



Using Theory of Change in the development, implementation and evaluation of complex health interventions

A practical guide

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Introduction

Theory of Change (ToC) is an approach to developing, implementing and evaluating programmes of development, and has been applied across a wide range of programmatic contexts. The approach developed somewhat organically, beginning in the 1990s with work undertaken by the Aspen Institute Roundtable, who proposed ToC as an approach to evaluating community development programmes. More recently, researchers have demonstrated the benefits of using ToC to complement the MRC framework for Complex Health Interventions (CHI's)¹, arguing that ToC may offer an approach to better understanding how, why and to what extent change happens as a result of the implementation of CHIs. In addition, ToC is being used for impact evaluation at a programmatic level, providing an overview and evaluation tool to understand change within project portfolios by donors and research consortia².

Broadly, ToC can support the development of interventions, bringing together key stakeholders within the planning phase to scrutinise and address proposed approaches to achieving impact. It can also provide a rich process and impact framework to guide implementation and evaluation, addressing barriers to implementation, and incorporating the rationale behind approaches taken and contextual influences.

This guide provides a practical overview of the process of developing a Theory of Change, focussing on using a stakeholder-driven, workshop approach to achieve this.

¹ De Silva, M. J., Breuer, E., Lee, L., Asher, L., Chowdhary, N., Lund, C., & Patel, V. (2014). Theory of Change: a theory-driven approach to enhance the Medical Research Council's framework for complex interventions. *Trials*, 15(1), 267.

² Breuer E, De Silva M, Fekadu A, Luitel N, Murhar V, Nakku J, Petersen I, Lund C. (2014). Using workshops to develop Theories of Change in five low and middle income countries: lessons from the Programme for Improving Mental Health Care (PRIME). *Intl J Ment Health Syst*, 8:15.

Constructing a Theory of Change map

A ToC map looks a little like a driver diagram or a logic model. It differs from these by offering a non-linear map of a project or programme approach, which shows how different components are expected to interact, and the multiple pathways through which change is expected to happen. It terms these components as **preconditions**; the specific changes expected as a result of the project or programme being implemented. These are linked together by **causal pathways**, which determine the direction of the relationship between these changes and show how they lead to the **long term outcomes** and **impact** to which the project or programme intends to contribute. Between these preconditions, **interventions** (the concrete activities undertaken as part of the project or programme), **rationale** (the justification or existing evidence that suggests that a specific approach is likely to work in this context), **assumptions** (the uncertainties to be tested through formative research or implementation) and **indicators** (metrics of change linked to each precondition, determining whether and how much change has been achieved towards reaching this precondition) are plotted. The diagram below (figure 1) provides an example of how these different components might be illustrated on a ToC map. Annexe 1 provides further detail on the purpose of each component and Annexe 2 shows an example of a ToC developed for a Randomised Control Trial (RCT).

