MHRN 2022 Annual Report

2022 ANNUAL REPORT

MHRN Mental Health Research Network

About MHRN

Who we are

- A consortium of 14 research centers, embedded in large and diverse health care systems.
- Dedicated to improving patient mental health through research, practice, and policy.
- Expertise in epidemiology, health services, economics, disparities, outcomes, and quality assessment, and pragmatic clinical trials.
- Partner health systems serve a combined population of over 20 million people in 16 states.
- Supported by a cooperative agreement with the National Institute of Mental Health.

Our Mission

As a national model for learning mental health care systems, MHRN will:

- Identify research questions that matter to patients, healthcare providers, and health care system.
- Efficiently answer those questions with real-world research involving real-world patients and provider.
- Rapidly disseminate and implement research result.

Our Values

As part of the larger Health Care Systems Research Network (HCSRN), we share the values of:

Service to patients, caregivers, clinicians, and health system leaders

Relevance to real-world decisions

Scientific excellence

Collaboration and teamwork

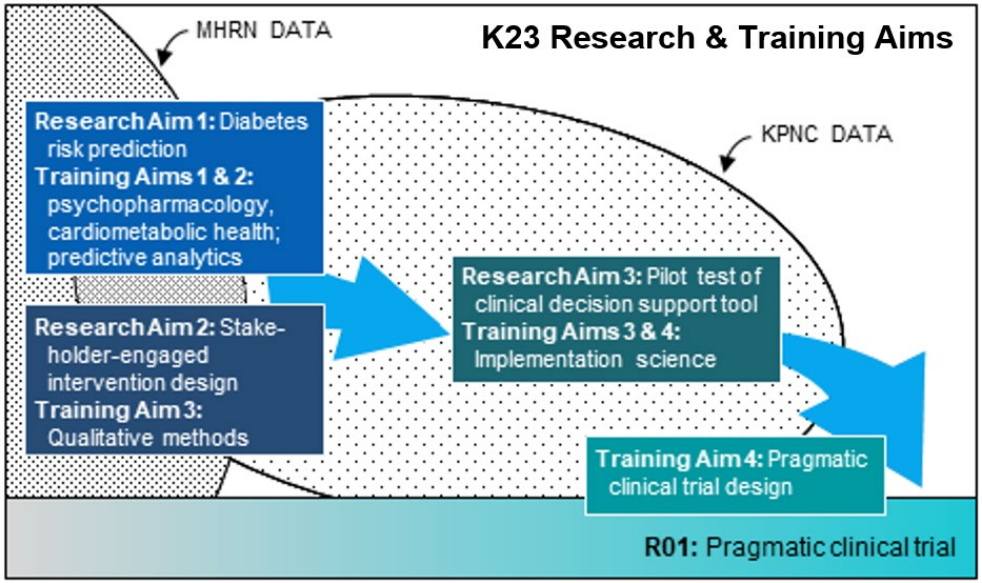
Transparency

Innovation and creativity

Annual Highlights

Improving physical health in people with severe mental illness

Esti Iturralde (KPNC) began work on a project to improve diabetes and cardiovascular disease prevention care for younger adults with severe mental illness. This project will use EHR data and stakeholder input from KPNC, HFHS, and HPI to develop metabolic risk prediction models and the preliminary design of a clinical decision support tool targeted to this population. With support from this mentored K23 career development award, Dr. Iturralde will build on her background as a clinical psychologist and behavioral diabetes researcher to lead a program of research on interventions to improve the cardiometabolic health of people with severe mental illness.



