MHRN 2021 Annual Report

2021 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.

Mental Health Research Network Members

● States in which MHRN members have patients.

13. KP Washington, Seattle, WA
11. KP Northwest, Portland, OR
14. Sutter Health, Sacramento, CA
10. KP Northern Cal, Oakland, CA
12. KP Southern Cal, Pasadena, CA
9. KP Hawaii, Honolulu, HI
7. KP Colorado, Denver, CO
2. Essentia Health, Duluth, MN
4. HealthPartners, Bloomington, MN
5. Henry Ford Health, Detroit, MI
1. Baylor Scott & White, Temple, TX
3. Harvard Pilgrim, Boston, MA
6. INSIGHT Network, New York, NY
8. KP Georgia, Atlanta, GA

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

Collaborating with health systems for suicide prevention

Suicide risk prediction modeling:

- More detailed analyses have examined how MHRN suicide risk prediction models perform in different health settings and among different populations ([more](#)).

Clinical trials:

- A large pragmatic trial in four MHRN health systems evaluated outreach programs to prevent suicide among adults. Results will be published in 2022 ([more](#)).

- A new trial to evaluate stepped-care programs to prevent suicide in youth will begin pilot-testing interventions in 2022 ([more](#)).

Collaborations outside of MHRN sites:

- MHRN researchers continue to collaborate with researchers and clinical leaders in other health systems across the U.S., including the Veterans' Health Administration, Southcentral Foundation in Alaska, the University of Massachusetts, and the University of Pittsburgh.

Evaluation and implementation research:

- A pre-implementation study in three health systems is interviewing patients, clinicians, and clinical leaders about implementing statistical models to predict suicide ([more](#)).

- Researchers in six MHRN health systems are collaborating with clinical leaders to evaluate implementation of the National Zero Suicide Model ([more](#)).

*Goal 1: Understanding ZS Practices
i.e. identifying/cataloging forms intended to meet ZS functions (identify, engage, treat, transition)

†Goal 2: Measuring ZS Practice Processes
i.e. measuring ZS functions (# individuals at risk of suicide identified, engaged, treated, transitioned)

‡Goal 3: Measuring ZS Practice Effectiveness
i.e. comparing practices (across & within healthcare systems) and suicide outcomes

Figure Legend: *Focus of the present study,
†Process metrics (current & under development),
‡Focus of future evaluation

Goals of the planned Zero Suicide evaluation
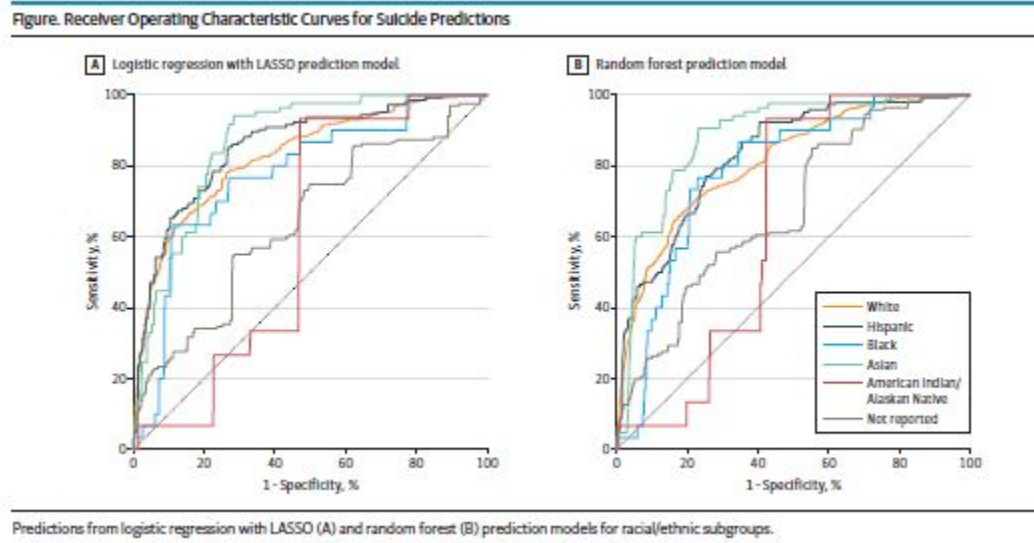*Rossom, et al. Implement Res Pract. 2021.*

MHRN research on diversity and health equity

Reducing disparities in depression screening and treatment:

- A study using records data from seven MHRN health care systems is examining commonly used standardized measures of depression and whether they function as effectively across different racial and ethnic groups. Analyses have been published (more) and are underway (more).

