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# Application of Implementation Science Frameworks to Guide Intervention Design

## *Part 2: A Brief Introduction to the COM-B Model*

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# Theory and the Intervention Development Process

**Table 1 Steps for developing a theory-informed implementation intervention**

Step	Tasks
STEP 1: Who needs to do what, differently?	<ul style="list-style-type: none"><li>· Identify the evidence-practice gap</li><li>· Specify the behaviour change needed to reduce the evidence-practice gap</li><li>· Specify the health professional group whose behaviour needs changing</li></ul>
STEP 2: Using a theoretical framework, which barriers and enablers need to be addressed?	<ul style="list-style-type: none"><li>· From the literature, and experience of the development team, select which theory (ies), or theoretical framework(s), are likely to inform the pathways of change</li><li>· Use the chosen theory(ies), or framework, to identify the pathway(s) of change and the possible barriers and enablers to that pathway</li><li>· Use qualitative and/or quantitative methods to identify barriers and enablers to behaviour change</li></ul>
STEP 3: Which intervention components (behaviour change techniques and mode(s) of delivery) could overcome the modifiable barriers and enhance the enablers?	<ul style="list-style-type: none"><li>· Use the chosen theory, or framework, to identify potential behaviour change techniques to overcome the barriers and enhance the enablers</li><li>· Identify evidence to inform the selection of potential behaviour change techniques and modes of delivery</li><li>· Identify what is likely to be feasible, locally relevant, and acceptable and combine identified components into an acceptable intervention that can be delivered</li></ul>
STEP 4: How can behaviour change be measured and understood?	<ul style="list-style-type: none"><li>· Identify mediators of change to investigate the proposed pathways of change</li><li>· Select appropriate outcome measures</li><li>· Determine feasibility of outcomes to be measured</li></ul>

Michie et al 2005; 2012

# How do I find a 'Perfect Fit' or Summary Theory to Shape my Intervention?

Among several syntheses of different theories, we propose using the:

**COM-B Model**- A systematic way to use behavioral theory to help specify behaviors in terms of barriers and enablers related to **Capability, Opportunity and Motivation** to perform the behavior;

and the **Behavior Change Wheel**, which is a intervention development framework, for understanding a behavior first, then matching aspects of the behavior to intervention strategies that are evidence based.

# COM-B Model and Behavior Change Wheel

- Pre-work about your behavior of interest that aids in understanding a behavior but then links to a framework to develop targeted interventions
- Provides a general model of behavior for understanding behaviors/ what needs to change
- Does not preclude use of other theories which can be used as needed to further explore COM-B domains

# Intervention Development Process

## 1. Understand the behavior



### Stage 1: Understand the behavior

#### 1. Define the problem in behavioral terms

What behavior? Where does it occur? What is the system this behavior is operating in? Who is involved in the behavior?

