

**Society for Prevention Research  
25<sup>th</sup> Annual Meeting  
Washington, DC**

**Pre-Conference Workshop V**

**Date:** Tuesday, May 30, 2017

**Time:** 9:00 am – 5:00 pm

**Introduction to the multiphase optimization strategy (MOST) for building more effective, efficient, economical, and scalable behavioral and biobehavioral interventions**

**Organizers and Presenters:** Linda M. Collins, PhD, and Kari C. Kugler, PhD, The Methodology Center, The Pennsylvania State University

**Description:** The majority of behavioral and biobehavioral interventions in use today have been evaluated as a treatment package using a two-arm randomized controlled trial (RCT). This approach is an excellent way to determine whether an intervention is effective. However, the treatment package approach is less helpful in providing empirical information that can be used to optimize the intervention to achieve improved effectiveness and efficiency while maintaining a desired level of economy, and/or scalability. In this workshop an innovative methodological framework for optimizing behavioral interventions, the multiphase optimization strategy (MOST), will be presented. MOST is based on ideas inspired by engineering methods, which stress careful management of research resources and ongoing improvement of products. MOST is a comprehensive strategy that includes three phases: preparation, optimization, and evaluation. MOST can be used to build a new intervention or to improve an existing intervention. Using MOST it is possible to engineer an intervention targeting a particular effect size, level of cost-effectiveness, or any other criterion.

This workshop will provide an introduction to MOST. Ongoing intervention development studies using the MOST approach will be used as illustrative examples. A substantial amount of time will be devoted to experimental design, which is an important tool in MOST. In particular, factorial experiments and fractional factorial experiments will be discussed. Time will be set aside for a couple of small group activities and open discussion of how the concepts presented can be applied in the research of workshop attendees.

- Learning objective 1: compare intervention evaluation and intervention optimization
- Learning objective 2: understand how to select an experimental design from a resource management perspective
- Learning objective 3: develop clearly stated optimization criteria

**Target workshop audience:**

One year of graduate-level statistics, which should include training through multiple regression, is a prerequisite. Some training in the randomized controlled trial (RCT) and experience with development of behavioral or biobehavioral interventions are also needed.

**Materials:**

Attendees will be given a handout with the Power Point slides and a list of articles containing additional information.

**Presenters:**

**Dr. Linda M. Collins** is the primary developer of the multiphase optimization strategy (MOST), a comprehensive, principled, engineering-inspired framework for developing, optimizing, and evaluating multicomponent behavioral and biobehavioral interventions. She collaborates with intervention scientists to develop optimized interventions in a broad range of fields including tobacco cessation, weight reduction, and prevention of sexually transmitted infections.

**Dr. Kari C. Kugler** researches the development of effective and efficient behavioral interventions targeting a wide range of health behaviors among various populations and contexts. In particular, she is focused on developing interventions targeting the intersection of sexual and reproductive health, including HIV, alcohol use and obesity among adolescents and young adults. Dr. Kugler collaborates with methodologists and intervention scientists on projects using the multiphase optimization strategy (MOST).

**Outline:**

Each of the presenters will present on the topic in a didactic format and lead two small group activities related to the topic.

- I. Introduction to MOST (Collins) 75 min  
15 minute break
- II. The conceptual model with a small group activity (Kugler) 75 min  
90 minute lunch (11:45 – 1:15 pm)
- III. Selecting an experimental design based on the resource management principle with a small group activity (Collins) 90 min  
15 minute break
- IV. Using experimental results to arrive at an optimized intervention (Collins) 60 min
- V. Q & A, open discussion (Collins & Kugler) 60 min