

Supplemental File 5. Draft Data Extraction Guidance and Sample Codebook (to be further refined as per protocol)

Adaptations definition and coding (based on Stirman and colleagues taxonomy of modifications¹)	
<p>Notes: Headings and description for the taxonomy of modifications below. If any of these are not stated to mark as such on the data extraction form.</p> <ul style="list-style-type: none"> • Firstly, to identify and briefly state what adaptation was made and whether it was to the content, context of training/evaluation. If the adaptation was to the content, this can be further classified under the 12 suggested headings if applicable. If not to mark as “other” • Secondly to identify where stated at what level the adaptation was made (e.g. at individual recipient level or community level) using the seven suggested headings or the other category • Thirdly to capture who made the decision to adapt where stated • Finally, if the reason was given for why adaptation was needed 	
Adaptations	Deliberate and/or unintended changes to the intervention content, context or training and delivery
Adaptations to Content	<p>Changes to intervention procedure, materials or delivery.</p> <p>These can be further classified as (note as many as apply on data extraction form);</p> <ol style="list-style-type: none"> 1. Tailoring, tweaking, refining - minor change, leaves all major principles in place e.g. modifying language 2. Adding elements - consistent with fundamentals of intervention 3. Removing elements - e.g. those that are culturally not appropriate 4. Shortening, condensing (pacing/timing) - shorter amount of time or no of sessions 5. Lengthening, extending (pacing/timing) 6. Substituting elements - a module or activity is replaced with another (e.g. condom application replaced with abstinence talk) 7. Re-ordering elements 8. Integrating another approach - intervention used as starting point but other techniques added 9. Integrating prevention into another approach - starting with another approach, but intervention added in 10. Repeating elements 11. Loosening structure - flexibility with programme/process e.g. opening and closing, layout can be different 12. Departing from the intervention (drift) - Intervention no longer used in given situations <p>Other (Give details)</p>
Adaptations to Context	Changing the delivery channel, format, setting, personnel, population etc.
Adaptations to Training/Evaluation	Longer/shorter training, style of training etc.
At what level was the adaptation made	<p>This can be classified as (please note as many as apply on data extraction form);</p> <ol style="list-style-type: none"> 1. Individual recipient e.g. changed for a person's needed e.g. literacy, hearing, physicality

	<p>2. Cohort level - for individuals grouped within a setting</p> <p>3. Population level - Intervention modified for cultural, ethnic, social groups</p> <p>4. Provider/facilitator level - modified for all of a certain practitioners clients</p> <p>5. Unit level - modified for all in that unit e.g. clinic, department</p> <p>6. Hospital/Organization level - entire organisation</p> <p>7. Networks/Community Level - entire networks or systems (e.g. all hospitals, facilities)</p> <p>Other (Give details)</p>
Who made decision to adapt	Please state where present (e.g. individual practitioner, team, non-programme staff, administration, programme developer, researcher, coalition of stakeholders, other)
Why decision to adapt	Please state where present (e.g. feasibility, acceptability)

Definitions of Actions, Contexts, Mechanisms, Outcomes and CMOCs	
Actions	<p>Mechanisms are often seen as the integral link between the context and the outcome². They uncover the “why” a given outcome may have occurred. Dalkin and colleagues³ conceptualised mechanisms as either resources or reasoning. They put forward that resources are introduced in a context, which trigger a response, which results in an outcome.</p> <p>For this research, we viewed actions used to make adaptations when scaling-up as a mechanism in the form of a resource. Actions can be acts, processes or interventions used to make, guide or support adaptations when scaling up. For example, generation of evidence which informs adaptations or participation of stakeholders. These under the right contextual conditions may fire a mechanism in the form of reasoning or response, for example awareness or commitment, which in turn may generate the outcome of interest.</p> <p>Actions may be captured twice.</p> <ul style="list-style-type: none"> • Firstly, to identify what actions were used and give a brief description (heading 2 in data extraction form). Please do not limit to actions only in the IPT and allow new actions to emerge from the data also. • Secondly, if there is a CMOC associated with that action it will be captured under the CMOC heading below (heading 3 on data extraction form). Note not all actions may have CMOCs related to them.
Contexts	<p>Contexts relate to conditions that affect mechanisms and therefore outcomes. A context can act like a dimmer switch for the triggering of mechanism to varying degrees³. Pawson and Tilley⁴ note context “<i>may not only relate to place but also to systems of interpersonal and social relationships, and even to biology, technology, economic conditions</i>”p8.</p>