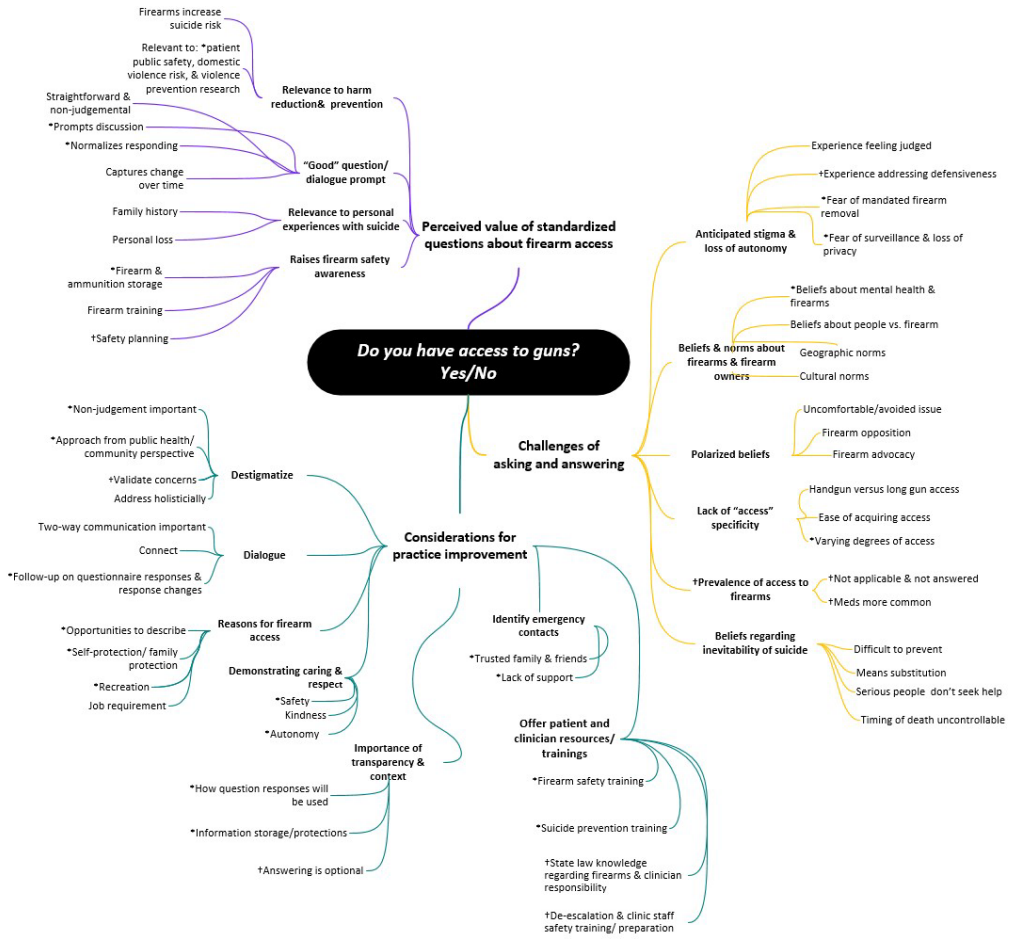
Reducing firearm injury and death

MHRN researchers launched a 3-year, CDC-funded project aimed at reducing firearm self-harm and death. Led by PI Julie Richards (KPWA) and co-Is Jennifer Boggs (KPCO) and Jennifer Shaw (Southcentral Foundation), the team will use community-based participatory research and user-centered design to develop and test evidence-based clinical practices for firearm suicide prevention in 3 health care systems in communities with high rates of firearm ownership and suicide (more).

This study builds on findings from prior research conducted within KPWA, including patient and clinician perspectives on assessing patients' access to firearms (more).

Researchers at KPCO (Boggs) evaluated the feasibility and acceptability of a web-based decision aid for safe storage options of firearms and medications (more).

Figure: Thematic Network



[a]Convergent theme (patients and clinicians).
[b]Complementary theme (clinicians).

Richards et al JAMA Health Forum 2022

Improving treatment of Post-Traumatic Stress Disorder

Vanessa Simiola (KPHI) and Joan Cook (Yale) co-lead a 3-year PCORI-funded project that will implement and evaluate the implementation of a brief, five-session evidence-based treatment for PTSD, Written Exposure Therapy. This study will be conducted in 6 MHRN member health systems: the Hawaii, Georgia, and Northwest regions of Kaiser Permanente, Henry Ford Health System, Essentia Health, and Baylor Scott & White Health (more).