- Two MHRN health systems have begun a pilot study to develop and evaluate a population-based outreach program to improve rates of depression treatment initiation among traditionally underserved racial and ethnic groups (more).

Reducing disparities in suicide risk prediction:

- MHRN researchers evaluated possible biases in use of statistical models to predict suicide using health records data (more).

Figure. Receiver Operating Characteristic Curves for Suicide Predictions

Predictions from logistic regression with LASSO (A) and random forest (B) prediction models for racial/ethnic subgroups.

Impact of COVID-19 pandemic on mental health care

Evaluating telehealth

- Six Kaiser Permanente regions are studying the effect of telehealth on the safety, quality, efficiency, and value of mental health and wellness services ([more](#)).

- A study in three health systems is examining how changing to telehealth may have disrupted care, especially for more vulnerable populations ([more](#)).

- MHRN routine monitoring of mental health care trends revealed that the pandemic caused a dramatic shift from in-person to virtual mental health care, and health systems were forced to adapt screening and outcome assessment processes to accommodate video and telephone visits ([more](#)).
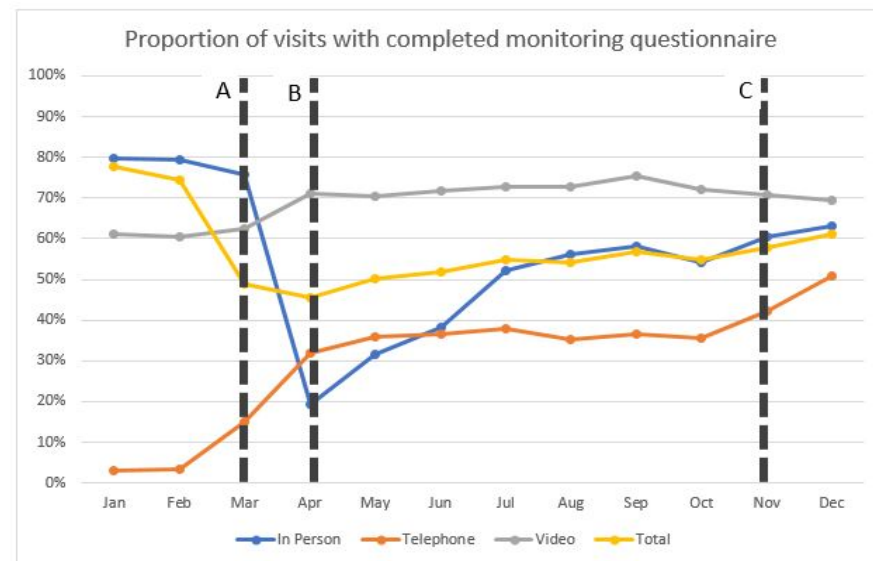
Simon et al. Jt Comm J Qual Patient Safety 2021

Vaccination uptake

- A study in three MHRN health systems is examining uptake of COVID-19 vaccination in people with and without mental health conditions ([more](#)).

MHRN Postdoctoral Fellowship Program

The MHRN T32 Post-Doctoral Fellowship Program launched with two fellows in the inaugural cohort. In this NIMH-supported, two-year fellowship program, aspiring independent researchers are trained broadly in health systems/health services research with a focus on mental health conditions and services, as well as suicide prevention. Areas of particular interest and training are in clinical interventions, healthcare service delivery, big data, implementation science, comorbidities, health equity, and health policy. The overall goal of the program is to support fellows in the transition to becoming independent mental health services researchers able to pursue NIMH-funding to support research within health system settings ([more]).