Mechanisms	For this research actions were seen as a “resource”, and resulting mechanisms were the “reasoning” or response. For coding as a mechanism, it would be a response to a given action. Mechanisms in the form of reasoning are often hidden and unseen, for example awareness or commitment.
Outcomes	Outcomes can be intended or unintended consequences from actions or interventions in given context. They can be positive or negative. For this research outcomes can be proximal or distal. With distal outcomes relating to the overall aim for example adaptations with local fit or sustainability as reported by the evidence, and proximal outcomes relating to those that may occur prior to this for example ownership of intervention or consensus for adaptations.
CMOC	Context-mechanism-outcome-configuration. This is the combination of the action, context, mechanism and outcome together. This may be presented as a narrative sentence which describes the CMO combination. For example, when XX is carried out in the context of XX, this caused a response of XX which led to outcome XX.

Potential Actions, Contexts, Mechanism and Outcomes identified from the IPT framework below

Notes: Please do not limit data extraction to these codes, allow new codes to emerge as they appear in the data, or more detailed codes and categorization of below as needed.

Additionally, what is categorised as an action, context, mechanism or outcome in one instance may be categorised under another heading in another CMOC depending on the configuration. For example, ownership may be an outcome in one CMOC and a context in another. Please categorize under whichever heading is appropriate for the CMOC. Reasoning can be documented as needed.

Potential Actions	Creating and using knowledge	The creation of knowledge e.g. through evaluation, local knowledge, continual assessment mechanisms and/or the use of existing knowledge e.g. local data, real time data, routine data, evidence for intervention
	Identification of theory and core elements of intervention	The identification of theory or core elements/components of the intervention. This could involve purposeful selection of an intervention where these are known or seeking out this information for the selected intervention
	Guidance to sites	Providing guidance to local sites on intervention theory or core elements, or on how to adapt intervention
	Participation	Participation / engagement of; service users, providers, community, local organisational or government HR. This could be through various activities for example; consultations, partnerships, CBPR, local decision making
	Communication	Communication between individuals or at organisational levels
	Local decision making	Involvement of; local service users, providers, community, local organisational or government HR for decision making for adaptations. Autonomy given to local level for adaptations

	Feedback loops	Feedback loops or mechanisms in place to guide decision making for adaptations this could involve monitoring and evaluation at time points, planned consultations etc.
	Definition of roles	The transparent clarification and definition of roles and responsibilities for adaptation during scale-up
	Consideration of future adaptations and sustainability	Consideration of future adaptations and sustainability and actions planned to allow for this. This includes recognition of contexts changing overtime and actions planned to allow for this
	Create opportunities for learning	Creating opportunities for learning is purposeful activities that could assist in learning for implementers, organisational staff, the community or service users. It could relate to building capacity to complete adaptations, or learning of the context, adaptations or strategies used to address local fit. This could be formal e.g. through learning networks, or informal e.g. arranged through social networks
	Systems thinking	Systems thinking applies to an in-depth consideration of the complex links, relationships, inter-dependencies within a system. This may be difficult to capture however if an example reports use of systems thinking or describes this process it can be included as this
	Further actions to be added as identified	
Potential Contexts	Wider context	
	Political, socio-cultural and environmental factors	This is a broad heading that can capture elements of the wider system e.g. political, economic, environment that influence whether a mechanism fires. This heading will be added to and refined and learning progresses
	Community	
	Partnerships	This could be between community and an organisation. This could include the nature of the partnerships in terms of history and trust for example
	Organisational	
	Readiness	Where the organisation (or community) are ready for intervention and implementation, for example with resources, capacity in place, community sensitized to intervention, buy in for intervention exists etc. This could also capture a lack of readiness or rushing to scale
	Resources	Resources or lack of resources such as; financial, logistical or human resource availability
	Leadership	This could relate to strong leadership, or a lack of leadership which may influence adaptation and scale-up
	Organisation flexible and responsiveness to local needs	Organisation flexible and responsiveness to local needs. This could relate to where the organisation is open to receiving and acting on feedback
	Interpersonal Relationships	

