SECTION I

To complete this section, please update the information which you provided in your original competing application under Project Summary and Relevance from PHS 398 Form Page 2.

TWH Summary
This is to serve as a succinct and accurate description of the approved work and should include the TWH's broad, long-term objectives and specific aims. This section should be informative to other persons working in the same or related fields.

The mission of the Harvard T.H. Chan School of Public Health Center for Work, Health, & Well-being is to improve the health and safety of workers through designing, testing, implementing and disseminating effective and integrated worksite policies, programs and practices that foster a healthy work environment, reduce potential hazardous job exposures and promote safe and healthy behaviors. NIOSH has funded our Center as part of its Total Worker Health® (TWH) initiative. The Center’s Research Core includes three projects: (1) Examining Pathways is a partnership between the Center for Work, Health, & Well-being and Partners HealthCare, the state's largest private employer, and aims to articulate pathways between the work organization and environment, and adverse outcomes for hospital workers, their patients, and their employers, using an extensive longitudinal database; (2) Intervention Effectiveness seeks to improve the safety, health, and well-being of construction workers through the application of integrated policies, programs, and practices that foster a safe and healthy work organization and environment within the context of the construction industry's multi-organizational structure; and (3) Enterprise Outcomes, beginning in September 2017, will use the Center's Indicators of Integration tool to evaluate the degree to which existing programs, policies, and practices in about 500 nursing homes reflect Total Worker Health® approaches. The Center for Work, Health, & Well-being validated the Indicators tool as a worksite level measure of TWH implementation in our last funding cycle, and is currently updating this tool. The Examining Pathways and Intervention Effectiveness progress reports are included below. Enterprise Outcomes began September 1, 2017 with progress to be reported in the 2018 Annual Report. In addition, the Center’s Outreach Core developed a suite of evidence-based products to build the capacity of worksites to implement TWH, including a focus on the conditions of work central to the Center’s conceptual model.

Relevance
Using no more than two or three sentences, describe the relevance of this research to public health. In this section, be succinct and use plain language that can be understood by a general, lay audience.

The Center conducts research to protect and promote the safety, health, and well-being of workers through effective workplace policies, programs and practices that foster supportive working conditions. This research in particular focuses on healthcare and construction. The Center also facilitates translation of research findings to practice to ensure broad-based application, and explores the policy implications of research findings.
**Key Personnel**

*Please list all key personnel, their role in the TWH, and their current contact information, including email and phone number. You should list a Director (and Deputy if applicable) for each approved program.*

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In addition to these key personnel, the Center is currently mentoring three post-doctoral fellows who are participating in the Center’s research: Drs. Maria Andree Lopez Gomez; Susan Peters; and Emily Sparer.

TWH Web Link
Please provide the current link to your main TWH website.

centerforworkhealth.sph.harvard.edu

SECTION II

Program Highlights of High Impact Outcomes
Provide a brief narrative description of high impact outcomes from your approved programs at a local or regional level. While you may provide highlights for as many programs as you wish, you do not need to provide highlights from every program.

Please focus on the most noteworthy accomplishments. Limit each highlight to 1-2 paragraphs. These will be posted on the NIOSH website and updated annually. We will include the links to the respective TWH websites for additional information.

The Research Core

Hospital work organization: Assessing health impact with a longitudinal database

This study represents a solid partnership, in place since 2006, between the Harvard T.H. Chan School of Public Health Center for Work, Health, & Well-being and Partners HealthCare, a multi-hospital network of 10 hospitals including Massachusetts General Hospital and Brigham and Women’s Hospital. The hallmark of our study is a linked employee database designed to examine the effects of the conditions of work on a range of worker health outcomes. We were granted unusual access by Partners HealthCare to employee record databases from occupational health, human resources, and patient care services. Patient care worker questionnaire surveys are linked to the records in the database using secure study IDs.

In the current funding cycle, our aims are to further invest in the database to create novel exposure assessments, and to use those assessments to understand the relationships between dimensions of the work environment and outcomes for workers, employers, and patients. Our major project in this area over the past year has been the creation of measures of team consistency using worker payroll data. In the database, workers are clustered within teams, but not all workers are on the worksite at the same time. We are now using payroll data from our database to understand who was working where, when, and with whom. Using social network theory and analysis, we have mapped the team networks within each work unit. We are now in the process of refining our
technique and testing whether team consistency is associated with other dimensions of the psychosocial work environment and with worker injury risk. We are also planning to publish our methodology for the team data so other studies can harness administrative data in similar ways.

