**SPECIFIC AIMS**

Suicide is the 10th leading cause of death in the United States (US). Unfortunately, suicide rates have not improved over time. Public health concern prompted the National Action Alliance for Suicide Prevention and the US Surgeon General to develop the 2012 National Strategy for Suicide Prevention (NSSP). The NSSP outlines Aspirational Goals (AG) with the objective to reduce the national suicide rate. AG 8 and9 promote healthcare settings as “*one of the most promising environments to implement suicide prevention,”* highlighting the need for providers and infrastructure to be in place for prevention, accurate identification, and treatment.

Consistent with the NSSP goals, one of the most successful comprehensive approaches to suicide care is Henry Ford Health System’s (HFHS) Perfect Depression Care (PDC) Zero Suicide (ZS) Initiative, which demonstrated a substantial (and sustained) decrease in the suicide rate of nearly 80% among behavioral health patients. The NSSP promoted the PDC initiative – and its corresponding “adoption of zero suicides as an aspirational goal by health care and community support systems” – as a model that should be implemented across US health systems in all service settings. Through Substance Abuse and Mental Health Services Administration (SAMHSA) funding, the Suicide Prevention Resource Center (SPRC) developed the resources and tools to prepare US health systems for local implementation of the National ZS Model (NZSM). The NZSM is based on the HFHS PDC program, but is flexible to allow adaptability in diverse settings.

The programmatic approach of NZSM is founded on the realization that suicidal individuals often fall through multiple cracks in a fragmented healthcare system, and on the premise that a systematic, comprehensive approach to care across health service settings is necessary for suicide prevention. The NZSM approach involves local implementation of a series of evidence-based interventions categorized within the following clinical/quality component areas: 1) Identification of those at-risk (IDENTIFY), 2) Engagement and care management (ENGAGE); 3) Effective treatment (TREAT), and 4) Care transition (TRANSITION).

Despite being promoted internationally as a model program for suicide prevention, the NZSM has very limited evidence. While preliminary data is available from HFHS on reductions in suicide rates among behavioral health patients, more rigorous study is needed to understand suicide outcomes within various health systems, service settings, and patient populations. It is unclear which specific intervention components, or bundle of components, are most effective. In response to MH-16-800 *Applied Research Toward Zero Suicide Healthcare Systems,* we propose a project focused on determining “the cumulative benefit of implementing multiple components of service delivery” in “Learning Healthcare Systems.”

The 6 systems in this proposed study collectively serve >9 million patients/year. Two systems, Group Health Cooperative (Washington) and HFHS (Michigan), have already implemented NZSM components. The other 4 systems, Kaiser Permanente systems in Northern and Southern California, Colorado, and the Northwest (Oregon), will participate in a 2-day NZSM launch meeting during a Zero Suicide Academy led by the Suicide Prevention Resource Center, Group Health and HFHS in fall 2016. These 4 systems have specific plans to implement NZSM components following the launch meeting. The 6 systems are all members of the NIMH-funded Mental Health Research Network and have large, defined patient populations with complete data capture. Selection and implementation of specific NZSM strategies will be led by delivery system leaders and supported by system resources; research teams at each site will collaborate in development of metrics and reporting systems. *This proposed project offers a unique opportunity to study the NZSM within large diverse systems with defined populations, thus enabling measurement of suicide attempt and death outcomes. Thus, we are able to rigorously evaluate a “real world” suicide prevention care improvement program*.

Our project seeks to develop metrics to measure fidelity and outcomes for the NZSM components implemented in each system using electronic health records (EHR) and insurance claims data sources that are easily extractable and generalizable to other systems. Then, we propose to use these metrics to conduct fidelity and outcome evaluation of the various NZSM approaches in each system using Interrupted Time Series Designs, which are among the strongest, pragmatic designs appropriate for evaluating care system intervention and policy changes in ‘Learning Healthcare Systems.’ *We hypothesize that the implementation of various NZSM components will significantly reduce suicidal behavior within and across the participating systems. We seek to accomplish THREE SPECIFIC AIMS*:

1. **Collaborate with health system leaders to develop EHR metrics to measure specific quality improvement targets and care processes tailored to local NZSM implementation.**
2. **Examine the fidelity of the specific NZSM care processes implemented in each system.**
3. **Investigate suicide attempt and mortality outcomes within and across NZSM system models.**