or slow the onset of Alzheimer's disease. OBJECTIVES/GOALS: This study examines the association between cognitive and physical resilience and Alzheimer's disease in a Tibetan Buddhist monastic community in southern India. METHODS/STUDY POPULATION: The study will employ mixed methods of semi- and unstructured interviews and surveys. The interviews will be conducted among 60 monks of age 50+ in six Tibetan monastic colleges in southern India. The interviews will comprise general questions related to monks' monastic educations and practices, as well as clinical cognitive interviews. Interviewees will be randomly sampled from a census of monks at the six monasteries. Owing to COVID-19 crisis, we will begin data collection, starting with interviews via zoom in mid-December 2020. The survey, which includes demographic information, cognitive assessments, meditative practices, health, memory and physical activity, will be conducted among 400 monks. The survey will be performed onsite and is tentatively scheduled in the summer of 2021. RESULTS/ANTICIPATED RESULTS: The study will help to identify factors associated with physical and cognitive resilience and develop measures to quantify and describe meditative and cognitive practices. These data will be used to both adapt validated measures developed in Western populations for use with this unique population and to develop new items on physical and cognitive resilience to include in the planned survey. Furthermore, the study will provide information about the prevalence of Mild Cognitive Impairment and Alzheimer's disease and related dementias in this population and development of the survey to capture culturally appropriate measures, including on meditation. The findings could eventually lend us insights into behavioral intervention that could potentially prevent or slow the onset of Alzheimer's in wider population. DISCUSSION/SIGNIFICANCE OF FINDINGS: Cognitive and physical resilience are understood to confer significant benefits to health outcomes and healthy aging. However, the factors related to resilience, particularly in older adults, are poorly understood. This study will estimate the link between frequency and intensity of meditative practices and physical and cognitive resilience.

**97448**

### Biopsychosocial Determinants of Pain Assessment and Management - Medical and Surgical Trainees' Perspective

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ABSTRACT IMPACT: Better understanding how clinicians make decisions about pain management, particularly since our prior research has demonstrated that opioids prescribed at discharge is the strongest predictor of opioids taken, is critical to decrease high-risk medication prescribing while preserving high-quality care. OBJECTIVES/GOALS: (1) Identify major biological, psychological, and social determinants of medical and surgical residents' pain management decisions; (2) Determine salient themes regarding the experience of residents in the management of acute and chronic pain METHODS/STUDY POPULATION: Focus groups of internal medicine and general surgery residents at an academic, tertiary care training hospital located in an urban setting were conducted. Due to the COVID-19 pandemic, all focus groups were conducted virtually and occurred during required didactic sessions to facilitate participation. All interviews were recorded and transcribed. Two reviewers independently reviewed and coded the data following the principles of constructivist grounded theory. RESULTS/ANTICIPATED RESULTS: 42 residents participated in ten focus groups ranging in size from two to five individuals. Six themes emerged demonstrating salient BPS factors in pain management decisions: (1) patient and clinician expectations determine what is considered normal/acceptable; (2) inability of pain scales to reliably capture patient pain; (3) desire for more objective methods of pain assessment, while simultaneously recognizing that pain is an inherently subjective experience; (4) difficulty in determine when pain is 'real' or 'legitimate'; (5) lack of education and protocols regarding pain management; (6) the importance of engaging other services such as acute pain service or nurse educators in complicated situations. Junior residents often expressed doubt in the appropriateness of their approaches and decisions. DISCUSSION/SIGNIFICANCE OF FINDINGS: Surgical and medical trainees routinely treat pain and may struggle, particularly in the early phases of training, to determine if pain levels are appropriate. There is also a lack of education and/or best practices for assessing and managing pain. These areas represent high-value, clinician-focused targets for future interventions to improve care.

## *Education/Mentoring/Professional and Career Development*

**55179**

### An assessment of understandability and actionability in breast cancer survivorship print materials

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ABSTRACT IMPACT: Our results reveal a limited amount of breast cancer survivorship print materials as both understandable and actionable, and indicate a need to supplement material with personalized teaching. OBJECTIVES/GOALS: Using educational print material for young women breast cancer survivors (YBCS) is considered a best practice in patient teaching. Little is known about how well YBCS understand or act upon the material. The purpose of this study was to assess the understandability and actionability of commonly distributed breast cancer survivorship print materials. METHODS/STUDY POPULATION: We used an environmental scan approach to obtain breast cancer survivorship print materials available in eight outpatient oncology clinics and one electronic medical record used in a Midwestern state. Print materials were included if they were freely available to patients, were specific to breast cancer, provided detailed information about survivorship, and were directly given to patients by physicians or nurses. Print materials were excluded if topics were related to treatment, diagnosis, or prevention. All brochures, drug advertisements, and advertisements for support services were excluded. The understandability and actionability analyses of the breast cancer survivorship print materials were analyzed using Patient Education Materials Assessment Tool for Printable Materials (PEMAT-P). RESULTS/ANTICIPATED RESULTS: The environmental scan resulted in 82 individual print materials. After applying the inclusion and exclusion criteria, eight breast cancer survivorship print materials were included in the final sample. The final sample included two books, two patient education handouts from the electronic medical record,

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two multi-page booklets, and two pamphlets. The overall mean understandability score of the print materials was 68.9% ? 11.3 with a range of 47% to 80%. Five materials scored above the recommended 70% in understandability. The overall mean actionability score of the print materials was much higher at 81.3% ? 21.6 with a range of 67% to 100%. Five materials scored above 70% in actionability. However, only three of the eight materials scored above the recommended 70% in both understandability and actionability. DISCUSSION/SIGNIFICANCE OF FINDINGS: Limited breast cancer survivorship print materials exist as both understandable and actionable. Personalized instruction provided by oncology team members may be indicated to supplement the material. This additional teaching may help ensure survivors comprehend messages and act upon specific tasks as indicated in survivorship print material.