Dr. Simiola also leads an MHRN feasibility pilot that will examine whether Natural Language Processing (NLP) can identify additional trauma-exposed individuals with PTSD who are not documented/captured through ICD codes. This project builds on work done in a prior MHRN feasibility study that used NLP to identify cases of child maltreatment and was conducted in 2019-2020 by Sonya Negriff (KPSC), Frances Lynch (KPNW), and Rob Penfold (KPWA) (more)

Reach of Written Exposure Therapy Intervention

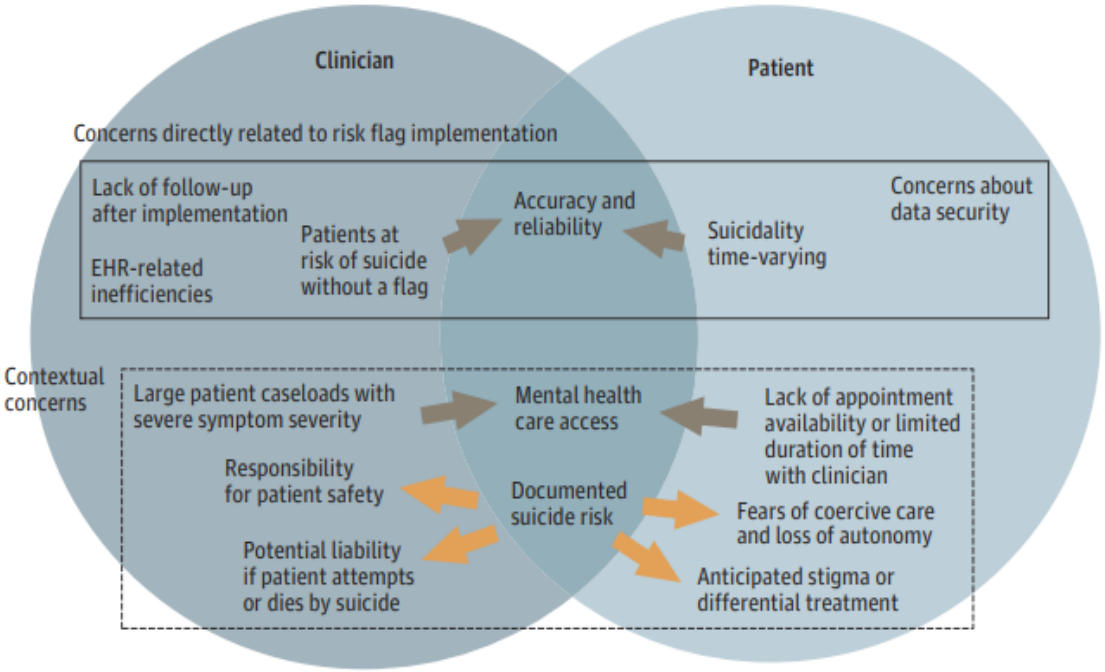
Health care systems	6
Health care system service areas (states)	10
Patients	5,406,638
Mental health providers	487
Eligible patients w/PTSD (past 12 months)	13,056
Eligible patients w/PTSD who were seen for psychotherapy (past 12 months)	4,661
Estimated # of PTSD patients who will be referred to WET	10,711
Minimum # of PTSD patients who will receive at least 1 session of WET	1,591

Implementing risk prediction models into care

Bobbi Jo Yarborough (KPNW) leads a pragmatic trial at 3 sites that will incorporate an MHRN suicide risk prediction model into the health system's existing suicide prevention program. Co-Is at participating sites are Brian Ahmedani (HFHS) and Rebecca Rossom (HPI). This study will develop implementation support based on the stakeholder feedback elicited in MHRN's Pilot Project 1 (more).

An MHRN feasibility pilot project, led by Julie Richards (KPWA) is focused on eliciting perspectives of adolescents identified at risk of suicide, their parents/guardians, and adolescent care providers about how suicide risk prediction models should be implemented and builds from a recently published implementation evaluation (more).

Figure. Clinician (N = 8) and Patient (N = 20) Concerns About Implementation of Suicide Risk Estimation Analytics: Triangulation of Semistructured Interview Themes



Dark arrows indicate convergence between patient and clinician interviews; light arrows indicate divergence

Richards et al. JAMA Network Open 2022

MHRN Postdoctoral Fellowship Program

In the past year, we accomplished several major goals, while our initial cohort of trainees were incredibly productive. Early in the year, we completed 10 initial interviews and invited 6 candidates for second interviews for our 2022-2024 cohort. Drs. Elyse Llamocca and Brianna Costales were selected and began working in our fellowship in summer/fall. We are delighted to have them in our program, following a very competitive application process. Indeed, the number of applications we received was higher than the previous year and included many stellar candidates with significant publication and grant funding records. More recently, we received 18 applications for our 2023-2025 cohort and are excited to begin that interview process.

