

Final Progress Report

Oregon Healthy Workforce Center
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List of Terms and Abbreviations

BMI – Body Mass Index
COMPASS - Creating health and safety “Communities of Practice” for Home Care workers
CPH-NEW - Center for the Promotion of Health in the New England Workplace (in TWH)
CROETweb – a website with occupational safety and health and well-being resources
LERC - Labor Education Research Center at the University of Oregon
NIOSH - National Institute for Occupational Safety and Health
OHSU - Oregon Health & Science University's
OHCW - Oregon Healthy Workforce Center
PI – Principal Investigator
PSU - Portland State University's
PUSH - Promoting U through Safety and Health
ROI - Return on Investment
SHIP - Safety & Health Improvement Program
SSSB - safety supportive supervisor behavior
TWH - Total Worker Health ®

Abstract

The Oregon Healthy Workforce Center (OHWC), a National Institute for Occupational Safety and Health (NIOSH) Center of Excellence in Total Worker Health® (TWH) is an affiliation of Oregon Health & Science University's (OHSU) Oregon Institute of Occupational Health Sciences (OHWC home), Portland State University's (PSU) Occupational Health Psychology program, the University of Oregon's Labor Education Research Center (LERC), and the Kaiser Permanente Center for Health Research.

OHWC faculty and staff developed and evaluated Total Worker Health intervention programs that integrate safety, health, wellness and well-being. It is the only Center focused on intervention effectiveness, successfully conducting randomized trials of innovative interventions and adding value with a cross-study database (Data Repository) of common measures across projects. The OHWC, located in the Pacific Northwest, serves as a resource for the western states.

The OHWC used team- and technology-based interventions to promote and protect health, and designed to be disseminated broadly to the workplace. The OHWC 2011-2016 program consisted of four research projects (two initially conceptualized as translational projects), educational programs and outreach that are inter-related. The OHWC published TWH interventions from the research studies we have conducted in home care workers (independent contractors paid by Medicaid), public and commercial construction workers and young workers in parks and recreation.

The interventions produced 81 statistically significant beneficial changes in safety, health, wellness and well-being, of which 25 had a medium effect size and 18 had a large effect size (per Cohen). The improvements included important changes in the environment or at the organizational level (e.g., training employees to use tools correctly and supervisors to recognize the value of employee work life balance and safety communication, and an increased community of practice), biomarkers (e.g., lower BMI, reduced blood pressure), individual behavioral changes measured with standardized self-report survey measures), and in well-being measured by standardized surveys (e.g., healthier lifestyles, improved life satisfaction, reduced negative affect). Three fourths of the participants rated the interventions from very good to excellent and would recommend the training to others. The training in all the interventions produced learning based on pre-test to post-test score changes in training knowledge; the effect sizes were large. In sum, the OHWC investigators have: (a) demonstrated the ability to conduct strong interventions in large population samples, (b) produced important changes in multiple risk factors in the same intervention, (c) provided effective training (large effect sizes), and (d) intervention methods that were well liked by participants.

Key Findings

Key findings emerged from four individual research projects, the Administrative Core and the Outreach and Education Core.

Administrative Core – Dr. Kent Anger, PI (OHSU)

Though not proposed in our 2011 application, we conducted a systematic review of the Total Worker Health *intervention literature* through late 2014. We identified 17 studies that met our criteria for TWH interventions. Our review (Anger et al., 2015) revealed the paucity of research in TWH interventions (only 17 articles) and further revealed a lack of effect size data by which to evaluate and compare the research. However, 4 of the studies improved 10 or more outcomes that would or did prevent injuries and improved risk factors directly related to chronic diseases, the twin goals of TWH research. We concluded that this is one of the great values of TWH interventions, *that they improve multiple health and risk factor endpoints, which* will improve both safety and well-being, and in turn, improve workforce health and population health.

Creating health and safety “Communities of Practice” for Home Care workers (COMPASS) – Dr. Ryan Olson, PI (OHSU).

Home care workers (paid by Medicaid but hired/fired by the persons needing services) completed a peer-led scripted group program (pilot=6 months, randomized trial=12 months). Each monthly scripted meeting involved education, goal setting, and social support for improving safe work practices and healthy lifestyles.

- ∞ In a 12 month randomized controlled trial (n=142), relative to control, COMPASS produced significant improvements in eight safety, health, and well-being outcomes, including increased use of ergonomic tools for moving material/assisting client mobility and improved High Density Lipoprotein cholesterol.

Safety & Health Improvement Program (SHIP) – Dr. Leslie Hammer and Donald Truxillo, MPIs (OHSU and Portland State University)

City street and sewer maintenance supervisors completed computer-based training on work-life balance and facilitated small group meetings designed to improve team effectiveness and reduce low-value work.

- ∞ The intervention (n= 264) produced a significant improvement in 12-month blood pressure ($\Delta R^2 = .015$). Significant moderating effects of age were seen on the decision authority-job satisfaction relationship and there were significant moderating effects of organizational support on the relationship between procedural justice and heart rate and blood pressure over time.

Health Protection and Health Promotion in Young Workers Dr. Diane Rohlman, PI (OHSU)

Promoting U through Safety and Health (PUSH) converted the NIOSH ‘Talking Safety’ booklet into computer-based training, with social media enhancements and administered it to young workers in Portland Oregon’s (city) Parks and Recreation department.

- ∞ The randomized controlled trial (RCT) (n= 140) demonstrated effective training (effect size $[d] = 2.24$) and statistically significant gains in knowledge about: coworker communication ($d = .44$), hazard control ($d = .36$), alcohol safety ($d = .65$), youth driving restrictions ($d = .66$), workers’ compensation ($d = .44$), alcohol consumption ($d = -1.04$).

Supervisor training to promote health/safety in construction (funded for years 3-5)
– Dr. Kent Anger, PI (OHSU)

Supervisors completed computer-based training on team building, work-life balance for employees and reinforcing employee behaviors, combined with practice on an iPhone app to track employee interaction frequency and reinforcing behaviors; supervisors & employees in small teams completed discussion/learning from 12 healthy lifestyle education cards.

- ∞ Pilot study (n=35) revealed significant changes in self-reported reduction in consuming sugary drinks (effect size [d] = 0.46) and snacks (d = 0.46), increased exercising 30 minutes per day (d = 0.50), strengthening and toning of muscles (d = 0.59), increased sleep duration by 0.6 hours/day (d = 0.38) and a reduction in objectively measured systolic blood pressure (d = 0.27).

OHWC Outreach and Education – Dede Montgomery, MS (PI) (OHSU)

Outreach was provided through 1) traditional newsletters and annual reports that are electronically available, 2) exhibits at 10-15 practitioner and scientific meetings per year, 3) blog, facebook, twitter, 4) CROETweb safety, health and well-being resource directory (~70,000 hits in 2013), 5) leading sponsorships of wellness conferences leveraging Oregon Institute of Occupational Health Sciences funding, to support TWH.

- ∞ Major Speakers on TWH: Brought 13 prominent speakers in TWH or allied fields, and all 4 TWH Center Directors, to speak at community events (such as the Governor's Occupational Safety & Health conference), including Ron Goetzel, Larry Chapman, Dov Zohar, Joseph Hurrell, Arla Day, Sandy Hershcovis, Steven Shea, Orfeu Buxton) to the OHWC Partners Luncheon, Occupational Health Psychology Summer Institute, and Symposia/webinars.
- ∞ OHP Summer Institute: Held three 3- or 4-day Summer Institutes on Occupational Health Psychology at Portland State University, drawing 40, 80 and 98 people respectively in 2012, 2014, and 2016.
- ∞ Presented invited seminars at regional Centers to increase visibility and understanding of TWH: Western States Occupational Network (WESTon); multi-center total worker health collaboration intervention for emergency services and corrections workers
- ∞ Presented seminars on TWH at the University of Washington and Washington State University and accepted an appointment on the Advisory Committee of the Pacific Northwest Agricultural and Safety and Health (PNASH) Center of Excellence to bring a TWH perspective to their efforts.
- ∞ Co-Sponsored and hosted in Portland the 1st National Corrections meeting with CPH-NEW and participated with the CPH-NEW TWH Center in the National Corrections Collaborative.

Translation of Findings

Selected data from the OHWC research studies are in the OHWC Data Repository. Those data are available by contacting the OHWC PI (anger@ohsu.edu).

Each OHWC research project produced an evidence-based intervention that improved safety, health and/or well-being outcomes in the target population. Six key dissemination outputs and toolkits were developed by the projects.

- ∞ **Key Dissemination:** COMPASS was adapted for the Oregon Home Care Commission's training system that reaches 60% of all Oregon home care workers. A successful pilot with five groups led to the Commission adopting COMPASS as a permanent course offering beginning in 2016. Workers are paid by the Commission to complete COMPASS and will earn credits toward other professional development benefits. The Commission is supporting the collection of outcomes data from COMPASS.
- ∞ **Key Dissemination:** A generic toolkit was created (by replacing pictures of construction with pictures from diverse industries) from the Safety & Health Improvement Program (SHIP) that can be implemented without support by the research team and was tested with focus groups.
- ∞ **Key Dissemination:** Portland Park and Recreation's Aquatics Division, Youth Conservation Corp and Camp Program have adopted the PUSH training as a requirement for all new seasonal hires.
- ∞ **Key Dissemination:** A spinoff of the PUSH training was developed for the Oregon Bureau of Labor and Industries to develop an online curriculum for apprentices registered in their Apprenticeship and Training Division.
- ∞ **Key Dissemination:** The TWH intervention for construction workers in English and Spanish was adopted as a Pacific Northwest Agricultural Safety and Health (PNASH) TWH agricultural study, needing only changes in the pictures and movies to be adapted for agriculture.
- ∞ **Key Dissemination** Each research project developed a toolkit that can be implemented without support by the OHWC investigators; three can be downloaded from the OHWC website. Specific tools were developed from the projects or outreach and are also available on the website: www.ohsu.edu/ohwc/ - in getting started with TWH and the tools and toolkit kiosks. There are 4 toolkits and 44 tools.