Over the past year, the team has published several empirical analyses that help elucidate the relationship between programs, policies, and practices within the work organization and worker health outcomes (1-5) with three other papers under review and several others in preparation. In addition to these papers, pilot funds provided through the project to nurses at the hospitals who were interested in pursuing research with the database led to two additional publications. (6, 7) We have presented our work at multiple scientific conferences, including the Work, Stress, and Health conference in Minneapolis, MN in June 2017 and the NIOSH State of the Science conference in Aurora, CO in June 2017. The latter presentation, which described the partnership between Harvard and Partners that led to the creation of the database, received much attention and has led to the preparation of a manuscript in which we will publish our methods for setting up and maintaining the study, as part of our outreach activities.

**Integrated approaches to health & safety in dynamic construction work environment**

Utilizing theory-based intervention methods, we have developed a draft intervention built on the steps identified in the Center’s implementation manual to address the conditions of work (physical, psychosocial, organizational, and job demands) through a continuous improvement cycle. The program emphasizes management commitment, worker participation, and other indicators of integration defined by the Center.

We have refined the intervention through a series of review steps. First the external advisory board, the Center’s PIs and the Outreach Core reviewed the intervention program. This led to specific changes to the protocol addressing both language and explicit involvement of workers in the action plan development step. Second, we vetted the program through key informant interviews with a set of safety managers, human resources personnel and construction experts. These key informant interviews refined and focused the language in our messaging and provided detailed information for the implementation of this intervention. We have two more steps planned in this vetting process. First, a round table meeting at the end of September to review the intervention design details and materials. Then, starting in October, we will pilot the intervention with a subcontractor partner, finalizing the design by December.

As part of the evaluation planning, we have developed a worker survey based on constructs from the Center’s conceptual model. This includes: (a) conditions of work (Safety Climate, Leadership, Communication); (b) worker behaviors (diet, sleep, physical activity, medication use, etc.); (c) worker outcomes (injury and pain); and (d) enterprise outcomes (presenteeism). We will refine our data collection methods during the pilot later this year.
The Outreach Core

Implementing an Integrated Approach: Weaving Worker Health, Safety, and Well-being into the Fabric of Your Organization

Completed in Q3 of 2017, Implementing an Integrated Approach: Weaving Worker Health, Safety, and Well-being into the Fabric of Your Organization is a manual that includes real-world examples and tools for organizations to create and maintain supportive working conditions to improve employee safety, health, and well-being. Building on the success of the Center’s SafeWell Practice Guidelines, the manual can be used as a trusted guide or occasional reference, providing a framework, processes, tips, tools, and resources for weaving an integrated approach into the fabric of an organization, to improve working conditions and achieve better outcomes for employees.

The guide enlists common management systems and processes to help organizations:

- motivate key worksite stakeholders to support and participate in an integrated approach;
- target efforts on working conditions related to organizational goals and objectives;
- plan and implement policies and practices that create and sustain positive working conditions; and
- evaluate and improve efforts to enhance worker safety, health, and well-being.

The Implementation Guide and its accompanying Tools & Resources will be accessible in October 2017 through the Harvard Center website: centerforworkhealth.sph.harvard.edu. The Implementation Guidelines will serve as the basis for a capacity building suite of materials, including but not limited to training, technical assistance, and webinars.

Work, Health, and Wellbeing: Making the Business Case for Integrated Approaches

April 26-27, 2017 with Mutual de Seguridad in Chile

This training described the components and benefits of integrated approaches that focus on the conditions of work to improve worker health, safety, and well-being in participating organizations by providing: fundamentals of an integrated approach; value added from an integrated approach; and research and business cases for integrated approaches. The audience was upper-level managers, Occupational Safety and Health managers, and personnel from Mutual de Seguridad, or their clients, who are decision-makers about the implementation of the integrated approach. This training builds on a Memo of Understanding between the Center and Mutual.