Our 2021-2023 fellows, Drs. Santiago Papini and Geoff Kahn, made outstanding progress on their training plans. In 2022, they submitted 11 papers, had 11 papers accepted, presented 3 times at conferences, submitted 1 grant, and had 3 grants funded. In just a short time within the fellowship, Drs. Llamocca and Costales submitted 3 papers, had 2 papers accepted, presented 2 times at conferences, and submitted 1 grant.

2022-2024 cohort

Brianna Costales, PhD
Kaiser Permanente Northern California
Research interests: Pharmacotherapy, long-term safety and efficacy of psychotropics, and psychiatric adverse effects associated with medications and cannabis

Elyse Llamocca, PhD
Henry Ford Health System
Research interests: Suicide prevention, particularly in youth, and the impact of social determinants of health on mental health services and mental health-related outcomes

Projects

Six competitive proposals were awarded federal or foundation funds in 2022:

Improving Suicide Risk Prediction using Social Determinants Data
PI Rob Penfold (KPWA)

Reduce Racial/Ethnic Disparities in Suicide Risk Prediction (RED)
PI Yates Coley (KPWA)

Evaluating Effectiveness and Implementation of a Risk Model for Suicide Prevention Across Health Systems
PI Bobbi Jo Yarborough (KPNW)

Optimizing Care to Prevent Diabetes and Promote Cardiovascular Health Among Younger Adults with Severe Mental Illness
PI Esti Iturralde (KPNC)

Optimizing Firearm Suicide Prevention in Healthcare
PI Julie Richards (KPWA)

Employing a stepped-wedge design to implement an evidence-based psychotherapy for PTSD in six large diverse health systems
Co-PIs Vanessa Simiola (KPHI) and Joan Cook (Yale)

Information about all current and completed MHRN and related projects can be viewed here:
https://mhresearchnetwork.org/current-mhrn-projects/

The MHRN infrastructure funded **two feasibility pilot projects** in 2022:

[Implementing Predictive Models for Identifying Suicide Risk in Adolescents]

PI Julie Richards (KPWA)

Julie Richards

[Trauma and PTSD in Medical Records]

PI Vanessa Simiola (KPHI)

Vanessa Simiola

Information about the feasibility pilot program and all funded pilots can be viewed here:

mhresearchnetwork.org/resources/feasibility-pilot-program/

Publications

MHRN and related projects published 32 peer-reviewed papers in 2022.

1. Ahmedani BK, Cannella CE, Yeh HH, Westphal J, Simon GE, Beck A, et al. Detecting and distinguishing indicators of risk for suicide using clinical records. Transl Psychiatry. 2022;12(1):280. PMID: 35831289; PMCID: PMC9279332.
2. Boggs JM, Simon GE, Beck A, Rossom RC, Lynch FL, Lu CY, et al. Are people who die by intentional medication poisoning dispensed those medications in the year prior to death? Arch Suicide Res. 2022:1-8. PMID: 35579399; PMCID: PMC9762134.
3. Cruz M, Shortreed SM, Richards JE, Coley RY, Yarborough BJ, Walker RL, et al. Machine learning prediction of suicide risk does not identify patients without traditional risk factors. J Clin Psychiatry. 2022;83(5). PMID: 36044603.
4. Goger P, Zerr AA, Weersing VR, Dickerson JF, Crawford PM, Sterling SA, et al. Health service utilization among children and adolescents with posttraumatic stress disorder: A case-control study. J Dev Behav Pediatr. 2022;43(5):283-90. PMID: 34817448; PMCID: PMC9124718.
5. Hooker SA, O'Connor PJ, Sperl-Hillen JM, Crain AL, Ohnsorg K, Kane S, et al. Depression and cardiovascular risk in primary care patients. J Psychosom Res. 2022;158:110920. PMID: 35461074; PMCID: PMC9237849.
6. Islam N, Nash R, Zhang Q, Panagiotakopoulos L, Daley T, Bhasin S, et al. Is there a link between hormone use and diabetes incidence in transgender people? Data from the STRONG cohort. J Clin Endocrinol Metab. 2022;107(4):e1549-e57. PMID: 34850912; PMCID: PMC8947226.
7. Iturralde E, Fazzolari L, Shia M, Slama N, Leang J, Awsare S, et al. Closing the care gap for people with severe and persistent mental illness: Collaborative care, telehealth, and clinical pharmacy. NEJM Catal Innov Care Deliv. 2022;3(5). PMID: 36569369; PMCID: PMC9788801.
8. Iturralde E, Weisner CM, Adams SR, Chi FW, Ross TB, Cunningham SF, et al. Patterns of health care use 5 years after an intervention linking patients in addiction treatment with a primary care practitioner. JAMA Netw Open. 2022;5(11):e2241338. PMID: 36355373; PMCID: PMC9650610.