Toolkits:

- SHIP – Supervisor skills, tracking practice, work organization restructuring in construction (available as generic training relevant to all industries)
- PUSH – Talking Safety training for young workers
- COMPASS - Community of Practice: Safety and wellness for Home Health Care workers
- BeSuper! – Scripted supervisor skills training, tracking (practice) and wellness cards with practice (all in *English and Spanish*)

Tools:

Health affects Safety toolbox safety talks - Guided group discussions on how health affects safety, with preventive action plans in *English and Spanish*. Topics are:

- What's sleep got to do with it?
- What's my heart got to do with it?
- What's diabetes got to do with it?
- What's the sun got to do with it?
- What's sitting got to do with it?
- What's eating got to do with it?

- Presenteeism: Why work when you are sick?
- What's stress got to do with it?
- What's exercise got to do with it?
- Distracted Driving/Safe Driving

Start the Conversation activities: Scripted supervisor led team discussions on safety and well-being topics for young workers. Topics:

- Icebreaker: Starting the Conversation
- Workplace Hazards
- Making the Job Safer
- Know Your Rights
- Violence in the Workplace
- Working in Retail
- Sun Safety Myth Busters
- PEOPLE Communication
- Speak Up at Work
- Harassment and Discrimination in the Workplace
- Stress
- Emotional Health
- Substance Use
- If You Don't Snooze, You Lose
- Healthy Plate
- Macronutrients Family Feud
- Reading Labels
- Food Detectives
- Protein for Breakfast: The Greatest Breakfast Burrito
- Healthy Snacking and Packing
- Healthy Beverage Math

Social Media (video):
Starting the Conversation

Get Healthier Cards - Scripted peer led team discussions on health and wellness topics in *English* and *Spanish*:

- Get healthier (making goals, pedometer)
- Sleep
- Calories (calories in foods, portion sizes, RMR calculations)
- Liquids & calories (low calorie/sugar options, low-high comparisons)
- Basic nutrition (reading labels, food groups: healthy vs. unhealthy)
- Snacks (healthier options)
- Sugar (natural vs. added, limit added)
- Exercise (benefits, starting out)
- Strength (weekly needs, group strength routine)
- Flexibility (benefits, injury)
- Stress (body-mind, management)
- Moving forward (overview, future health goals)

Research Outcomes/Impact

Each OHWC research project intervention had a positive impact on TWH - safety, health and well-being - of the target population sample being studied. The research demonstrated that strong intervention programs can be implemented in high risk

industries and can have an impact on diverse safety, health and well-being endpoints. Specific changes are detailed in the Scientific Report.

Scientific Report

The Oregon Healthy Workforce Center (OHWC), a National Institute for Occupational Safety and Health (NIOSH) Center of Excellence in Total Worker Health (TWH), is an affiliation of Oregon Health & Science University's (OHSU) Oregon Institute of Occupational Health Sciences (OHWC home), Portland State University's (PSU)

Occupational Health Psychology program, the University of Oregon's Labor Education Research Center (LERC), and the Kaiser Permanente Center for Health Research.



OHWC faculty and staff have developed and evaluated Total Worker Health intervention programs that integrate safety, health, wellness and well-being. It is the only TWH Center focused on intervention effectiveness, successfully conducting randomized trials of innovative interventions and adding value with a cross-study database (Data Repository) of common measures across projects. The OHWC, located in the Pacific Northwest, serves as a resource for the western states.

The OHWC's theme is Intervention Effectiveness using team-based and technology-based interventions to promote and protect health, and designed to be disseminated broadly to the workplace. The OHWC program consists of four research projects (two initially conceptualized as translational projects), educational programs and outreach that are inter-related. The OHWC published TWH interventions from the research studies we have conducted in home care workers (independent contractors paid by Medicaid), public and commercial construction workers and young workers in parks and recreation. The interventions produced 81 statistically significant beneficial changes in safety, health, wellness and well-being, of which 25 had a medium effect size and 18 had a large effect size (per Cohen). The improvements included important changes in the environment or at the organizational level (e.g., training employees to use tools correctly and supervisors to recognize the value of employee work life balance and safety communication, and an increased community of practice), biomarkers (e.g., lower BMI, reduced blood pressure), individual behavioral changes measured with standardized self-report survey measures (e.g., consuming sugary drinks), and in well-being measured by standardized surveys (e.g., healthier lifestyles, improved life satisfaction, reduced negative affect). The interventions were well-received (i.e., had very good to excellent reaction ratings by three fourths of participants) and would be recommended to others by three fourths of participants. The training that was a part of all interventions produced learning based on pre-test to post-test score changes in training knowledge reflected in large effect sizes. In sum, the OHWC investigators have: (a) demonstrated the ability to conduct strong interventions in large population samples,

(b) produced important changes in multiple risk factors in the same intervention, (c) provided effective training (large effect sizes), and (d) intervention methods that were well liked by participants.

1. Number of research projects by type of project.

Intervention Research – 4

Projects by sector: Public and commercial construction (sector 23), city government parks and recreation (sector 71), home care (sector 62) [Portland, OR]

Projects by worker population – young workers (1); adult populations (3)

Creating health and safety “Communities of Practice” for Home Care workers (COMPASS) – Dr. Ryan Olson, PI (OHSU)

Home care workers (paid by Medicaid but hired/fired by the persons needing services) completed a peer-led scripted group program (pilot=6 months, randomized trial=12 months). Each monthly scripted meeting involved education, goal setting, and social support for improving safe work practices and healthy lifestyles.

Specific Aims

1. Develop and Pilot Test a WorkLife [Total Worker Health] Team for Home Care Workers - COMPLETED
2. Determine the Effectiveness of WorkLife [TWH] Teams with a Randomized Controlled Trial - COMPLETED
3. Measure the Integrity of Sustained WorkLife [TWH] Team Meetings and Maintenance at Follow-Up – COMPLETED
- Phase II, 4. Measure the Durability and Economic Impact of Intervention Effects, and the Social Experiences of Program Participants – IN PROGRESS
- Phase II, 5. Adapt and Assess the Intervention for Statewide Dissemination – COMPLETED
- PHASE II, 6. Develop relationships and preliminary data to guide translation and dissemination with private agencies – REPLACED BY HOME CARE COMMISSION STUDY OF DISSEMINATION VIA COMMISSION TRAININGS

Outcomes

- ∞ In a 6-month pilot study (n=16) each COMPASS meeting produced large knowledge gains (mean increase in percent correct =18.7% [SD = 0.04%]). Life satisfaction and negative affect significantly improved. Among additional self-reported safety and health behavioral outcomes, 21 of 28 changed in expected directions and 11 had standardized effects $d > 0.20$ (max $d = 0.65$) (published).
- ∞ In a 12 month randomized controlled trial (n=142) (trial methods published), relative to control, COMPASS produced significant improvements in eight safety, health, and well-being outcomes, including increased use of ergonomic tools for moving material/assisting client mobility and improved High Density Lipoprotein cholesterol.

Safety and Health Improvement Program (SHIP) – Drs. Leslie Hammer, Donald Truxillo, MPIs (Portland State University)

City street and sewer maintenance supervisors completed computer-based training on work-life balance and facilitated small group meetings designed to improve team effectiveness and reduce low-value work.

Specific Aims

Phase I, Aim 1: Develop an integrated training intervention that targets both supervisors and workers and focuses on improving supervisor support for family and safety and integrating team members into the process. COMPLETED

Phase I, Aim 2: Test the hypothesis that our intervention program will improve workers' work-family conflict, health, and safety outcomes, including individual perceptions of safety climate. COMPLETED

Phase I, Aim 3: Package the intervention to translate and disseminate the research findings to union representatives, management, and the broader research community to improve health, safety and work-family balance. COMPLETED

Phase I, Aim 4: Assess the effects of the training program on group-level safety climate. COMPLETED

Phase I, Aim 5: Assess the mediating effects of family-supportive supervisor behaviors, supervisor-based safety behaviors and job strain on the relationship between the intervention effects and health and safety outcomes. COMPLETED

Phase II, Aim 1: Demonstrate Economic Impact of SHIP. COMPLETED

Phase II, Aim 2: Develop and evaluate a scalable version of SHIP (SHIP-R, a complete training package). Conduct a post-implementation process evaluation of SHIP to garner feedback from participants about their reactions to the process in order to develop SHIP-R. Based on the post-implementation data, develop an initial version of SHIP-R, a scalable version of the current SHIP. COMPLETED

Phase II, Aim 3: Two focus groups of potential adopters (e.g., union representatives, management, and the broader research community) will be conducted to evaluate and package SHIP-R to translate and disseminate the research findings. This will include a complete training package, integrating the work-family and safety intervention. COMPLETED

Outcomes

- ∞ Intervention (n= 264) produced a significant improvement in 12-month blood pressure ($\Delta R^2 = .015$).
- ∞ There were significant moderating effects of baseline team cohesion and leader-member exchange on the relationship between the intervention and indicators of 6-month team effectiveness, work-life effectiveness, and family-supportive supervisor behaviors, compared to the control groups.
- ∞ Significant moderating effects of age were seen on the decision authority-job satisfaction relationship and there were significant moderating effects of organizational support on the relationship between procedural justice and heart rate and blood pressure over time.

