysis of focus groups to identify themes related to what autistic youth and adults want professionals to know. We used these themes to develop panel presentations highlighting challenges of the autistic experience and possible solutions for a variety of audiences. Panel audiences were given pre-attendance surveys to identify learning goals. Post-surveys were administered to assess satisfaction with panels, and self-identify tangible changes attendees felt could be made in their occupation.

Results: Qualitative analysis identified 4 major themes: 1) autism awareness 2) accessibility, 3) building trust, and 4) transparency and clear expectations. Panels were attended by approximately 4 health coach trainees, 15 staff and faculty from UVM's Rubenstein School, 10 undergraduate and graduate students, and 10 physicians and healthcare system experts. Some tangible intended changes reported by attendees included: 1) creating or adopting a questionnaire to assess communication and accessibility needs, 2) reaching out proactively to autistic students to develop relationships and address concerns, 3) collaborating with autistic people such as obtaining feedback on written documents like syllabi, 4) making environments more sensory friendly. Participants wanted to learn more and requested access to specific tools and resources to better support autistic people.

Discussion: Our work shows that amplifying the voices of autistic people encourages professionals to develop tangible solutions to accessibility and inclusion barriers. Importantly, these are solutions that autistic community members want, and professionals feel are actionable.

69. **Motivating Factors and Physical Activity by Age Groups: A Nationally Representative Cross-Sectional Study.** *Gell, N, M, Seals, S, M*
Background: Motivating factors, such as social influences, perceptions of appearance, and enjoyment may influence people in meeting physical activity (PA) recommendations. Understanding the association of motivating factors on PA can help inform the design of effective interventions. Little is known about whether there are differences between age groups in meeting PA recommendations and motivating factors.
Objective: To examine the association of motivational factors (pressure, appearance, guilt, and enjoyment) for starting or continuing PA by younger, midlife, and older age groups.

Methods: Cross-sectional, nationally representative data was gathered from the Health Information National Trends Survey (HINTS) from 2012, 2014, and 2019. Participants were 12,290 U.S adults (50.6% female, 48.2 ± 16.7 years). Analyses included descriptive statistics and logistic regression to examine leading motivational factors by age group and associations of motivating factors on meeting PA recommendations.

Results: Concern over appearance and guilt was cited as a PA motivator in the younger age group (44% and 67%, respectively) more than the older group (32% and 50%). Enjoyment was endorsed as a motivator across all age groups (55-67%) whereas a low percentage across all age groups cited pressure from others as a PA motivator (15-19%). Concern over appearance was significantly associated with increased odds of meeting PA guidelines in adults 50 years and older, but not in adults 18-49 years. Guilt and enjoyment of PA as a motivator increased the odds of meeting PA guidelines in all age groups (Odds ratio 2.0-5.0; p<001) whereas pressure from others decreased the odds of meeting PA guidelines in all age groups (p<0.001).

Discussion: Future research examining appearance concerns as a PA motivator for adults older than 50 should investigate concerns over aging. Enjoyment of PA should be targeted to increase PA outcomes in all ages.

70. **Effect of Biological Sex and Lateral Meniscus Tear on Quantitative Magnetic Resonance Imaging (qMRI) of the Meniscus Following Acute Anterior Cruciate Ligament (ACL) Injury of the Knee Joint.** *Barwin, WB. Beynnon, BD. Krug, MI. Borah, A. Gardner-Morse, MG. Vacek, PM. Tourville, TW. Geeslin, M. Choquette, R. Falla, M.*

Severe knee injuries that involve the anterior cruciate ligament (ACL) with and without concomitant lateral meniscus (LM) tears are common and predispose the knee to arthritis. The objective of this study was to determine if these injuries produce a different response in males compared to females and determine if differences exist between ACL injury in isolation and combined ACL and LM injury. This study included 20 subjects (10 males, 10 females) who were studied with Quantitative Magnetic Resonance Imaging (qMRI). No differences were found between males and females. Combined injuries displayed elevated qMRI values compared to isolated ACL injuries.