Inaugural cohort

Santiago Papini, PhD
Kaiser Permanente Northern California
Research interests: Data-driven prediction of the emergence of and recovery from post-traumatic stress disorder

Geoffrey Kahn, PhD, MSPH
Henry Ford Health System
Research interests: Risk factors for suicidal behavior in adolescents and young adults

Projects

Two competitive proposals were awarded federal funds in 2021:

- [Embedded Mental Health Services Postdoctoral Research Training in Health Systems (MHRN Fellowship)](#)

    PI Brian Ahmedani

- [Adolescent Suicide Prevention (Youth SPOT)](#)

    PI Greg Clarke

A third competitive proposal was awarded institutional funds:

- [Telehealth: Assessing Services in Kaiser Permanente (TASK)](#)

    Co-PIs Greg Clarke and Rob Penfold

Information about all current and completed MHRN and related projects can be viewed here:

- [mhresearchnetwork.org/mhrn-iii-projects](#)

*(top) Brian Ahmedani, (left) Greg Clarke, (right) Rob Penfold*

Projects

The MHRN infrastructure funded **two feasibility pilot projects**
in 2021:

- COVID-19 vaccine uptake and psychiatric disorders feasibility pilot

    PI Ashli Owen-Smith

- Weight loss and perinatal depression feasibility pilot

    Co-PIs Megan Ferber and Kara Christopher

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

- mhresearchnetwork.org/resources/feasibility-pilot-program/
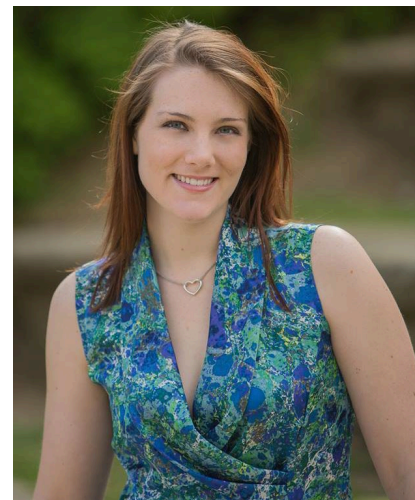
(top) Ashli Owen-Smith, (left) Megan Ferber, (right) Kara Christopher

Publications

MHRN and related projects published 24 peer-reviewed papers in 2021:

1. Richesson RL, Marsolo KS, Douthit BJ, Staman K, Ho PM, Dailey D, et al. Enhancing the use of EHR systems for prag- matic embedded research: lessons from the NIH Health Care Systems Research Collaboratory. J Am Med Inform Assoc. 2021;28(12):2626-40. PMID: 34597383; PMCID: PMC8633608.

2. Beidas RS, Ahmedani BK, Linn KA, Marcus SC, Johnson C, Maye M, et al. Study protocol for a type III hybrid effec- tiveness-implementation trial of strategies to implement firearm safety promotion as a universal suicide prevention strategy in pediatric primary care. Implement Sci. 2021;16(1):89. PMID: 34551811; PMCID: PMC8456701.

3. Rossom RC, Yarborough BJ, Boggs JM, Coleman KJ, Ahmedani BK, Lynch FL, et al. Prediction of suicidal behavior using self-reported suicidal ideation among patients with bipolar disorder. J Affect Disord. 2021;295:410-5. PMID: 34507220; PMCID: PMC8551064.

4. Richards JE, Simon GE, Boggs JM, Beidas R, Yarborough BJH, Coleman KJ, et al. An implementation evaluation of "Zero Suicide" using normalization process theory to support high-quality care for patients at risk of suicide. Imple- ment Res Pract. 2021;2. PMID: 34447940; PMCID: PMC8384258.

5. Walker RL, Shortreed SM, Ziebell RA, Johnson E, Boggs JM, Lynch FL, et al. Evaluation of Electronic Health Re- cord-Based Suicide Risk Prediction Models on Contemporary Data. Appl Clin Inform. 2021;12(4):778-87. PMID: 34407559; PMCID: PMC8373461

6. Simon GE, Shortreed SM, DeBar LL. Zelen design clinical trials: why, when, and how. Trials. 2021;22(1):541. PMID: 34404466; PMCID: PMC8371763.

7. Penfold RB, Whiteside U, Johnson EE, Stewart CC, Oliver MM, Shortreed SM, et al. Utility of item 9 of the patient health questionnaire in the prospective identification of adolescents at risk of suicide attempt. Suicide Life Threat Behav. 2021;51(5):854-63. PMID: 34331466.

8. Penfold RB, Johnson E, Shortreed SM, Ziebell RA, Lynch FL, Clarke GN, et al. Predicting suicide attempts and suicide deaths among adolescents following outpatient visits. J Affect Disord. 2021;294:39-47. PMID: 34265670.