Promoting U through Safety and Health PUSH – Dr. Diane Rohlman, PI (OHSU)

Promoting U through Safety and Health (PUSH) converted the NIOSH 'Talking Safety' booklet into computer-based training, with social media enhancements and administered it to young workers in Portland Oregon's (city) Parks and Recreation department.

Specific Aims

1. Translate proven paper-based training into an online training program that addresses health promotion and workplace safety targeted to adolescents and young adults, using established and traditionally delivered curriculum. Pilot test the training in youth (ages 16-19) currently employed and youth not currently working. COMPLETED
2. Evaluate the effectiveness of the training in youth employed during the summer in the Portland Parks and Recreation program using a randomized trial crossover design. COMPLETED
3. Develop and implement a curriculum dissemination plan targeting social media applications directed toward youth and engage employers to develop a recognized certification program. COMPLETED
4. Establish the long-term behavioral and economic impacts of implementing PUSH, as PUSH becomes required training for newly hired young workers employed by Portland (city) Parks & Recreation.
5. Expand PUSH to address new topics and evaluate generalizability through effectiveness trials in other youth populations. COMPLETED

Outcomes

- ∞ The randomized controlled trial (RCT) (n= 140) demonstrated effective training (effect size [d] = 2.24) and statistically significant gains in knowledge about: coworker communication (d = .44), hazard control (d = .36), alcohol safety (d = .65), youth driving restrictions (d = .66), workers' compensation (d = .44), alcohol consumption (d = -1.04). Reaction scores from participants who took the PUSH training indicated that over half of young workers "really enjoyed participating in the training" and agreed that the training was "extremely useful for improving [their] health and safety."
- ∞ Over half of the participants reported changing one or more of their behaviors as a result of participating in the training program
- ∞ Over half of the participants agreed in a survey that they would highly recommend the training to their coworkers.

Supervisor Training to Promote Health and Safety in Construction – Dr. Kent Anger, PI (OHSU)

Supervisors completed computer-based training on team building, work-life balance for employees and reinforcing employee behaviors, combined with practice on an iPhone app to track employee interaction frequency and reinforcing behaviors; supervisors & employees in small teams completed discussion/learning from 12 healthy lifestyle education cards.

Specific Aims

1. Develop training (adapted from prior Anger and OHWC projects) - COMPLETED
2. Adapt HabiTrak self-monitoring app to this project for construction and pilot it - The pilot in Aim 2 has been expanded to test the entire intervention programme, not just HabiTrak, to determine if the dose is sufficient to change the behavior of supervisors and employees. COMPLETED
3. implement the intervention designed as an RCT – NOT COMPLETED DUE TO LACK OF YEAR 1 FUNDS AND SEQUESTRATION OF FUNDS IN YEAR 2, LIMITING PROJECT TO 3 YEARS.
4. Disseminate the intervention program – COMPLETED

Outcomes

- ∞ Pilot study (n=35) revealed positive reaction scores (median rating of good) for lifestyle education cards, the usefulness of the tracking app and supervisor training.
- ∞ Knowledge increased in the computer-based training (effect size [d] = 2.9) of supervisors, and the mean effect size for the lifestyle education cards was (d = 1.5).
- ∞ Significant changes were seen in self-reported reduction in consuming sugary drinks (d = 0.46) and snacks (d = 0.46), increased exercising 30 minutes per day (d = 0.50), strengthening and toning of muscles (d = 0.59), increased sleep duration by 0.6 hours/day (d = 0.38) and a reduction in objectively measured systolic blood pressure (d = 0.27).

Administrative Core – Dr. Kent Anger, PI (OHSU)

Literature Review Research

Though not proposed in our 2011 application, we conducted a systematic review of the Total Worker Health *intervention literature* through late 2014. We identified 17 studies that met our criteria for TWH interventions. Our review (Anger et al., 2015) revealed the paucity of research in TWH interventions (only 17 articles) and further revealed a lack of effect size data by which to evaluate and compare the research. However, 4 of the studies improved 10 or more outcomes that would or did prevent injuries and improved risk factors directly related to chronic diseases, the twin goals of TWH research. Two of the four were published by members of our Center. We concluded that this is one of the great values of TWH interventions, *that they improve multiple health and risk factor endpoints, which* will improve both safety and well-being, and in turn, improve workforce health and population health. However, there was little research and no replications of effective interventions, to support that apparent value of TWH. *This led us to our primary direction for this application.*

2. Number of pilot projects - 6

The blinded peer review process was followed as proposed in our 2011 application, led by Dr. Stephen Lloyd of our home Institute, the Oregon Institute of Occupational Health Sciences. Dr. Lloyd is a prominent basic scientist with no connection to the OHWC or its research, but who has led an NIEHS Center including running the Pilot Research program. The ads were available on the OHWC website and distributed to partners and through other sources. The Internal Steering Committee provided a list of potential reviewers to Dr. Lloyd who obtained the NIH-style reviews, and the scores decided the fate of the submissions. All applications received were scored and feedback was provided to the applicants. Six completed pilot research projects were funded.

- ∞ Family-Supportive and Safety-Supportive Supervisor Behavior Training in Corrections Personnel (Charlotte Fritz and Leslie Hammer, PIs)
Findings from a baseline survey indicated that supervisor behaviors supportive of family/non-work needs were linked to lower work-family conflict, stress, insomnia, and higher well-being and better recovery from work during non-work time. The purpose of the study was to test the effectiveness of training focused on family-supportive supervisor behavior (FSSB) and safety supportive supervisor behavior (SSSB). Supervisor knowledge of supportive behaviors significantly improved from 77% correct answers before the training to nearly 90% correct right after the

training. In addition, supervisors indicated that they found the training somewhat useful.

- ∞ **Be Active, Work Safe: A Novel Program for People with a Disability**
PI: Laurel Kincl, PhD, Oregon State University and Simon Driver, PhD, Baylor Health Care System
The purpose of this study was to obtain stakeholder feedback about an 8-week online program, “Be Active, Work Safe,” which was developed to increase the physical activity and workplace safety practices of individuals with disabilities. Stakeholders suggested changes to the organization, layout and accessibility, and content of the program. This included making a stronger connection between the physical activity and workplace safety components of the program, broadening content to apply to individuals in different vocational fields, and reducing the number of participant assessments.
- ∞ **Nursing Students' 1st Entrée into Clinical Rotations: Initial Behaviors Addressing Shift Work, Sleep, and Safe Practice**
PI: Patricia Butterfield, PhD, RN, FAAN; Washington State University
Nursing students participated in a structured participatory process aimed at informing a future Total Worker Health (TWH) intervention. Results highlight the importance of addressing safety and health risks and providing nursing students with a priori education and actionable skills addressing long work hours and shift work. Likewise, novice nurses may differentially benefit from organization-level controls (e.g., scheduling software) that incorporate workers' health and safety factors into scheduling decisions.
- ∞ **Total Worker Health among New Nurses: An Instrument Development Study**
PI: Janessa Graves, PhD; Washington State University
The objective of this project was to identify recently licensed nurses' understanding of risks associated with their employment, describe actual occupational health risks among RNs, and develop an instrument to measure TWH among recently graduated nurses. Outcomes included the development of a conceptual TWH framework pertinent to nurses, a draft survey instrument, and focus group data describing challenges faced by new nurses.
- ∞ **Mindfulness in Hospice Workers**
Feasibility of a Brief Mindfulness Intervention on Hospice Care Worker Safety and Well-being
PI: Lorann Stallones, PhD and Morgan Valley, MS, Colorado State University
This project aimed to test the feasibility of a brief mindfulness intervention to improve safety performance and well-being among hospice workers. The intervention consisted of group discussions, yoga, breathing, and meditation. Participants experienced a significant increase in self-reported well-being and workplace safety compliance from baseline to post-intervention.
- ∞ **Identifying principles for effective peer-based occupational health programs**
PI: David Hurtado, ScD, Oregon Health & Science University
The aim of this project was to identify evidence-based best practices for effective peer-based occupational health programs. A total of 81 articles were reviewed using keywords related to peer-support interventions (e.g. “peer-based training”, “peer-support therapy”). This review highlighted five core principles for effective

peer-based programs: 1) setting clear goals and role expectations, 2) conducting on-site activities, 3) providing instant feedback, 4) creating a system of informal and formal rewards, and 5) securing privacy and confidentiality of support.

3. Number of extramural NIOSH-supported positions

Table is based on fellowships and % involvement/funding of researchers/professors). Research staff are not included.