92438

## Symptom Dynamics and Biomarkers of Disease Progression in Older Adult Patient-Caregiver Dyads During Care Transitions after Heart Failure Hospitalization: Study Design and Anticipated Results

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ABSTRACT IMPACT: This study is designed to address a critical gap in our understanding of how aging patients and caregivers recognize and respond to clinically important changes in heart failure symptoms during vulnerable transitions. OBJECTIVES/GOALS: Research on family involvement in heart failure (HF) symptom response is limited. Our objective is to examine HF symptom monitoring processes in couples after HF hospitalization, and quantify how coupled symptom assessments predict symptom response, patient clinical events, care strain, and dyad health during the high-risk post-discharge period. METHODS/STUDY POPULATION: This is an ongoing T2 translational study that employs an intensive longitudinal design. Adults aged ≥65 years hospitalized for HF and their caregiving spouse/partner are enrolled. The target n is 48 dyads. Over 5 weeks of follow-up, dyads complete daily diaries assessing patient HF symptoms. Clinical biomarkers of HF severity (NTproBNP, ST2) are also collected. Primary study endpoints are dyads' HF symptom response behaviors and caregiver strain; secondary endpoints are dyads' health status and patient clinical events. Dyadic dynamics of symptom assessment will first be characterized using dyadic autoregressive time series models. Subsequently, we will extract cross-partner effect parameters from the time series models and test whether dyadic effects predict the trajectories of each of our endpoints. RESULTS/ANTICIPATED RESULTS: This study is currently underway. In line with our study hypotheses, we anticipate that couples who assess patient symptoms similarly (dyadic agreement), and whose symptom assessments accurately reflect clinical severity, will be more likely to respond to symptoms appropriately with lower stress to the caregiving partner, and have better trajectories of health (self-reported and clinical). Characterizing dyadic symptom dynamics will provide important insight into the day-to-day process of symptom recognition in couples. Further, quantifying dyadic symptom dynamics in relation to our endpoints will provide information on the clinical value of dyadic symptom agreement, and whether it might be a target for future interventions to support better symptom response and health outcomes for both dyad members. DISCUSSION/SIGNIFICANCE OF FINDINGS: This project innovates on existing paradigms by applying family-level theory and techniques to better understand and support interventions for couples during post-discharge HF transitions - a vulnerable period for older adults that has traditionally been studied almost exclusively at the patient-level, with marginal success.

## *Evaluation*

29791

## Bird-delivered ivermectin as a novel urban West Nile virus prevention strategy

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ABSTRACT IMPACT: Successful implementation of this control strategy will result in a commercially available ivermectin-treated birdfeed that the public can use to protect themselves from infection with West Nile virus (WNV) by reducing mosquito survival and thereby suppressing WNV transmission around their homes. OBJECTIVES/GOALS: We assessed the efficacy and feasibility of ivermectin (IVM)-treated birds as a mosquito control strategy for local reduction of West Nile virus (WNV) transmission. We conducted a randomized field trial in backyard chickens and developed a mathematical model informed by field data to predict the impact of treated wild birds on transmission. METHODS/STUDY POPULATION: We placed 48 chickens in four treated and four untreated control flocks in backyards coops across Davis, CA and administered IVM daily in feed to treated flocks (Jul-Sep 2019). We assessed entomological indices weekly (i.e. Culex mosquito abundance, WNV infection prevalence, and parity rate) around each coop, monitored serum IVM levels in treated chickens, and tested for WNV antibodies in all chickens. Shifting our focus to wild birds, we developed a spatially-implicit mathematical model of WNV transmission near IVM-treated birdfeeders. Model parameters for bird movement were based on our telemetry of 27 birds in Fort Collins, CO (Aug-Sep 2020). Using the model, we predicted optimal deployment of treated feeders to provide local WNV control. RESULTS/ANTICIPATED RESULTS: WNV seroconversions were reduced in treated vs. untreated flocks, indicating a reduction in WNV transmission intensity at treated coops ($P = 0.03$). A sustained, but insignificant reduction in number of infected mosquitoes was observed near treated coops ($P = 0.59$); small sample sizes and below normal WNV prevalence in the study area limited our power. We anticipate that optimal spacing and number of IVM-treated birdfeeders required for effective WNV control in neighborhoods will depend on feeder usage rates by common bird species irrespective of WNV competence; broad availability of IVM-treated bloodmeals to mosquitoes will be more effective in reducing transmission than targeting the few species responsible for viral amplification. DISCUSSION/SIGNIFICANCE OF FINDINGS: IVM is a novel method for controlling zoonotic pathogens in the US and has the potential for targeted mosquito control to reduce pesticide usage. Evaluating spatial deployment of IVM-treated bird feed for local reduction in WNV transmission is a stepping stone to commercial deployment of this WNV control strategy.

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