	Culture of respect	Culture of respect between individuals, or within an organisation. This could include placing value on the knowledge and opinions of those in the local setting
	Culture of trust	Culture of trust between individuals, or within an organisation. This could also relate to a history or relationship of trust built over time.
	Power imbalance	Power imbalance between individuals or organisations. This could relate to a power imbalance within a community setting limiting individual's participation, or could relate to top-down/bottom-up power imbalance between funders and an organisation, or between different levels of the health system
	Individual	
	Capacity to adapt interventions	Capacity to carry out actions needed to adapt and/or implement interventions
	Intervention characteristics	
	Factors relating to make up of the intervention	For example; relative advantage, compatibility, complexity, trialability and observability. This could also include whether the intervention was simple or complex
	Intervention theory and core components known	Theory and core components of intervention known and available to sites
Further contexts to be added as identified		
Potential Mechanisms	Awareness	"Knowledge or perception of a situation or fact" ⁵ . This could relate to the local context, the need to adapt, the intervention itself or the scale-up or adaptation process
	Empowerment	The process of becoming more powerful or confident in the ability to do something ⁵ . This can include authority or power given to someone to do something
	Trust	"Firm belief in the reliability, truth, or ability of someone or something" ⁵ . Trust could relate to the intervention itself, the scale-up or adaptation process or trust between actors e.g. service users, organisation, implementers etc.
	Motivation	Intrinsic or extrinsic motivation towards the intervention, its adaptation or scale-up. Motivation is an internal process that may cause a desire or willingness ⁵ towards something this is not seen, however relating actions could be
	Support	This may capture support from an individual, community or organisation. They may approve of or encourage the intervention, the adaptation or scale-up process. This may also capture the concept of buy-in
	Commitment	"The state or quality of being dedicated to a cause, activity, etc." ⁵ . This could relate to a commitment to the problem (e.g. addressing the health problem), the intervention, adaptation or scale-up process. This differs from support as it relates to dedication or engagement and so it is more active than support alone

	Confidence	“The feeling or belief that one can have faith in or rely on someone or something.” ⁵ . Confidence relates more to self-assurance ⁶ or certainty in an ability of oneself or others. This could be confidence in the ability to adapt or implement the intervention, in the intervention itself or of other people’s ability to complete actions or goals for scale-up
	Further mechanisms to be added as identified	
Outcomes (Proximal)	Champions	Champions who support, encourage, commit to or drive the intervention and/or scale-up or adaptation process
	Ownership	A feeling or sense of ownership of the intervention and/or scale-up or adaptation process by an individual, community or organisation
	Consensus	Shared agreement or vision on the intervention, adaptation or elements of scale-up process
Outcomes (Distal)	Adaptations with local fit (acceptability, feasibility)	Adaptations made which are acceptable and/or feasible in local settings. This could be demonstrated by demand for intervention by service users, or where Interventions match local needs and resources
	Scale up with local fit	Intervention is scaled-up across sites with local fit where intervention is acceptable and/or feasible
	Sustainability	Intervention is continued to be delivered at sites or the outcome of the intervention is sustained at sites over a time. This intervention may be continually adapted and does not need to remain the same
	Further outcomes to be added as identified	

References

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2. Wong G, Greenhalgh T, Westhorp G, et al. Realist Synthesis. RAMESES Training Materials. <http://www.ramesesproject.org/>. 2013. (accessed 1st March 2017).
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