Name	Organization	Percent Involvement (average across 2011-2016)
W. Kent Anger, PhD	OHSU	22.99
Leslie Hammer, PhD	Portland State U	29.1
Diane Elliot, MD	OHSU	12
Kerry Kuehl, MD	OHSU	7.2
Todd Bodner, PhD	Portland State U	23
Steven Hecker, MSPH	University of Washington & University of Oregon (Retired)	1.39
Jennifer Hess, MPH, DC, PhD	University of Oregon	13.4
Dorothy Montgomery, MS, CIH	OHSU	38.39
Ryan Olson, PhD	OHSU	22.84
Nancy Perrin, PhD	Center for Health Research, Kaiser Permanente	7.6
Diane Rohlman, PhD	OHSU	8.23
<u>Other Significant Contributor:</u>		Donated
Stephen Lloyd, PhD	OHSU	

4. Number and name of new and existing stakeholders & partners.

Existing:

Portland State University

University of Oregon Labor Education and Research Center

Kaiser Permanente Center for Health Research

Partners

- ∞ Oregon Home Care commission (Oregon-wide; home base in Salem)
- Service Employees International Union (SEIU) (local based in Portland)
- ∞ NECA – IBEW
- ∞ International Union of Painters and Allied Trades
- ∞ InLine Construction
- ∞ General Sheet Metal
- ∞ Fortis Construction
- ∞ Mortenson Construction
- ∞ Portland (city) Bureau of Transportation and (city) street maintenance
- ∞ Oregon Nurses Association
- ∞ Oregon Bureau of Labor and Industries

- ∞ Portland (city) Parks & Recreation
- ∞ SAIF Corporation
- ∞ Oregon OSHA

New: Not Applicable (this is the first round of funding)

5. **Number of technical assistance (TA) provided.**
35 presentations focused on Total Worker Health (not formally designated as TAs).
6. **Plans for moving research findings into practice and implementation.**
Toolkits from all projects and tools have been made available for download (see Translation of findings).
7. **Number and type of activities for outreach efforts.**
 - (a) Presentations: 35
 - (b) Conferences (hosting exhibit and/or attending with goal of active outreach):
50 (includes events where our participation is annual, biennial, and single instance)
 - (c) Symposia: 15

Outreach and Education – Dede Montgomery, MS (PI)

Outreach was provided through 1) traditional newsletters and annual reports that are electronically available; 2) exhibits at 10-15 practitioner and scientific meetings per year; 3) blog, facebook, twitter; 4) CROETweb safety, health and well-being resource directory (~70,000 hits in 2013); 5) leading sponsorships of wellness conferences leveraging Oregon Institute of Occupational Health Sciences funding, to support TWH.

Specific Aims

1. Build communities of interest and practice on TWH issues - ACCOMPLISHED
2. Connect the work of TWH researchers with practitioners - ACCOMPLISHED
3. Promote interchange among researchers - ACCOMPLISHED
4. Identify new areas of cross-disciplinary collaboration of Center PIs and staff - ACCOMPLISHED
5. Provide educational opportunities - ACCOMPLISHED
6. Include underserved populations in educational activities – ACCOMPLISHED

Outcomes

- ∞ Major Speakers on TWH – Brought 13 prominent speakers in TWH or allied fields, and all 4 TWH Center Directors, to speak at community events (such as the Governor's Occupational Safety & Health conference), including Ron Goetzel, Larry Chapman, Dov Zohar, Joseph Hurrell, Arla Day, Sandy Hershcovis, Steven Shea, Orfeu Buxton) to the OHWC Partners Luncheon (pictured), Occupational Health Psychology Summer Institute, and Symposia/webinars.
- ∞ OHP Summer Institute: Held three 3- or 4-day Summer Institutes on Occupational Health Psychology at Portland State University, drawing 40, 80 and 98 people respectively in 2012, 2014, and 2016.



- ∞ Recruited 27 summer interns for OHWC projects at the Oregon Institute of Occupational Health Sciences—4 OHWC interns won the ‘best applied research poster award in 2012-2015.
- ∞ Blog: “Oregon and the Workplace” has increased from a mean of 1000 page views/month in 2012, to well over 3000 page views/month in 2016. This is our primary social media outlet. We blog weekly.
- ∞ In 2013 the OHWC presented a peer-reviewed symposium describing research projects and ongoing data collection at the International Work, Stress, and Health conference in Los Angeles, CA.
- ∞ Presented invited seminars at regional Centers to increase visibility and understanding of TWH:
- ∞ Western States Occupational Network (WESTon) and at national meetings to increase visibility of Total Worker Health (e.g., Work, Stress and Health, American Public Health Association).
- ∞ Established connection with two NIOSH Total Worker Health Centers (New England, Iowa) to develop a multi-center total worker health collaboration intervention for emergency services and corrections workers
- ∞ A national conference on corrections research needs was held with other Centers in New England and Washington State University, University of Buffalo, and the state Departments of Correction of Connecticut, Oregon and Washington.

Supported Community Engagement

The OHWC has supported community engagement through multiple methods and channels.

- ∞ 39 seminars (~10/year) on well-being/health promotion/health protection as part of the Oregon Institute of Occupational Health Sciences seminar series.
- ∞ Three Partners’ Luncheons have been held on Return on Investment (ROI) in TWH, intervention dissemination and the results of the OHWC research. Attendance exceeded 100 in each.
- ∞ Exhibits, Courses and sessions provided *annually* on TWH— OHWC exhibits at over 20 events per year.
- ∞ Consultation – provided to the Oregon Board of Maritime Pilots about TWH, which resulted in policy changes to the Oregon Administrative rules to support a TWH approach for maritime pilots.
- ∞ "Health Impacts Safety" toolbox safety meeting guides were created in English and Spanish with additional information on a new webpage to support industry and employer safety, health and wellness programs. Ten different topics are currently available for distribution and download, and are very popular.
- ∞ COMPASS curriculum for home care workers, has been distributed to the Oregon Home Care Commission. See Translation of Findings section.

Provided Leadership at the Center Level

OHWC Director Anger participated in the Oregon Health & Science’s search for a new Director for the Oregon Institute of Occupational Health Sciences, as the sole Institute representative on the search committee. With the selection of a new Director for the home Institute of the OHWC, TWH became a major direction of the Institute. This allowed added funding for the OHWC of over \$240,000 per year in direct costs funding and, including faculty salary support.

Supported NIOSH Request to Provide Regional and National Leadership for TWH
NIOSH requested in 2013 that the TWH Centers play a regional role, although no funding was provided for that role. We did, however, provide regional as well as national presentations to implement that role.

- ∞ *Regional presentations* – Presented seminars on TWH at the University of Washington and Washington State University and accepted an appointment on the Advisory Committee of the Pacific Northwest Agricultural and Safety and Health (PNASH) Center of Excellence to bring a TWH perspective to their efforts.
- ∞ *National Conference presentations* – Provided one Center-supported mini-symposium on TWH each year (e.g., International Work, Stress, and Health conference).
- ∞ Co-Sponsored and hosted in Portland the 1st National Corrections meeting with CPH-NEW and participated with the CPH-NEW TWH Center in the National Corrections Collaborative.

New Faculty Additions for Home Institute and the OHWC

Four members of the OHWC served on the search Committee for the Oregon Institute of Occupational Health Sciences for two ‘behavior change’ faculty members. This led to the selection of Drs. Hammer and Hurtado as new faculty, and resulted in the elevation of Dr. Wipfli to Staff Scientist at the Institute, a faculty appointment. Dr. Hammer is a leader in Occupational Health Psychology. Although she was already in the OHWC, her transition to the Oregon Institute of Occupational Health Sciences (September, 2015) positioned her to become the Director of the OHWC when a transition occurs. She could not readily take on that position if she were at Portland State University due to the funding support base being at Oregon Health & Science University. Dr. Brad Wipfli (formerly at Arizona State University and Dr. Olson’s lab) specializes in health psychology and exercise. Dr. David Hurtado (formerly a postdoc and Yerby Investigator at the Harvard TWH Center) specializes in psychosocial determinants of health, occupational health, and quantitative methods. Dr. Hurtado was named Assistant Scientist at the Oregon Institute in 2015. These faculty took a major role in the renewal application in 2016.

8. Number of students and professionals trained as a result of coursework or workshops and webinars hosted.

<u>Event</u>	<u>Attendees</u>
(a) Science Seminar Series:	770 (includes estimates)
(b) Symposia (Spring and Fall):	1001
(c) Summer Institute (Biennial):	226
(d) Summer Internship (Annual):	35 (OHWC PI). Awards from Internship:
2012: Eric Serres (Rohlman),	1 st place Applied Sciences
2014: Devin Christiesansen (Anger),	1 st place Overall
2015: Kaycee Smith (Wipfli),	1 st place tie, call center project
2015: Afsara Haque (Olson),	1 st place tie, COMPASS
(e) Courses taught by Center PIs (relevant to Industrial-Organizational Psychology/Total Worker Health):	approximately 15 classes, 1500 students/professionals (total, all Center PIs)

9. List of presentations by Center representatives (attendance not recorded)

PI	Presentation Title	Audience Type
Olson, Ryan	Wipfli, B., Olson, R., Wright, R., Garrigues, L., Lees, J. (May 2011). <i>The safety and task assessment tool (STAT) for homecare workers</i> . Presented at APA/NIOSH Work, Stress, and Health Conference, Orlando, FL.	Academic
	Olson, R., Wright, R. (September 2011). <i>WorkLife intervention for homecare workers</i> . Presented to the Service Employees International Union, Local 503, Portland, OR.	Community
	Olson, R., Wright, R. (September 2011). <i>Center of excellence intervention for homecare workers</i> . Presented to the Oregon Homecare Commission, Salem, OR.	Community
	Olson, R., Elliot, D., Hess, J., Wipfli, B., Wright, R. (January 2012). <i>Establishing neighborhood-based WorkLife teams for home care workers</i> . Presented to the Oregon Homecare Commission, Salem, OR.	Community
	Olson, R. <i>A Total Worker Health intervention for home care workers: Results of the COMPASS pilot study</i> . (December 2012). Presented to the Oregon Homecare Commission, Salem, OR.	Community
	Olson, R. <i>Total Worker Health intervention for home care workers: Results of the COMPASS pilot study</i> . (January 2013). Presented to the Service Employees International Union, Local 503, Portland, OR.	Community
	Olson, R., Wright, R.R., Elliot, D.L., Hess, J.A., Wipfli, B., Mancini, A. (May 2013). <i>The COMPASS pilot study: A Total Worker Health intervention for home care workers</i> . Paper presented in the symposium titled "The Oregon Healthy Workforce Center: A NIOSH Total Worker Health™ Center of Excellence" at the International Work, Stress, and Health, Los Angeles, CA	Academic
	Olson, R., Elliot, D., Hess, J. (March 2014). <i>COMPASS Project: Plans for potential NIOSH extension</i> . Presented to the Oregon Home Care Commission, Salem, OR.	Community
	Olson, R., Thompson, S., Hess, J.A. (September 2014).	Academic

