

2022

PROGRESS REPORT

FREDERICK P. RIVARA, MD, MPH HARBORVIEW INJURY PREVENTION & RESEARCH CENTER (HIPRC) ENDOWMENT

INTRODUCTION

With your generosity the Frederick P. Rivara, MD, MPH Harborview Injury Prevention & Research Center (HIPRC) Endowment can provide resources to graduate students and post-doctoral trainee investigators looking to conduct an injury-related project.

Dr. Frederick P. Rivara, the namesake of this endowment, has created a safer and healthier world because of his work, and it was no surprise when his colleagues at UW Medicine established this endowment in his honor — one that will recognize Dr. Rivara's legacy and continue his visionary work.

Inspired by Dr. Rivara's work and HIPRC's accomplishments, this endowment supports career development activities and pilot research projects for trainees. With it, we pay tribute to Dr. Rivara's profound dedication to injury control and prevention across a lifespan.

We are delighted to update you on the projects of the 2021 Award Recipients, as well as the new recipient of 2022. Additionally, Kelsey Conrick, 2020 inaugural Rivara Grant Award recipient, has been selected as an Institute for Translational Research TL1 scholar for 2022-23. Her supported project builds off her Rivara grant-supported work. She has also submitted 2 publications, presently under review, from her Rivara Grant project.

We received applications on topic areas of the HIPRC: injury health equity, safe transport, traumatic brain injury, violence prevention, firearm injury and policy and injury care or global injury prevention. Applications undergo scientific peer review from a panel of experts, using the standard National Health Institutes (NIH) grading format. Feedback from the review is provided to all applicants, and in this way, regardless of if an award is granted, the application process provides an opportunity for growth on the part of the individual to strengthen the proposed work and future applications. It is exciting that this award can be used to advance both research and career.

2021 AWARD RECIPIENTS & PROJECT UPDATES

PROJECT TITLE: *Patient and Parental Mental Health Utilization After Severe Pediatric Burn Injury*

Project Abstract: Survivors of severe pediatric burn injury and their parents are at high risk for developing mental health disorders after injury that impact their ability to function. Little is known about this population's mental healthcare utilization after injury in the United States. This is a retrospective observational cohort study that aims to describe the mental healthcare utilization of survivors of severe pediatric burn injuries and their parents as well as identify groups within this population with higher utilization.

Current Progress: An extension on the project timeline is being requested to allow for continuation of the project as the PI changes institutions for their faculty position this summer. The project is in the analysis phase and is comparing mental health utilization after burn injury between multiple groups of interest listed here: 1. patients with vs. without mental health services rendered during their hospital stay for burn injury 2. patients that received an operation vs. those that did not and 3. patients with guarantors who received mental health services vs. those that did not. These comparisons were chosen to identify patients at increased risk for requiring mental health services post-pediatric burn injury and to inform future screening practices.

Next Steps: My next steps are to complete the analysis in my first three months as junior faculty and write the manuscript by the end of 2022. I plan to submit to *The Journal of Burn Care and Research* because this is the official journal of the American Burn Association and I believe it will have the highest impact for real-life practice. Additionally, I plan to use the findings to help me formulate hypotheses for my future K award application focused on the role

Testimonial: Thank you for awarding this gift. Because of this funding, I have learned many valuable lessons that will serve me in my future career as a physician scientist. Specifically, I learned about the hiring process and how to build a team, time management, how to make realistic timelines, and how to transition a project through changing career demands. This program was a key part of my training and I will take these lessons with me through the end of my career.

PROJECT TITLE: *Antidepressants and the Risk of Fall Injury in Older Adults with Depression*

