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Acute coronary syndrome (ACS; myocardial infarction or unstable angina) is a leading cause of morbidity and mortality in the U.S., with >1 million cases per year. Survivors are at high risk for recurrent cardiovascular disease (CVD) events, particularly if they do not adhere to risk-reducing medications. Unfortunately, nonadherence among ACS patients is very common (~50%), and no effective, scalable interventions exist. Addressing medication nonadherence in ACS patients requires an experimental medicine approach to identify specific mechanisms of behavior change in populations for whom those mechanisms are most relevant and modifiable.

Accumulating evidence suggests that the many patients who develop post-traumatic stress disorder (PTSD) symptoms following ACS view their medications as reminders of their cardiac event *and their future CVD risk*. Ironically, although it has rarely been studied outside of cancer survivors, this *fear of recurrence (FoR)* may undermine medication adherence in ACS patients. This project will use the Science of Behavior Change (SOBC) experimental medicine approach to investigate FoR as a putative mechanism of behavior change with respect to aspirin adherence among ACS patients with early PTSD symptoms at hospital discharge. We will test a cognitive-affective intervention that has been shown to reduce FoR in cancer survivors, that is delivered electronically (iPad) in the patient's home. We have begun adapting this intervention for ACS, and will test it using a double-blind randomized controlled design. We will enroll n=100 ACS patients with high acute stress disorder symptoms at discharge, and assess FoR and future time perspective at inpatient bedside, then train participants on the iPad intervention. Participants will complete the intervention over four weeks in eight half-hour sessions, twice each week. Medication adherence will be measured electronically using eCAPS. We will reassess FoR and future time perspective at 1 month follow up, as well as electronically assess cognitive-affective change throughout the intervention period.

We will estimate associations among ACS-induced PTSD, FoR, and future time perspective, and their association with medication adherence. Then, we will assess whether the intervention successfully engages the target mechanism (FoR). Finally, we will test whether the intervention improves adherence in the 2 months after hospital discharge, and whether any intervention effect is due to reduction in FoR. This will be the first study to identify, and perhaps modify, a cognitive/affective mechanism of adherence behavior in ACS patients at high risk for ACS recurrence and mortality.