Work, Health, and Wellbeing: Making the Business Case for Integrated Approaches

May 23-26, 2017 with Serviço Social da Indústria (SESI) in Brazil

This training provided SESI with knowledge, strategies, and tools to begin to use integrated systems-level approaches that focus on the conditions of work to improve worker health, safety, and well-being, both within SESI and with its clients in industry. This was accomplished through a combination of lectures, case studies, and interactive group work sessions. This audience included 34 SESI upper level managers, and managers from Occupational Safety and Health, Worksite Health Promotion, and Human Resources, along with other professionals. This training took place in collaboration with the Harvard T.H. Chan School of Public Health Executive and Continuing Professional Education.
Work Safe with WIN (Wellness is Now) Focus Groups
Veterans Health Administration, Brockton Facility

The Harvard T.H. Chan School of Public Health Center for Work, Health, & Well-being in collaboration with the Veterans Health Administration, Brockton Facility conducted nine focus groups in October 2016 with leadership, supervisors and employees with a total of 55 employees participating. The main objectives for the focus groups were to assess staff perceptions on how work is related to health and safety, how employee health and safety influence each other, and thoughts for how to address factors influencing worker health, safety and well-being. The focus group transcripts have been analyzed and manuscript preparation is underway. In addition, the Center will continue to work with the WIN committee to develop and deliver a training based on the focus group findings and the concepts described in Implementing an Integrated Approach: Weaving Worker Health, Safety, and Well-being into the Fabric of Your Organization.

The Policy Working Group

During the past year, the Center’s Policy Working Group has met several times, focusing on the implications of TWH research findings to support both organizational and public policy, and translating our research findings for practitioners and policymakers. A team of experts is currently reviewing policy implications of our research findings, and is examining additional policy implications of our current and future research. The Policy Working Group will propose a symposium at the NIOSH 2018 2nd International TWH Symposium that will address key policy issues and questions that arise from the review of the Center’s research.


Executive and Continuing Professional Education course offered annually at the Harvard T.H. Chan School of Public Health: Integrated Employee Health Program

The Center for Work, Health, and Well-being’s high impact outcomes include our successful Executive and Continuing Professional Education Courses held annually. The 2017 course attracted 29 professionals to learn about integrated approaches for Total Worker Health®. Participants representing practitioners and researchers came from the United States (8 states and Washington, DC) and 8 other countries across 5 continents. In addition, the dissemination impact of this course includes developing new U.S. and global partnerships with governmental, social service, and industrial sectors in Chile, Brazil, and elsewhere to collaborate on advancing and disseminating integrated approaches for TWH.

This course provides participants with the full set of skills needed to integrate occupational health and safety with health promotion programs. Professionals learn skills to: evaluate the effectiveness of workplace health strategies; translate occupational health and health promotion research into practice; implement integrated approaches to employee health programs; assess the financial impact of workplace health programs; and make the business case for integrated employee health protection and health promotion programs. This program features a diverse mix of faculty conducting cutting-edge research on occupational health and safety, and industry experts implementing these programs to improve employee health and safety.
Total Worker Health Collaboration with Boston Fire Department and Boston Firefighters Union Local 718

The Harvard T.H. Chan School of School of Public Health Center for Work, Health, and Well-being has been collaborating with the Boston Fire Department and the Boston Firefighters Local 718 to examine factors in the fire station that may be impacting firefighter cancer risk. As a first step, the Center’s team completed a pilot study focusing on air quality in fire stations. Findings from the pilot demonstrated that on average, contaminant levels were higher in the truck bays, when compared to the station kitchens or outside measurements, and that levels in the truck bays varied considerably throughout the day. Building age, station layout, and ventilation appeared to impact contaminant levels in the fire station. This data was published in the *Journal of Occupational and Environmental Medicine*. The team is currently building on the pilot study to examine how other aspects of the fire station, including organization, environmental, and behavioral factors, may influence firefighter health. This work will help inform a future Total Worker Health intervention aimed at reducing cancer-related risk factors at the fire station. The collaborative research initiative was highlighted in a *Boston Globe* article, on Dana-Farber Cancer Institute’s *Insight* publication, and in the *Harvard Gazette*. This research is being led by Dr. Emily Sparer, a post-doctoral fellow in the Center, under the mentorship of Dr. Glorian Sorensen. During this fiscal year, Dr. Sparer submitted a KO1 application to NIOSH based on this research, which she is revising and resubmitting in November 2017.

Publications

2017


An Inspection Tool and Process to Identify Modifiable Aspects of Acute Care Hospital Patient Care Units to Prevent Work-Related Musculoskeletal Disorders. Grant MP, Okechukwu CA, Hopcia K, Sorensen G, Dennerlein JT Workplace Health Saf 2017, Aug 1; 2165079917718852. doi: 10.1177/2165079917718852


2016

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