Project Abstract: Each year, an average of 170 fall injuries are reported per 1,000 adults aged 65+ years, translating to 8.4 million fall injuries. One modifiable risk factor for fall injuries is use of medications acting on the central nervous system, such as antidepressants. Although older adults are the most frequent users of antidepressants little is known about how fall injury risk differs between antidepressants. Randomized trials comparing antidepressants rarely collect fall injury outcomes. Thus, observational analysis is the primary approach to learning about fall injury risk. However, these studies face a high risk of bias from confounding by indication when comparing antidepressant users versus non-users. Still, the 2019 American Geriatrics Society Beers Criteria recommend against using most antidepressants in older adults with a history of falls or fractures, leaving clinicians with no drug treatment guidance in many older adults. Thus, there is an imperative need for comparative safety research to study risk of fall injury from antidepressants. The objective of this study will be to compare the risk of fall injury among initiators of antidepressants in separate head-to-head comparisons, controlling for confounding, and explore subgroups of age, sex, race, frailty status, dementia, and history of fall injury. Data will be sourced from the IBM/Watson MarketScan® Medicare Supplemental data among older adults with incident depression. We hypothesize that, compared to other antidepressants, fluoxetine and paroxetine will increase risk of fall-related injury during acute and continuation phase treatment based on pharmacokinetic (e.g., prolonged half-life) and pharmacodynamic (e.g., highly anticholinergic) effects.



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Current Progress: Descriptive statistics demonstrated uniformity in sub-populations across all 7 antidepressant groups. Results from Inverse Probability Treatment Weighting (IPTW)-weighted time-to-event Cox proportional hazards models changed depending on follow-up time. There was a higher risk of fall in the acute phase of treatment (≤ 84 days), but this risk diminished after a few months (≥ 85 days) because individuals became stabilized on therapy. In fact, there is a clear attenuation of hazard ratio estimates and a widening of confidence intervals in the continuation phase of treatment. This is consistent with what we expected to see. However, across all follow-up times, almost all comparisons with bupropion had statistically significant hazard ratios, indicating a higher risk for fall injury for patients taking the drug.

Next Steps: The results above do not include adjustment for confounding by previous fall or concurrent medication use. Therefore, I will re-run the regression analyses and interpret the new set of results, which will be more accurate. Finally, I will write an abstract for conference submission and draft a manuscript for publication.

Testimonial: This has been a great learning experience for me as a PhD student. The Rivara Endowment allowed me to conduct my first independent research, which taught me a great deal about not only the research process, but how to deal with challenges when they arise in this context. It will serve as great preparation for my dissertation and I am very grateful to have had this opportunity.

2022 AWARD RECIPIENT & PROJECT DESCRIPTION

Project Title: *The Role of Social Integration in Cognitive Functioning after Traumatic Brain Injury in Older Adults*

Project Abstract: Traumatic brain injury (TBI) is one of the leading causes of life-long disability and death, requiring more than 2.9 million persons in the US to seek treatment each year. In particular, older adults aged 75 years and older have the highest rates of hospitalization and death. Trauma is an unexpected and devastating event for older adults and life after TBI is generally not the same as before. Compared to the younger population, older adults are less likely to return to prior functional level and quality of life because of slower recovery trajectories and worse physical and cognitive functioning. In particular, worse cognitive outcomes due to TBI may interfere with this recovery by impairing ability to socialize and interact. Social integration is an essential part of coping and adaptation following injuries like TBI. However, there is little information as to the association between social integration and cognitive function after TBI in older adults. Understanding temporal associations between social integration and cognitive outcomes is important to improve cognitive outcomes following TBI in older adults to optimize quality of life. This project proposes longitudinal data analysis using the TBI Model Systems National Database to describe the impact of social integration on change in cognitive function after TBI in older adults across 5 years. The findings of this study will provide information regarding the importance of social integration on cognitive function for older adults post-TBI in order to identify future interventions.



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THANK YOU

Thank you for providing resources to our graduate students and post-doctoral trainee investigators who are conducting injury-related projects through the Frederick P. Rivara, MD, MPH Harborview Injury Prevention & Research Center (HIPRC) Endowment. Your gifts continue to support faculty, students and programs across UW Medicine and have far-reaching impact in our community and beyond. We cannot thank you enough for all you have done, and continue to do, to support UW Medicine.

As the world changes, our commitment to improving human health remains constant. We are eager to update you on these projects soon. Please take good care and let us know if there is any way we can be of help to you or your family.

Please do hesitate to reach out to us at via our direct inbox, hiprc@uw.edu or directly to Dr. Monica Vavilala at vavilala@uw.edu.

'Together we can reduce the harm and suffering from injury and violence.'