Taking an Evidence-based Total Worker Health™ Online

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STTR R41 TR000357
PHLAME is distributed through the Center for Health Promotion Research at Oregon Health & Science University (OHSU). Future PHLAME derivatives will be available through Odyssey Science Innovations, LLC.

Diane Elliot, MD, Linn Goldberg, MD, & Kerry Kuehl, MD, DrPH, have a financial interest in the commercial sale of those products. This conflict of interest is being managed by the Conflict of Interest Committee at OHSU.
Taking science to service presents challenges:

- Evidence is only one factor influencing users’ program selection
- Formats easily modified for piloting and initial use may not be best for dissemination
- Technology is advancing rapidly
In 1999, NIH asked for new models in behavior change, funding 19 studies as the Behavior Change Consortium.

Firefighters are at higher risk for cardiovascular disease, cancer, and injuries. Backfilling absences is a major expense. Fire departments are relatively stable, predictable worksites.
PHLAME (Promoting Healthy Lifestyles: Alternative Models Effects)

- Shifts at a fire station meet weekly for 12, 60-minute, peer-led scripted sessions and work through a curriculum concerning health and safety.
- Studied in randomized, controlled trial involving more than 600 firefighters.
- PHLAME informational video: [www.youtube.com/watch?v=PG0YRFki9O0](http://www.youtube.com/watch?v=PG0YRFki9O0)
History of Paper-based PHLAME

- One-year significant behavior change benefits.  

- Reduced injuries, illnesses and workers’ comp claims.  

- Mediated by knowledge, peer norms and social support.  

- Durable trajectory of improvement four years after the intervention. Qualitative findings indicate combined work/TWH missions resulted in culture change.  
Career firefighters are busier, with less department funding, fewer stations and more runs/station.

Training online, videos, gamers, and almost all have smartphones.

Move PHLAME online, enhance its user experience, make it fun and educational, while maintaining its mediating components (knowledge, norms, social support).
Partnering with Web-development & Design Companies

- Identify potential partners
- Review their portfolios, talk with references, meet and ask for a bid
- Plan a responsive website – accessible on any device, with speed and support
- Identify individuals assigned to the project (developer, design, manager)
- Make sure that you own the code/intellectual property
eLearning Activity Each Shift, Individual/Team Goals, Competitions & Electives

Games:  What’s a serving size
        Super fruits and vegetables quiz
        Sleep jeopardy

Videos:  Maximum oxygen uptake
        Animations

Whiteboard lectures:  Power nap
        Brain on alcohol

Formative Assessments for Proof-of-Concept

Firefighter consultants during initial design
Heuristics
Usability testing – talk aloud analysis
Pre- and post- surveys and post-focus groups

Usability.gov
Formative Assessment Findings

- Assessed among 2 departments (one had done PHLAME)
- Total 64 participants, average age 35
- 92% had a smartphone, all self-described as competitive and liked games
- Preferred learning was videos (60%), last was reading (13%)
- Easily on-boarded and >90% found it fun and easy to use
I: Because they’re gray.

R: Yeah. I mean, if they had like a... If it was like a green go, you know, it would say, oh yeah, you can hit that. But it just looks like it’s just a screen shot.

R: Well, no, that’s just cool that it tells you a fact about the turnip, even though it’s not the correct answer. So it looks like it is... It moved the answers around and then is giving me another choice.
Survey After Trial Findings

Would benefit firefighters: Strongly agree
Firefighters could use: Strongly agree
Like competing: Strongly agree
Program fun: Strongly agree

Strongly agree  Neutral  Strongly disagree
Talk Aloud and Group Interviews

Provided themes concerning what they liked and specific suggestions:

**Likes:** It was real easy to use. That’s the first thing that comes to mind.

I felt that we all went through…All the topics were well done, I thought. I thought it was easy to keep track of your goals. I mean, a lot of the stuff we were doing on shift together, so it was easy to keep track of marked down and did it.

I think once you got everybody on board and get them educated and everything, I think it would work well. Yeah.

**Suggestions:** Specific workouts

More charting and knowing where they ranked among all firefighters

Options for reminders – how frequently and type of pushed messages
Taking Science to Service

- Online PHLAME’s proof-of-concept is an example of steps when building a web-based TWH program.
- Not shown is a critical role for endorsement and distribution partners (IAFFs).
- Next steps would be building out the entire program and evaluating its impact.
- Building an evidence-based program isn’t enough, and additional abilities in marketing, business plan development and commercialization are needed.
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