	<i>A Total Worker Health program for health care workers.</i> Presentation at the 5 th National HealthCare Ergonomics Conference, Portland, OR.	
	Olson, R., Elliot, D.L., Hess, J.A., Thompson, S., Wright, R.R., Luther, K., Mancini, A., Wipfli, B. (October 2014). <i>COMPASS teams: Creating health & safety “communities of practice” for home care workers.</i> Presentation within the Teaming up for Total Worker Health™ symposium at the NIOSH 1 st International Symposium to Advance Total Worker Health™, Bethesda, MD.	Academic
	Olson, R. (January 2015). <i>A Total Worker Health program for home care workers: Six month outcomes.</i> Invited plenary session at the conference titled "Environmental, Occupational and Population Health: Thinking Outside the Boxes." UW/ UBC/ SFU/ Uvic/OSU Annual Conference on Environmental, Occupational, and Population Health, Semiahmoo Resort, WA.	Academic
	Olson, R., Elliot, D., Hess, J., Thompson, S., Luther, K., Wright, R., Buckmaster, A., & Wipfli, B. (February 2015). <i>COMPASS: An effective program to prevent injuries and promote health with direct care givers.</i> Invited presentation at the OBM Network/CalABA conference, San Diego, CA.	Academic
	Olson, R., Thompson, S. (March 2015). <i>Behavior change tactics you can apply today: Findings and tools from the COMPASS Total Worker Health program for home care workers.</i> Invited workshop presented at the Oregon Governor's Occupational Safety and Health Conference, Portland, OR.	Community
	Olson, R. (March 2015). <i>Behavior analysis in the workplace for productive, happy, and healthy employees.</i> Invited presentation at the Association for Professional Behavior Analysis conference, Seattle, WA.	Academic
	Olson, R., Elliot, D., Hess, J., Thompson, S., & Luther, K., Wipfli, B., Buckmaster, A., Wright, R., & Marino, M. (May 2015). Long-term outcomes for the COMPASS intervention for home care workers in L.B. Hammer (Chair) <i>Research Update from the Oregon Healthy Workforce Center, a NIOSH Total Worker Health™ Center of Excellence.</i> Symposium presented at the 11 th International Conference on Occupational Stress and	Academic

	Health, Atlanta, GA.	
	Olson, R. Exploring Partnerships for the COMPASS program for home care workers. Presented to the SEIU Healthcare NW Health Benefits Trust, Seattle, WA.	
	Olson, R. Hess, J., & Marino, M. (October 2016). COMMunity of Practice And Safety Support (COMPASS): A Total Worker Health program for home care workers. Presented at Oregon Healthy Workforce Center Partner's Luncheon, Portland, OR	Academic + Community
	Mabry, L., Olson, R., Parker, K.N., Thompson, S.V., Bettencourt, K., Haque, A., Luther, K., Wright, R.R., & Hess, J.A. (October 2016). Improving the health and safety behaviors of home care workers. Paper presentation to the International Academic Research Conference, Scottsdale, AZ	Academic
	Olson, R., Wright, R., Elliot, D., Hess, J., Wipfli, B., Mancini, A. (May 2013). <i>The COMPASS pilot study: A Total Worker Health intervention for home care workers</i> . OHSU Research Week, Portland, OR.	Academic
	Gulati, N., Thompson, S., Wright, R., Luther, K., Olson, R. (August 2013). <i>Degrees of pain: Task demands and demonstrations predict musculoskeletal discomfort in home care workers</i> . Oregon Institute of Occupational Health Sciences Summer Internship Program Presentation.	Academic
	Thompson, S., Gulati, N., Wright, R., Luther, K., Olson, R., Hess, J., Elliot, D.L. (May 2014). <i>Working with pain: Baseline connections between common task exposures, musculoskeletal pain, and injury risk among home care workers</i> . Presentation at OHSU Research Week, Portland, OR.	Academic
	Hunter, C., Thompson, S., Luther, K., Olson, R. (August 2014). <i>The relationships between perceived stress, social support, well-being, dietary habits, exercise, and safety behaviors</i> . Oregon Institute of Occupational Health Sciences Summer Internship Program Presentation.	Academic
	Wright, R., Olson, R., Elliot, D.L., Hess, J., Wipfli, B., Mancini, A. (May 2013). <i>The COMPASS pilot study: A Total Worker Health intervention for home care workers</i> . Paper presented at OHSU Research Week, Portland, OR.	Academic
	Haque, A. Thompson, S., Luther, K., Mabry, L., & Olson, R. (August 2015). <i>Value of COMPASS as a</i>	

	<i>social support intervention for home care workers: A qualitative approach.</i> Oregon Institute of Occupational Health Sciences Summer Internship Program Presentation.	Academic
Anger, Kent	Anger WK, Blanco M, Kyler-Yano JZ, Vaughn KA, Wipfli B. Development of a Total Worker Health® Intervention for Construction Workers. Pacific Northwest Apprenticeship Education Conference (PNWAEC), May 24-25, 2016; Portland, OR.	Community
	Anger WK, Rohlman DS, Vaughn KA, Tepol, M. Development of a Total Worker Health® Program for Vineyards (poster). Western Forum for Migrant & Community Health; February 24-26, 2016; Portland, OR.	Community
	Anger WK. Effectiveness of Total Worker Health Interventions. In the National Institutes of Health Pathways to Prevention (P2P) Workshop on Total Worker Health®—What's Work Got to Do With It? December 9-10, 2015. Bethesda, Maryland.	Academic
	Anger WK, Rohlman DS, Vaughn KA, Tepol, M. Development of a Total Worker Health® Program for Vineyards (poster). Western Forum for Migrant & Community Health; February 24-26, 2016; Portland, OR.	Community
	Anger WK. Effectiveness of Total Worker Health Interventions. In the National Institutes of Health Pathways to Prevention (P2P) Workshop on Total Worker Health®—What's Work Got to Do With It? December 9-10, 2015. Bethesda, Maryland.	Academic
	Anger WK. Empirical Research on Integrated Health Protection and Health Promotion Interventions. In the Symposium "Integration of Health Protection and Health Promotion as Total Worker Health™: Perspectives From Across the Globe (Symposium Chair)." 31 st International Congress on Occupational Health; May 31- June 5, 2015. Seoul, Korea.	Academic
	Anger WK. Why You Should Build a Program in Total Worker Health™ and How to Do It. NORA Symposium (Keynote); Midwest Center for Occupational Health and Safety; University of Minnesota School of Public Health; May 6, 2015. Minneapolis, MN.	Academic
	Hanson G, Perrin N, Hammer LB, Rohlman D, Olson R, Kuehl K, Anger K, Bodner T, Thompson S, Parish M. Profiles of health and safety concerns for public workers	

	from the Oregon Healthy Workforce Center. In Leslie Hammer (Chair) <i>Research Update from the Oregon Healthy Workforce Center, a NIOSH Total Worker Health Center of Excellence</i> . Work, Stress, and Health. May 6-9. 2015 Atlanta, GA.	Academic
	Anger WK. Expanding the Impact of TWH. NIOSH Director's Meeting. March 19-20, 2015. Cincinnati, OH.	Academic
	Cherniack M, Merchant JA, Anger WK, Sorensen, G. Research Frontiers in Total Worker Health™: Unique Perspectives from the NIOSH TWH Centers of Excellence (plenary). 1st International Symposium to Advance Total Worker Health. October 6-8, 2014. Bethesda, MD.	Academic
	Anger WK. Evidence-Based TWH Programs: What Does the Evidence Tell Us? Occupational Health Psychology Summer Institute: Advancing Theory and Practice in the context of Total Worker Health. July 16-18, 2014. Portland, OR.	Academic
	Anger WK, Dennerlein J, Rohlman DS, Punnett L, Hammer L. Panel Discussion: Building a TWH Center: From Nuts and Bolts to Politics. Occupational Health Psychology Summer Institute: Advancing Theory and Practice in the context of Total Worker Health. July 16-18, 2014. Portland, OR.	Academic
	Anger WK. What is Total Worker Health and why does it matter to you? OHSU Institute of Environmental Health Seminar Series (Invited). May 16, 2014. Portland, OR.	Academic
	Anger WK. What the Research Literature Tells us about Total Worker Health™ and what the Oregon Healthy Workforce Center is doing about it. Environmental Health Seminar, Department of Environmental and Occupational Health Sciences, School of Public Health, University of Washington (Invited). March 13, 2014. Seattle, WA.	Academic
	Anger WK. What the Research Literature Tells us about Total Worker Health™ and what the Oregon Healthy Workforce Center is doing about it. Washington State University School of Nursing (Invited). January 15, 2014. Spokane, WA.	Academic
	Anger WK. What the Research Literature Tells us about Total Worker Health™ and what the Oregon	