9. 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 and Targeted Use of Antipsychotics (SUAY) Clinical Trial. J Am Acad Child Adolesc Psychiatry. 2021. PMID: 34256967; PMCID: PMC8566327.

10. 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. 2021 PMID: 34189931.

11. Harry ML, Coley RY, Waring SC, Simon GE. Evaluating the Cross-Cultural Measurement Invariance of the PHQ-9 between American Indian/Alaska Native Adults and Diverse Racial and Ethnic Groups. J Affect Disord Rep. 2021;4. PMID: 34142103; PMCID: PMC8208497.

12. . Coley RY, Walker RL, Cruz M, Simon GE, Shortreed SM. Clinical risk prediction models and informative cluster size: Assessing the performance of a suicide risk prediction algorithm. Biom J. 2021;63(7):1375-88. PMID: 34031916.

13. Simon GE, Stewart CC, Gary MC, Richards JE. Detecting and Assessing Suicide Ideation During the COVID-19 Pandemic. Jt Comm J Qual Patient Saf. 2021;47(7):452-7. PubMed PMID: 33994334.

14. Richards JE, Hohl SD, Segal CD, Grossman DC, Lee AK, Whiteside U, et al. "What Will Happen If I Say Yes?" Perspectives on a Standardized Firearm Access Question Among Adults With Depressive Symptoms. Psychiatr Serv. 2021;72(8):898-904. PMID: 33940947; PMCID: PMC8328914.

15. Coley RY, Johnson E, Simon GE, Cruz M, Shortreed SM. Racial/Ethnic Disparities in the Performance of Prediction Models for Death by Suicide After Mental Health Visits. JAMA Psychiatry. 2021;78(7):726-34. PMID: 33909019; PMCID: PMC8082428

16. Hecht LM, Yeh HH, Braciszewski JM, Miller-Matero LR, Thakrar A, Patel S, et al. Weighing the Association Between BMI Change and Suicide Mortality. Psychiatr Serv. 2021;72(8):920-5. PMID: 33882679; PMCID: PMC8328861.

17. Shortreed SM, Moodie EEM. Automated analyses: Because we can, does it mean we should? Stat Sci. 2020 Aug;35(3):499-502. PMID: 33716397; PMCID: PMC7946328

18. Yarborough BJH, Stumbo SP. Patient perspectives on acceptability of, and implementation preferences for, use of electronic health records and machine learning to identify suicide risk. Gen Hosp Psychiatry. 2021;70:31-7. PMID: 33711562; PMCID: PMC8127350.

19. Simon GE, Matarazzo BB, Walsh CG, Smoller JW, Boudreaux ED, Yarborough BJH, et al. Reconciling Statistical and Clinicians' Predictions of Suicide Risk. Psychiatr Serv. 2021;72(5):555-62. PMID: 33691491.

20. Ramirez M, Duran MC, Pabiniak CJ, Hansen KE, Kelley A, Ralston JD, et al. Family Caregiver Needs and Preferences for Virtual Training to Manage Behavioral and Psychological Symptoms of Dementia: Interview Study. JMIR Aging. 2021;4(1):e24965. PMID: 33565984; PMCID: PMC8081155.

21. Coulombe J, Moodie EEM, Shortreed SM, Renoux C. Coulombe et al. Respond to "Baby Steps to a Learning Mental Health-Care System". Am J Epidemiol. 2021;190(7):1223-4. PMID: 33295984; PMCID: PMC8484539.

22. Coulombe J, Moodie EEM, Shortreed SM, Renoux C. Can the Risk of Severe Depression-Related Outcomes Be Reduced by Tailoring the Antidepressant Therapy to Patient Characteristics? Am J Epidemiol. 2021;190(7):1210-9. PMID: 33295950; PMCID: PMC8245894.

23. Prabhakar D, Peterson EL, Hu Y, Chawa S, Rossom RC, Lynch FL, et al. Serious Suicide Attempts and Risk of Suicide Death. Crisis. 2021;42(5):343-50. PMID: 33151092; PMCID: PMC8096861.

24. Yarborough BJH, Stumbo SP, Ahmedani B, Rossom R, Coleman K, Boggs JM, et al. Suicide Behavior Following PHQ-9 Screening Among Individuals With Substance Use Disorders. J Addict Med. 2021;15(1):55-60. PMID: 32657957.

The complete list of 121 MHRN publications can be viewed here:

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