#### 2. Select target behavior(s)

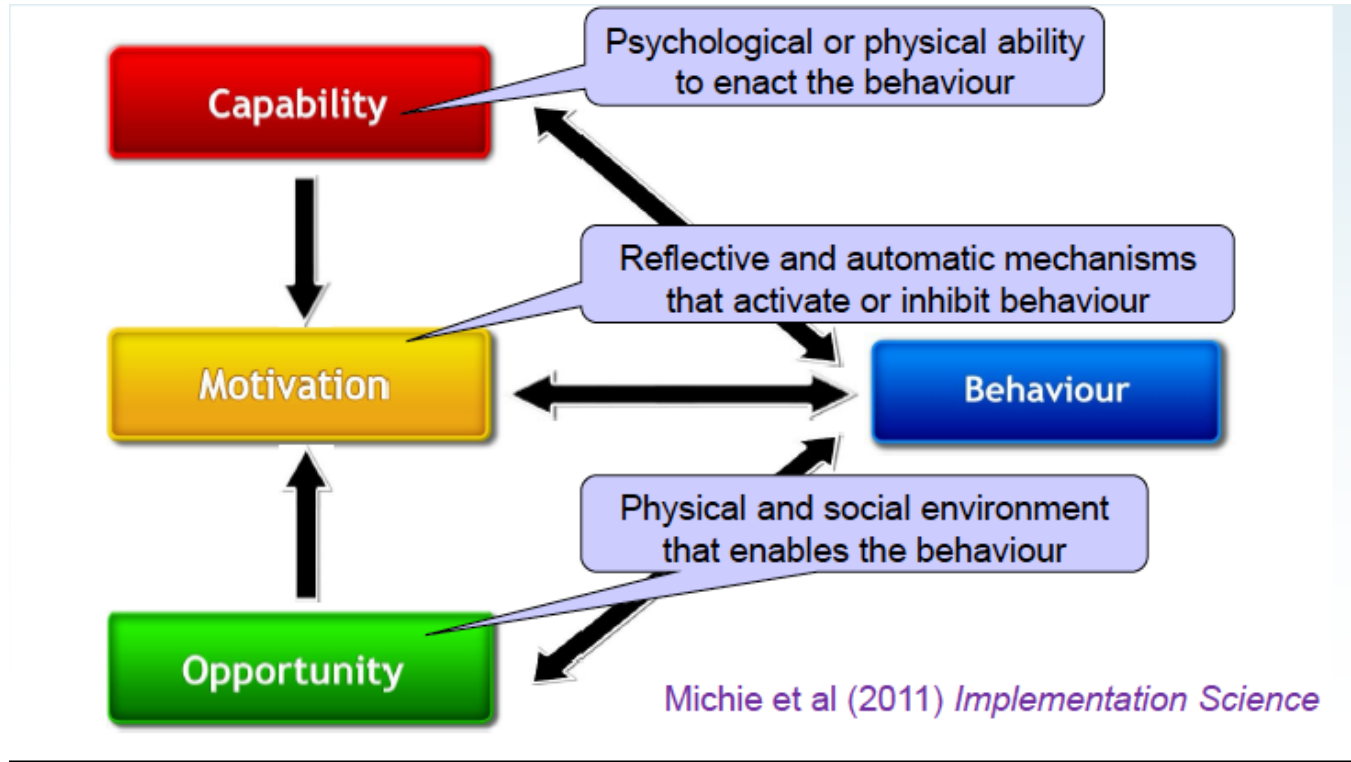
Behaviors are in a complex system that will influence how you select those to target- this shapes the design process for your intervention. Less is more to start.

#### 3. Specify the target behavior(s)

Many factors can shape your choice of which behavior(s) to target – are they dependent on other behaviors? How many can you address within a system?

#### 4. Identify what needs to change about the behavior – USE COM-B and others

# COM-B: A general theory of behavior



# CAPABILITY – Domains- Hand Washing

Physical	Physical skills	<i>“I have the skills to wash my hands effectively”</i>
Psychological	Knowledge	<i>“I know the correct technique to wash my hands”</i>
	Cognitive and interpersonal skills	<i>“I can ask patients/ staff who are waiting to wait a moment while I wash my hands”</i>
	Memory, attention and decision processes	<i>“I can remember the specific steps I learned about better hand washing”</i>
	Behavioral regulation	<i>“I can break the habit of not washing at critical times by (eg in-between patients on busy day)”</i>

# CAPABILITY – questions

<b>Physical</b>	Can they physically do it?
<b>Psychological</b>	Do they know what they should do?
	Do they know how to do it?
	Do they remember to do it?
	Are there things that they use to monitor whether they do it?



# OPPORTUNITY – Domains- Hand Washing

<b>Physical</b>	Environmental context and resources	<i>“Are there material resources to wash my hands, like working sinks with water, near the exam rooms?”</i>
<b>Social</b>	Social influences	<i>“Is hand-washing so frequently something my peers and supervisors would expect me to do?”</i>

# OPPORTUNITY – questions

<b>Physical</b>	<i>What aspects of the environment (physical, resources) influence whether or not they do it?</i>
<b>Social</b>	<i>How might views/ opinions of others influence their decision to do it?</i>

# MOTIVATION – Further details on Domains

<b>Reflective</b> <b>(beliefs, plans)</b>	Professional/social role and identity
	Beliefs about capabilities
	Optimism
	Beliefs about consequences
	Intentions
	Goals
<b>Automatic</b> <b>(wants, needs)</b>	Reinforcement
	Emotion

# Limitations of Individual-Behavioral Theories

- Behavior is complex, but models are intentionally simple
- There is a limit to generalizability of models
- Models don't differentiate between individuals/groups
- Influencing factors don't always precede behavior

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