	Healthy Workforce Center is doing about it. National Institute for Occupational Safety and Health (NIOSH) Total Worker Health Seminar (Invited). December 10, 2013. Cincinnati, OH.	Academic
	Anger WK, Hammer L, Olson R, Kuehl K, Rohlman D, Elliot D. Oregon Healthy Workforce Center: The nexus of safety, health and wellness in Total Worker Health: Marriage or just cohabitation? In the Symposium: Total Worker Health: Beyond conventional health promotion. American Public Health Association. November 2-6, 2013. Boston, MA.	Academic
	Anger WK. The Oregon Healthy Workforce Center (OHWC) [concluding comments in Dede Montgomery presentation]. Northwest Occupational Health Conference. October 11-12, 2013. Seaside, OR.	Academic + Community
	Anger WK. The Oregon Healthy Workforce Center (OHWC). In: NIOSH's Total Worker Health™ Centers of Excellence: Integrating worker protection and health promotion (Roundtable Discussion). Work, Stress and Health. May 16-19, 2013. Los Angeles, CA.	Academic
	Anger WK. Discussant. In: Total Worker Health™ Interventions at the Oregon Healthy Workforce Center. Work, Stress and Health. May 16-19, 2013. Los Angeles, CA.	Academic
	Anger WK, Kuehl K, Olson R, Hammer Kincl L, Rohlman, D. Oregon Healthy Workforce Center: A NIOSH Total Worker Health™ Center of Excellence. Work, Stress and Health. May 16-19, 2013. Los Angeles, CA.	Academic
	Anger WK. Training effectiveness interventions in occupational populations. Public Health and Preventive Medicine Grand Rounds. Oregon Health & Science University. December 15, 2011. Portland, OR	Academic
Rohlman, Diane	Evaluating Web-based Total Worker Health Training for Young Workers: A Tale of Two Work Groups (Rohlman DS, Parish M, Elliot D, Jeddeloh L). Work, Stress and Health 2015, Atlanta, Georgia.	Academic
	What is Total Worker Health? 17th Annual Occupational Health Symposium: Total Worker Health, Heartland Center, Cedar Rapids, Iowa.	Academic
	Parish M, Rohlman DS, Elliot, DL, Lasarev M. (2014). <i>Developing a Methodology for Identifying and</i>	

	<i>Prioritizing Factors in Young Worker Injuries: A Pilot Study.</i> Eagleson Institute: 1 st International Symposium to Advance Total Worker Health TM , Washington D.C.	Academic
	Rohlman DS, Parish M, Elliot DL, Jeddeloh L.(2014). <i>Technology Meets Total Worker Health TM: Evaluating an Online Training for Young Workers.</i> Eagleson Institute: 1 st International Symposium to Advance Total Worker Health TM , Washington D.C.	Academic
	Leonard K, Parish M, Elliot DL, Rohlman DS. (August 2014). <i>Developing an Integrated Approach to Total Worker Health Trainings: Online vs. Supervisor-Led.</i> OIOHS Summer Intern Poster Session, Portland, OR.	Academic
	Nichols H, Parish M, McCullough A, Rohlman DS. (August 2014). <i>Evaluating Educational Programs on Sun Safety for Oregon Young and Future Workers.</i> OIOSH Summer Intern Poster Session, Portland, OR.	Academic
	Cheng J, Parish M, Williams L, Rohlman DS (August 2014). <i>Work, Food, and Apprentices: Evaluating an Online Nutrition Training.</i> OIOSH Summer Intern Poster Session, Portland, OR.	Academic
	Parish M, Elliot DL, Rohlman DS. (May 2014). Focusing the Scope of Young Worker Health & Safety Interventions: An Investigation into Risk Factors Associated with Occupational Injuries. OHSU Research Week, Portland, OR.	Academic
	Parish M, Elliot DL, Rohlman DS. (February 2014). Developing, Evaluating and Disseminating a Total Worker Health TM Curriculum for Young Workers. Oregon Institute of Occupational Health Sciences Young Investigator Highlight Series, Portland, OR.	Academic
Hammer, Leslie; Truxillo, Donald	Hammer, L. B., Truxillo, D., Bodner, T., Crain, T. L., Rineer, J., & Pytlovany, A. (2015, May). Effects of a work-family intervention on health and safety outcomes: Evidence from the Safety and Health Improvement Project (SHIP). Paper presented at the European Association of Work and Organizational Psychology Conference, Oslo, Norway.	Academic
	Hammer, L. B., Truxillo, D., & Bodner, T. (2015, March). <i>An overview of the Safety and Health Improvement Project.</i> Invited address at the Oregon Governor's Occupational Safety & Health Conference, Portland, OR.	Academic + Community
	Costa, A., Truxillo, D., Hammer, L. B., & Crain, T. L. (2015, May). Decision latitude and justice predict later	

	job satisfaction and body mass index. Poster presented at the Work, Stress and Health Conference, Atlanta, GA.	Academic
	Hammer, L. B., Rineer, J. R., Truxillo, D. M., Bodner, T., Pytlovany, J., Sherwood, J., & Hicks, L. LMX and work-family intervention effects. In R. Matthews and D. Major (chairs), <i>Understanding the Work-Family Implications of Relationships with Leaders</i> . Paper presented at the 2015 Society for Industrial and Organizational Psychology Conference, Philadelphia, PA.	Academic
	Rineer, J. R., Truxillo, D. M., Bodner, T. E., & Hammer, L. B. (2015, May). The Moderating Effects of Perceived Organizational Support on the Relationship between Procedural Justice and Objective Health Outcomes. Paper presented at the Work Stress and Health Conference, Atlanta, GA.	Academic
	Hammer, L.B., Tuxillo, D. M., Bodner, T., Kramer, M. (October 2014). SHIP: A Team-based Work-life and Safety Support Intervention for Construction Workers. In D. Elliot (Chair) <i>Teaming Up for Total Worker Health™</i> . Symposium presented at the 1 st International Symposium to Advance Total Worker Health, Bethesda, MD.	Academic
	Truxillo, D. M. (2014, December). <i>Psychological interventions for older workers</i> . Invited presentation at research conference "Current Issues in Occupational Health Psychology", University of Trento, Italy.	Academic
	Hammer, L. B., & Ganster, D. (2014, August 19). Intervening for work stress: Work-life stress and Total Worker Health approaches [Webinar]. In <i>NIOSH Total Worker Health Webinar Series</i> . Retrieved from http://www.cdc.gov/niosh/TWH/webinar.html	Academic
	Truxillo, D. (July, 2014). <i>What should we actually DO for older workers? Identifying the research gaps in organizational practice and interventions</i> . Invited address at the Occupational Health Psychology Summer Institute: Advancing Theory and Practice in the Context of Total Worker Health, Portland, OR.	Academic
	Fritz, C. (July, 2014). <i>Letting go: Research on recovery from work stress and employee well-being</i> . Invited address at the Occupational Health Psychology Summer Institute: Advancing Theory and Practice in the Context of Total Worker Health, Portland, OR.	Academic

	Hammer, L.B., Truxillo, D.M., Bodner, T., Kraner, M.A., Richman, A., Burrus, D., Pytlovany, A., Everett, D. (2014, June). Evaluation of an Innovative Work-Family Integrated Intervention on Safety and Health. Presented in E. E. Kossek (Chair), <i>Organizational dynamics and families: New perspectives</i> . Symposium conducted at the Work and Family Researchers Network Conference, New York, NY.	Academic
	Rineer, J., Truxillo, D., Hammer, L., Bodner, T., & Shepherd, B. (2014). Job characteristics positively relate to older construction workers' satisfaction. Paper to be presented at 2014 Society for Industrial and Organizational Psychology, Honolulu, HI.	Academic
	Hammer, L. B. (2014, April). <i>Unpacking the mystery: How to improve worker health and well-being through occupational health psychology approaches</i> . Distinguished Speaker Address at the Western Psychological Association, Portland, OR.	Academic
	Hammer, L. B. (2014, September). <i>Intervention effectiveness, total worker health and occupational health psychology</i> . Invited address at the Environmental and Occupational Health Seminar Series, Colorado School of Public Health, Mountain and Plains ERC, Aurora, CO.	Academic
	Truxillo, D. M. (2014, March). <i>Supporting the Health and Well-being of Older Workers</i> . Keynote, European Network of Organizational Psychologists, Paris, France.	Academic
	Hammer, L. B. (2014, January). <i>Interventions, total worker health and occupational health psychology</i> . Invited address at the Sunshine ERC, Tampa, FL.	Academic
	Truxillo, D. M. (2013, May). <i>The aging, age-diverse workforce: A challenge and opportunity for work and organizational psychology</i> . Keynote address at the European Association for Work and Organizational Psychology Congress, Münster, Germany.	Academic
	Hammer, L. B. (2013, November). Invited address at the Redesigning / Redefining Work Summit, Stanford University.	Academic
	Truxillo, D. M. (2012, December). <i>Designing psychologically enriched jobs across the work life span: An agenda for work psychology</i> . Invited address at Lisbon University Institute (ISCTE) Business School, Lisbon, Portugal.	Academic
	Hammer, L. B. (2012, November). <i>Workplace interventions and approaches to reduce work-life stress</i> . Plenary address at the Total Worker Health™	