9. Jones J, Ertefaie A, Shortreed SM. Rejoinder to "Reader reaction to 'Outcome-adaptive Lasso: Variable selection for causal inference' by Shortreed and Ertefaie (2017)". Biometrics. 2022. PMID: 35579597; PMCID: PMC9669282.

10. Joseph CLM, Tang A, Chesla DW, Epstein MM, Pawloski PA, Stevens AB, et al. Demographic differences in willingness to share electronic health records in the All of Us Research Program. J Am Med Inform Assoc. 2022;29(7):1271-8. PMID: 35472083; PMCID: PMC9196689.

11. Marbaniang I, Rose E, Moodie EEM, Hart TA, Cox J. Mental health services use and depressive symptom scores among gay and bisexual men in Canada. Soc Psychiatry Psychiatr Epidemiol. 2022;57(11):2333-42. PMID: 36121487; PMCID: PMC9636296.

12. Moodie EEM, Coulombe J, Danieli C, Renoux C, Shortreed SM. Privacy-preserving estimation of an optimal individualized treatment rule: A case study in maximizing time to severe depression-related outcomes. Lifetime Data Anal. 2022;28(3):512-42. PMID: 35499604.

13. Palmsten K, Vazquez-Benitez G, Kharbanda EO. Point: Uncertainty about estimating the risks of COVID-19 during pregnancy. Paediatr Perinat Epidemiol. 2022;36(4):450-2. PMID: 34255380; PMCID: PMC8447357.

14. Papini S, Chi FW, Schuler A, Satre DD, Liu VX, Sterling SA. Comparing the effectiveness of a brief intervention to reduce unhealthy alcohol use among adult primary care patients with and without depression: A machine learning approach with augmented inverse probability weighting. Drug Alcohol Depend. 2022;239:109607. PMID: 36084444.

15. Penfold RB, Thompson EE, Hilt RJ, Schwartz N, Robb AS, Correll CU, et al. Development of a symptom-focused model to guide the prescribing of antipsychotics in children and adolescents: Results of the first phase of the Safer Use of Antipsychotics in Youth (SUAY) clinical trial. J Am Acad Child Adolesc Psychiatry. 2022;61(1):93-102. PMID: 34256967; PMCID: PMC8566327.

16. Richards JE, Yarborough BJH, Holden E, Shulman L, Stumbo SP, Coley Y, et al. Implementation of suicide risk estimation analytics to support mental health care for quality improvement. JAMA Netw Open. 2022;5(12):e2247195. PMID: 36525278.

17. Rossom RC, Crain AL, O'Connor PJ, Waring SC, Hooker SA, Ohnsorg K, et al. Effect of clinical decision support on cardiovascular risk among adults with bipolar disorder, schizoaffective disorder, or schizophrenia: A cluster randomized clinical trial. JAMA Netw Open. 2022;5(3):e220202. PMID: 35254433; PMCID: PMC8902652.

18. Rossom RC, Hooker SA, O'Connor PJ, Crain AL, Sperl-Hillen JM. Cardiovascular risk for patients with and without schizophrenia, schizoaffective disorder, or bipolar disorder. J Am Heart Assoc. 2022;11(6):e021444. PMID: 35261265; PMCID: PMC9075298.

19. Rossom RC, Penfold RB, Owen-Smith AA, Simon GE, Ahmedani BK. Suicide deaths before and during the coronavirus disease 2019 pandemic: An interrupted time-series study. Med Care. 2022;60(5):357-60. PMID: 35230276; PMCID: PMC8989607.

