

# **HOW TO APPLY THE MULTIPHASE OPTIMIZATION STRATEGY (MOST) IN YOUR INTERVENTION DEVELOPMENT RESEARCH**

## **Module 1**

**MOST is a different way of thinking**

**Lesson 5: The concept of optimization**



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**Intervention Optimization Initiative**

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# **In the previous lesson you learned how to:**

- Contrast two approaches to intervention development:
  - The classical treatment package approach
  - How an engineer might go about developing an intervention

# In this lesson you will learn how to:

- Further clarify the concept of optimization
- Define intervention ***EASE*** and relate it to optimization

# Definition of optimization of an intervention

- *Optimization of a multicomponent intervention is the process of identifying an intervention that provides the best expected outcome obtainable within key constraints imposed by the need for affordability, scalability, and/or efficiency.*

# Definition of optimization of an intervention

- *Optimization of a multicomponent intervention is the process of identifying an intervention that provides the best expected outcome obtainable within key constraints imposed by the need for affordability, scalability, and/or efficiency.*
- Note:
  - Process
  - Constraints
  - Best expected outcome obtainable: the fundamental tension

# Four desiderata for multicomponent interventions

- **Effectiveness**
  - The extent to which the intervention does more good than harm (under real-world conditions, Flay (1986))

# Four desiderata for multicomponent interventions

- **Affordability\*\***
  - The extent to which the intervention is effective without exceeding budgetary constraints
- \*\*This was called economy in Collins (2018) and other publications



# Four desiderata for multicomponent interventions

- **Scalability**
  - The extent to which the intervention can be implemented widely with fidelity

# Four desiderata for multicomponent interventions

- **Efficiency**
  - The extent to which the intervention avoids wasting time, money, or other valuable resources

# Intervention *EASE*: A strategic balance of the desiderata for multicomponent interventions

*EASE* is achieved by BALANCING

AGAINST

- Effectiveness



**Affordability**  
**Scalability**  
***Efficiency***

# Contrast of optimization and evaluation

## Optimization

- Requires examination of individual components
- Experimental designs other than the RCT needed

## Evaluation

- Requires comparison of intervention package to control
- RCT the way to do this



# In this lesson you learned how to:

- Further clarify the concept of optimization
- Define intervention ***EASE*** and relate it to optimization

# In the next lesson you will learn how to

- Define the three phases of MOST: preparation, optimization, evaluation
- Apply the two fundamental principles of MOST
  - Resource management
  - Continual optimization

# Literature Cited

- Collins, L.M. (2018). *Optimization of behavioral, biobehavioral, and biomedical interventions: The multiphase optimization strategy (MOST)*. New York: Springer.
- Flay, B. R. (1986). Efficacy and effectiveness trials (and other phases of research) in the development of health promotion programs. *Preventive Medicine*, 15, 451-474.



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