	Symposium: Safe, Healthy and Cost-Effective Solutions, University of Iowa, Iowa City, Iowa.	Academic
	Truxillo, D. M. (2012, September). <i>Age in the workplace: Myths, realities, and emerging questions for employers and society</i> . Workshops presented at the 19 th annual Oregon Diversity Conference, Inclusion: From Ideas to Implementation, Salem, Oregon.	Community
	Hammer, L.B., Truxillo, D.M., & Pytlovany, A.C. (2017, June). Safety and Health Improvement Project (SHIP). Presented in <i>Effectiveness of Total Worker Health Interventions and Dissemination Strategies of the Oregon Healthy Workforce Center</i> . Symposium conducted at the Work, Stress, and Health Conference, Minneapolis, MN.	Academic
	Hammer, L.B., Truxillo, D.M., Bodner, T., Crain, T., Rineer, J., Pytlovany, A., & Richman, A. (2015, June). Effects of a work-family intervention on health and safety outcomes: Evidence from the Safety and Health Improvement Project (SHIP). Presented in <i>Work-family interface</i> . Symposium conducted at the European Association of Work and Organizational Psychology Conference, Oslo, Norway.	Academic
	Costa, A., Truxillo, D., Hammer, L. B., & Crain, T. L. (2015, May). <i>Decision latitude and justice Predict later job satisfaction and body mass index</i> . Paper presented at the Work, Stress, and Health Conference, Atlanta, GA.	Academic
	Fritz, C., Guros, F., Hammer, L. B., Shepherd, B., & Meier, D. (2015, May). Always on alert: Work-related hypervigilance and employee outcomes in corrections. In C. Fritz and F. Guros (co-chairs), <i>Staying healthy and safe: Relationships between workplace stressors and employee outcomes in corrections</i> . Symposium presented at the annual conference of Work, Stress, and Health, Atlanta, GA.	Academic
	Fritz, C., Hammer, L. B., Guros, F., & Sheppard, B. (2015, May). The importance of supervisory support: Adaptation of evidence-based training materials to the correctional setting. In L. Hammer (Chair), <i>Research Update from the Oregon Healthy Workforce Center, a NIOSH Total Worker Health Center of Excellence</i> . Symposium presented at the annual conference of Work, Stress, and Health, Atlanta, GA.	Academic

	Hammer, L. B. (2015, May). <i>Research update from the Oregon Healthy Workforce Center, a NIOSH Total Worker Health Center of Excellence</i> . Symposium presented at the annual conference of Work, Stress, and Health, Atlanta, GA.	Academic
	Hammer, L. B., Truxillo, D., Bodner, T., Crain, T. L., Rineer, J., & Pytlovany, A. (2015, May). <i>Effects of a work-family intervention on health and safety outcomes: Evidence from the Safety and Health Improvement Project (SHIP)</i> . Paper to be presented at the European Association of Work and Organizational Psychology Conference, Oslo, Norway.	Academic
	Hanson, G., Perrin, N., Hammer, L. B., Rohlman, D., Olson, R., Kuehl, K., Anger, K., Bodner, T., Thompson, S., & Parish, M., (2015, May). Profiles of health and safety concerns for public workers from the Oregon Healthy Workforce Center. In L. Hammer (Chair), <i>Research Update from the Oregon Healthy Workforce Center, a NIOSH Total Worker Health Center of Excellence</i> . Symposium presented at the annual conference of Work, Stress, and Health, Atlanta, GA.	Academic
	Rineer, J. R., Truxillo, D. M., Bodner, T. E., & Hammer, L. B. (2015, May). <i>The moderating effects of perceived organizational support on the relationship between procedural justice and objective health outcomes</i> . Paper to be presented at the Work, Stress, and Health Conference, Atlanta, GA.	Academic
	Hammer, L. B., Rineer, J. R., Truxillo, D. M., Bodner, T., Pytlovany, J., Sherwood, J., & Hicks, L. (2015, April). LMX and work-family intervention effects. In R. Matthews and D. Major (Chairs), <i>Understanding the Work-Family Implications of Relationships with Leaders</i> . Paper presented at the 2015 Society for Industrial and Organizational Psychology Conference, Philadelphia, PA.	Academic
	Hammer, L. B., Tuxillo, D. M., Bodner, T., & Kramer, M. (2014, October). SHIP: A team-based work-life and safety support intervention for construction workers. In D. Elliot (Chair), <i>Teaming up for Total Worker Health™</i> . Symposium presented at the 1 st International Symposium to Advance Total Worker Health, Bethesda, MD.	Academic
	Olson, R., Wipfli, B., Thompson, S., Anger, W. K., Bodner, T., Elliot, D. L., Hammer, L., & Perrin, N. (2014,	

	October). The SHIFT Intervention for truck drivers produces significant weight loss in a randomized trial. In M. Theise (Chair), <i>Total trucker health: The drive to improve</i> . Symposium presented at the 1 st International Symposium to Advance Total Worker Health, Bethesda, MD.	Academic
	Truxillo, D. M., Cadiz, D., & Hammer L. B. (2014, October). <i>Applying psychological lifespan development theory and research to interventions targeting older workers</i> . Paper presented at the 1st International Symposium to Advance Total Worker Health, Bethesda, MD.	Academic
	Hammer, L.B., Truxillo, D.M., Bodner, T., Kraner, M.A., Richman, A., Burrus, D., Pytlovany, A., Everett, D. (2014, June). Evaluation of an innovative work-family integrated intervention on safety and health. Presented in E. E. Kossek (Chair), <i>Organizational dynamics and families: New perspectives</i> . Symposium conducted at the Work and Family Researchers Network Conference, New York, NY.	Academic
	Truxillo, D. M., & Hammer, L. B. (2016, October). Safety and Health Improvement Program. Presentation given at the Oregon Healthy Workforce Center Partners' Luncheon.	Academic + Community
	Hammer, L. B., Truxillo, D., & Bodner, T. (2014, October). <i>Safety and Health Improvement Program results</i> . Presentation given to Portland Bureau of Transportation.	Community
	Truxillo, D., Hammer, L. B., & Bodner, T. (2014, September). <i>Safety and Health Improvement Program results</i> . Presentation given to Portland Water Bureau.	Community
	Hammer, L. B., Truxillo, D., & Bodner, T. (2013, August). <i>Safety and Health Improvement Program baseline results briefing</i> . Presentation given to the Portland Bureau of Transportation.	Community
	Truxillo, D., Hammer, L. B., & Bodner, T. (2013, August). <i>Safety and Health Improvement Program baseline results briefing</i> . Presentation given to the Portland Water Bureau.	Community
	Hammer, L. B., Truxillo, D., & Bodner, T. (2013, March). <i>Safety and Health Improvement Program Team Effectiveness Process update</i> . Presentation given to the Portland Bureau of Transportation.	Community

	Truxillo, D., Hammer, L. B., & Bodner, T. (2013, March). <i>Safety and Health Improvement Program Team Effectiveness Process update</i> . Presentation given to the Portland Water Bureau.	Community
	Hammer, L. B., Truxillo, D., & Bodner, T. (2012, May). <i>Safety and Health Improvement Program overview</i> . Presentation given to Portland Bureau of Transportation.	Community
	Hammer, L. B., Truxillo, D., & Bodner, T. (2012, April). <i>Oregon Healthy Workforce Center Background</i> . Presentation given to the Portland Bureau of Transportation.	Community
	Truxillo, D., Hammer, L. B., & Bodner, T. (2012, March). <i>Oregon Healthy Workforce Center background</i> . Presentation given to the Portland Water Bureau.	Community
	Hammer, L. B., Truxillo, D., & Bodner, T. (2012, January). <i>SHIP Team Effectiveness Process briefing</i> . Presentation given to the Portland Bureau of Transportation.	Community
	Truxillo, D., Hammer, L. B., & Bodner, T. (2012, January). <i>SHIP Team Effectiveness Process briefing</i> . Presentation given to the Portland Water Bureau.	Community
Montgomery, Dede	<i>What's Sleep got to do with it?</i> City of Hillsboro Safety U, Hillsboro, OR, Dede Montgomery, February 2016.	Community
	<i>Moving Towards Total Worker Health</i> , City of Hillsboro Safety U, Hillsboro, OR, Dede Montgomery, February 2016.	Community
	<i>Temporary and Contingent Workers</i> , Cascade Occupational Health Conference, Eugene, OR, Dede Montgomery (with Duane Grange) March 2016.	Community
	<i>Updates on Total Worker Health</i> , SAIF Corporation, Salem, OR, Dede Montgomery, March 2016.	Community
	<i>Total Worker Health: An Evolution</i> , Pacific NW Section American Industrial Hygiene Association Spring Symposium, Olympia, WA, Dede Montgomery, May 2016.	Community
	<i>Core Elements of Occupational Health: Hazard Identification and Control, Industrial Hygiene, Ergonomics and Occupational Health Nursing</i> , OHSU Global Health - SE Asia, Bangkok, Thailand, Dede Montgomery, May 2016.	Community
	<i>Putting Total Worker Health to Practice</i> , Central Oregon Occupational Safety and Health Conference, Bend, Oregon, September 2016	Community
	<i>Total Worker Health: An Evolution</i> , Southern Oregon Occupational Safety and Health Conference, Ashland,	Community