20. Rossom RC, Richards JE, Sterling S, Ahmedani B, Boggs JM, Yarborough BJH, et al. Connecting research and practice: implementation of suicide prevention strategies in learning health care systems. Psychiatr Serv. 2022;73(2):219-22. PMID: 34189931; PMCID: PMC8716665.

21. Scherrer JF, Miller-Matero LR, Salas J, Sullivan MD, Secrest S, Autio K, et al. Characteristics of patients with non-cancer pain and perceived severity of COVID-19 related stress. Mo Med. 2022;119(3):229-36. PMID: 36035570; PMCID: PMC9324720.

22. Scherrer JF, Miller-Matero LR, Sullivan MD, Chrusciel T, Salas J, Davidson W, et al. A preliminary study of stress, mental health, and pain related to the COVID-19 pandemic and odds of persistent prescription opioid use. J Gen Intern Med. 2022:1-8. PMID: 36385413; PMCID: PMC9668385.

23. Shaw JL, Beans JA, Noonan C, Smith JJ, Mosley M, Lillie KM, et al. Validating a predictive algorithm for suicide risk with Alaska Native populations. Suicide Life Threat Behav. 2022;52(4):696-704. PMID: 35293010; PMCID: PMC9378560.

24. Simon GE, Bindman AB, Dreyer NA, Platt R, Watanabe JH, Horberg M, et al. When can we trust real-world data to evaluate new medical treatments? Clin Pharmacol Ther. 2022;111(1):24-9. PMID: 33932030; PMCID: PMC9292968.

25. Simon GE, Platt R, Watanabe JH, Bindman AB, John London A, Horberg M, et al. When can we rely on real-world evidence to evaluate new medical treatments? Clin Pharmacol Ther. 2022;111(1):30-4. PMID: 33895994; PMCID: PMC8251042.

26. Simon GE, Shortreed SM, Boggs JM, Clarke GN, Rossom RC, Richards JE, et al. Accuracy of ICD-10-CM encounter diagnoses from health records for identifying self-harm events. J Am Med Inform Assoc. 2022;29(12):2023-31. PMID: 36018725; PMCID: PMC9667165.

27. Simon GE, Shortreed SM, Rossom RC, Beck A, Clarke GN, Whiteside U, et al. Effect of offering care management or online dialectical behavior therapy skills training vs usual care on self-harm among adult outpatients with suicidal ideation: A randomized clinical trial. Jama. 2022;327(7):630-8. PMID: 35166800; PMCID: PMC8848197.

28. Wood ME, Lupattelli A, Palmsten K, Bandoli G, Hurault-Delarue C, Damase-Michel C, et al. Longitudinal methods for modeling exposures in pharmacoepidemiologic studies in pregnancy. Epidemiol Rev. 2022;43(1):130-46. PMID: 34100086; PMCID: PMC8763114.

29. Yarborough BJH, Stumbo SP. A stakeholder-informed ethical framework to guide implementation of suicide risk prediction models derived from electronic health records. Arch Suicide Res. 2022:1-14. PMID: 35446244; PMCID: PMC9665102.

30. Yarborough BJH, Stumbo SP, Rosales AG, Ahmedani BK, Boggs JM, Daida YG, et al. Opioid-related variables did not improve suicide risk prediction models in samples with mental health diagnoses. J Affect Disord Rep. 2022;8. PMID: 36276588; PMCID: PMC9583814.

31. Yarborough BJH, Stumbo SP, Schneider J, Richards JE, Hooker SA, Rossom R. Clinical implementation of suicide risk prediction models in healthcare: A qualitative study. BMC Psychiatry. 2022;22(1):789. PMID: 36517785; PMCID: PMC9748385.

32. Yarborough BJH, Stumbo SP, Schneider JL, Richards JE, Hooker SA, Rossom RC. Patient expectations of and experiences with a suicide risk identification algorithm in clinical practice. BMC Psychiatry. 2022;22(1):494. PMID: 35870919; PMCID: PMC9308306.

The complete list of 165 MHRN publications can be viewed here:

mhresearchnetwork.org/research-news/mhrn-publications/