	Oregon, October 2016	
	<i>Total Worker Health: What's it got to do with sleep, stress and safety?</i> City of Portland Safety Conference, Portland, Oregon, October 2016	Community
	<i>Industrial Hygiene and Total Worker Health – Emerging Issues Special Roundtable</i> , American Industrial Hygiene Conference, Salt Lake City, UT, June 2015	Community
	<i>Total Worker Health: Tips and Strategies for Safety and Health Professionals</i> , Oregon Governor's Occupational Safety and Health Conference (GOSH), Portland OR, March 2015.	Community
	<i>Industrial Hygiene and Total Worker Health</i> , OHSU SE Asia Alliance, Bangkok Thailand, April 2015	Community
	<i>On the Path to Total Worker Health</i> , OSHA Region 10 VPP Conference, Portland, OR, May 2015	Community
	<i>Safety Break for Total Worker Health</i> , Multnomah County Safety Department, Portland OR, May 2015	Community
	<i>Injuries and Return to Work</i> , Temporary Workers Symposium, Wilsonville, OR, May 2015	Community
	<i>Total Worker Health Roundtable</i> , American Industrial Hygiene Continuing Education Conference, Salt Lake City, UT, June 2015	Community
	<i>Total Worker Health</i> , Northwest Association of Occupational and Environmental Medicine, Skamania, WA, September 2015	Community
	<i>Getting to Zero: A Total Worker Health Primer</i> , Central Oregon Occupational Safety & Health Conference, Bend, OR, (with Deb Fell-Carlson, SAIF Corporation, NIOSH TWH Affiliate), September 2015	Community
	<i>The Changing Work Environment and the Safety Professional</i> , ASSE Columbia-Willamette Chapter Meeting, Tualatin, OR, (with Illa Gilbert-Jones and Mark Frisco), November 2015	Community
	<i>Sleep and Total Worker Health</i> , Northwest Chapter - Association of Occupational Health Professionals in Healthcare, Burien, WA, December 2015	Community
	<i>On the Path to Total Worker Health</i> ; American Heart Association Worksite Wellness Summit; Portland, OR (with Deb Fell-Carlson, SAIF Corp), Sep 2014	Community
	<i>What's Sleep got to do with It?</i> ; National Healthcare Ergonomics Conference; Portland, OR, Sep 2014	Community
	<i>What TWH Means to Early Adopting Organizations: The Practitioners Perspective</i> ; OHWC Summer Institute; Portland, OR, July 2014	Community
	<i>Total Worker Health for Smaller Employers</i> ; Upon request of SAIF Corp at SAIF Policy Holder Training Event; Astoria, OR, May 2014	Community
	<i>Connecting the Dots: Work+Health+Environment</i> ; Northwest Environmental Health Conference; Portland, OR (with Dan Cain, Oregon Health Authority), Apr 2014	Community

	<i>TWH: Issues and Success Stories</i> ; Cascade Occupational Health and Safety Conference; Eugene, OR (with Deb Fell-Carlson, SAIF Corp.), Apr 2014	Community
	<i>TWH: Total Worker and Health for EH&S</i> ; Upon request by Intel Corp; Portland, OR, Apr 2014	Community
	<i>What's Sleep got to do with It?</i> ; Oregon School Employee's Wellness Conference; Bend, OR, Mar 2014	Community
	March 2013 Oregon GOSH: Hazard Communication in OSHA 10; Young Workers Safety and Health Day; Portland, OR	Community
	April 2013 PNS-AIHA Spring Symposium: Hair smoothers and formaldehyde exposure; Olympia, WA	Community
	September 2013 Central Oregon Occupational Safety and Health Conference: Topics related to Total Worker Health, Bend, OR	Community
	(October 2012) Total Worker Health: Northwest Occupational Health Conference; Bellingham WA	Community
	(October 2012; Total Worker Health; Southern Oregon Occupational Safety and Health Conference; Medford OR	Community
	(October 2012; Hair smoothers and formaldehyde; APHA; San Francisco, CA	Community
	(November 2012; Sleep and Total Worker Health; Northwest Pulp and Paper Conference; Portland, OR	Community

10. Description of activities related to the Center's influence on regional worker safety and health policies and practices.

---Dede Montgomery provided consultation to the Oregon Board of Maritime Pilots about TWH, which resulted in policy changes to Oregon Administrative Rules to move Pilot Health and fitness policy and practices away from a disciplinary system towards a proactive, preventive, model intended to support pilots and their long-term safety and well-being.

--- As part of an ongoing strategy to improve the Total Worker Health of the Oregon workforce through active collaboration, Oregon OSHA, Oregon Institute of Occupation Health Sciences (home of OHWC at Oregon Health & Science University), and SAIF Corporation (a Total Worker Health affiliate) have formed an Alliance to expand the knowledge and application of Total Worker Health principles by leveraging the strengths of each organization. The goals of this Alliance are to promote TWH principles, share best practices, and provide guidance, training, and education necessary to developing resources for occupational safety and well-being.

Cumulative Enrollment Table + Inclusion of Gender and Minority Study Subjects

[Study Title: Oregon Healthy Workforce Center (2011 - 2016)]

Racial Categories	Ethnic Categories									Total
	Not Hispanic or Latino			Hispanic or Latino			Unknown/Not Reported Ethnicity			
	Female	Male	Unknown /Not Reported	Female	Male	Unknown n/ Not Reporte	Female	Male	Unknown /Not Reported	
American Indian/ Alaska Native	20	13	0	5	0	0	0	0	0	38
Asian	31	39	0	0	1	0	0	0	0	71
Native Hawaiian or Other Pacific Islander	3	5	0	0	0	0	0	0	0	8
Black or African American	30	39	0	0	2	0	3	3	0	77
White	460	645	2	12	12	0	9	6	0	1146
More Than One Race	51	43	1	4	11	0	0	0	0	110
Unknown or Not Reported	10	22	0	21	20	0	1	9	1613	1696
TOTAL	605	806	3	42	46	0	13	18	1613	3146

Inclusion of children (under 21 years of age)

Number of participants under 21 years of age: 782 (PUSH project only)

Materials available for other investigators

See Translation of Findings where the numerous materials are listed, including the research data in the OHWC Data Repository.

Publications (all publications in peer-reviewed journals)

Rineer, J. R., Truxillo, D.M., Bodner, T., Hammer, L.B., & Krainer, M. (2017). The Moderating Effects of Perceived Organizational Support on the Relationship between Organizational Justice and Objective Measures of Cardiovascular Health. *European Journal of Work and Organizational Psychology*.

Olson, R., Thompson, S.V., Elliot, D.L., Hess, J.A., Rohten, K.L., Parker, K.L., et al. (2016). Safety and health support for home care workers: The COMPASS randomized controlled trial. *American Journal of Public Health*, 106, 1823-1832.

Rohlman, D.S., Parish, M., Elliot D.L., Hanson, G., & Perrin, N. (2016). Addressing young workers' needs: the Promoting U through Safety and Health (PUSH) trial outcomes. *Healthcare: Special Issue Occupational Health Issues in the New Millennium*, 4(3), 55.

- Zaniboni, S., Truxillo, D. M., Rineer, J. R., Bodner, T. E., Hammer, L. B., & Kraner, M. (2016). Relating age, decision authority, job satisfaction, and mental health: A study of construction workers. *Work, Aging and Retirement*, 1-8.
- Parish, M., Rohlman, D.S., Elliot, D.L., Lasarev, M. (2016). Factors associated with occupational injuries in seasonal young workers. *Occupational Medicine*, 66(2), 166-167.
- Hammer, L., Truxillo, D., Bodner, T., Rineer, J., Pytlovany, A., & Richman, A. (2015). Effects of a workplace intervention targeting psychosocial risk factors on safety and health outcomes: Psychosocial factors and workers health and safety. *Biomed Research International*, <http://dx.doi.org/10.1155/2015/836967>.
- Olson, R., Wright, R., Elliot, D., Hess, J., Thompson, S., Buckmaster, A.M., Luther, K. & Wipfli, B. (2015). The COMPASS pilot study: A Total Worker Health™ intervention for home care workers. *Journal of Occupational & Environmental Medicine*, 57(4), 406-416.
- Elliot D, Rohlman D, Parish, M. (2015). Focus groups move online: Feasibility of Tumblr use of e-health curriculum development. *Journal of Medical Internet – Research Protocols*, 4(1), 1-6.
- Anger, K., Elliot, D., Bodner, T., Olson, R., Rohlman, D., Truxillo, D., Kuehl, K., Hammer, L., & Montgomery, D. (2015). Effectiveness of Total Worker Health interventions. *Journal of Occupational Health Psychology*, 20(2), 226-247.
- Bodner, T., Kraner, M., Bradford, B., Hammer, L., & Truxillo, D. (2014). Safety, health, and well-being of municipal utility and construction workers. *Journal of Occupational & Environmental Medicine*, 56(7), 771-778.
- Olson, R., Elliot, D., Hess, J., Thompson, S., Luther, K., Wipfli, B., Wright, R., & Buckmaster, A. (2014). The COMMunity of Practice And Safety Support (COMPASS) Total Worker Health™ study among home care workers: Study protocol for a randomized controlled trial. *Trials*, 15, 411.
- Olson, R., Wipfli, B., Wright, R., Garrigues, L., Nguyen, T., & Lopez de Castro, B. (2014). Reliability and validity of the home care STAT (Safety Task Assessment Tool). *Applied Ergonomics*. 45(4), 1157-66.
- Rohlman, D., Parish, M., Elliot, D., Montgomery, D., & Hanson, G. (2013). Characterizing the needs of a young working population: Making the case for total worker health in an emerging workforce. *Journal of Occupational & Environmental Medicine*, 55, S69-S72.
- Hammer, L. & Sauter, S. (2013). Total worker health and work–life stress. *Journal of Occupational & Environmental Medicine*, 55, S25-S29.

Wipfli, B., Olson, R., Wright, R., Garrigues, L., & Lees, J. (2012). Characterizing hazards and injuries among home care workers. *Home Healthcare Nurse*, 30(7), 387-389

Federal Financial Report

Submitted.

Equipment Inventory Report

No equipment purchase above \$5000 was made during this period.

Final Invention Statement and Certification

Submitted

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