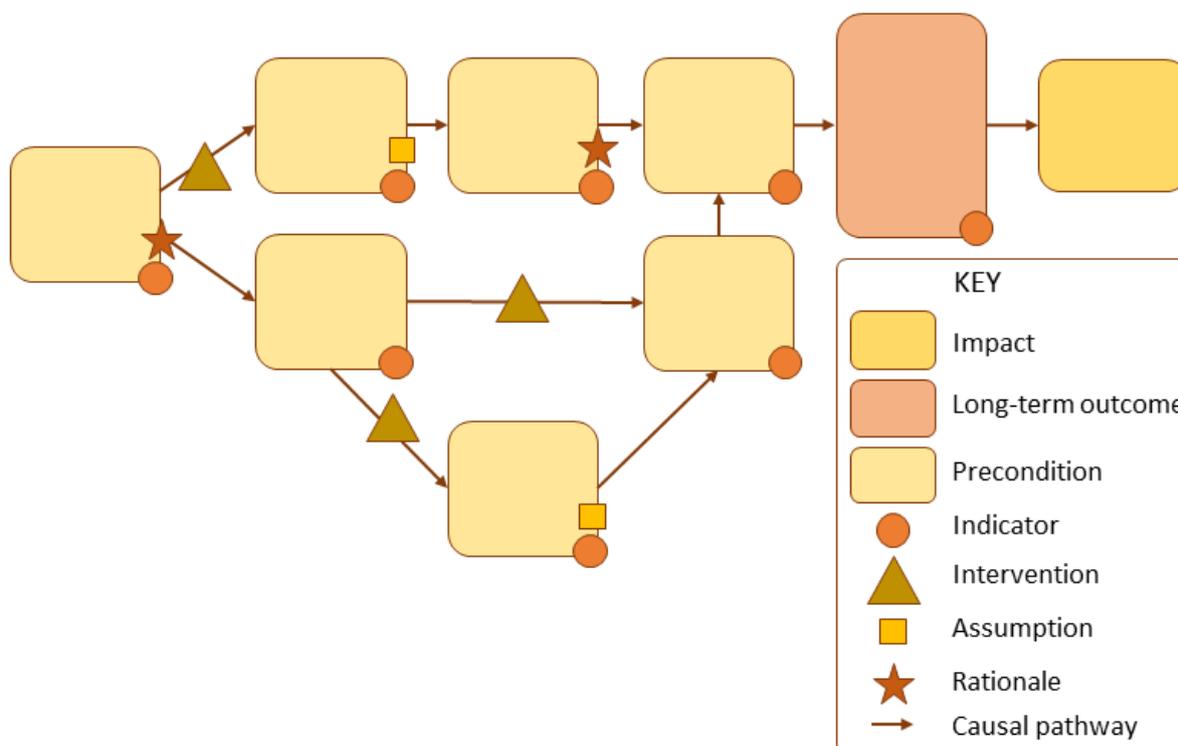


Figure 1: Example Theory of Change framework and key

Constructing a ToC map is particularly effective when:

- it is undertaken as early in intervention or programme development as possible
- it involves a range of key stakeholders
- it happens through an interactive workshop
- it is championed by one or more key members of the implementation team and its development and use is managed by that individual or team

Developing a theory of change through a stakeholder workshop: planning and logistics

Constructing a draft ToC framework is best done by project or programme stakeholders during a workshop, facilitated by someone who is experienced in using ToC. Basic tools can be used to construct a ToC in a way that allows all stakeholders to become involved in the process of developing and refining the ToC.

This section introduces the basic logistics of running a ToC workshop.

Preparing for the workshop

Assign a facilitator who is familiar with what ToC is and how to construct a ToC map. This means that the rest of the group can get on with the brainstorming rather than needing to know about the specifics of how to construct a ToC, such as how to word preconditions appropriately (Annexe 1 provides examples of this).

Ensure you have appropriate materials and space for developing the ToC as a group. It is easiest to construct the ToC map on a wall or similar surface that all participants can view easily. If you are using a wall, use large post-it notes of several colours to denote the different component types so you can colour code the ToC map (for example all preconditions may be on green post-it notes).

Set the ground rules for the group based on the group dynamics. For example, if the group knows each other well a more informal approach may work better with everyone encouraged to move the post-it notes around and write on the notes. If the group is more formal or hierarchical then the facilitator can take the lead on this.

Constructing the theory of change map

The ToC map in Annexe 2 provides a practical example of a completed ToC framework. Annexe 1 lists the definition of key ToC terms and some examples of what they are.

- A. Decide on the **IMPACT** in the real world you want to make and put this on the far right hand side of the wall.
 - ✓ *Start by thinking about where you want to end by deciding **how communities will be different because of what you do**. This may be something quite broad that your intervention alone cannot achieve, but will contribute to (for example better health and social outcomes among mother and infants in the district in which you are working). As a group this may be relatively easy to decide on as such global improvements are rarely controversial.*
 - ? *Ask the question **What is the impact or change in the real world that we want to achieve?***

- B. Brainstorm **PRECONDITIONS** needed to achieve this impact and place them in a group on the far left hand side of the wall in no particular order. This is to encourage brainstorming of preconditions rather than being constrained by trying to think of preconditions as well as the order in which they come in the causal chain.

As you start to get more preconditions, start placing them in the rough order they come in the causal chain. The process of listing preconditions and ordering them is an iterative process.

- I. The wording you use for each precondition is very important as if you don't use the correct language one precondition will not lead logically to the next.
- II. For example, "CHWs are trained in the detection of depression" does not logically lead to "depression is detected". Instead, the preconditions should be "CHWs are able to correctly identify people who are suffering from depression". Equally, "people with depression receive the intervention as intended for the duration of treatment" is much better than "people are treated" as this does not show that they are receiving the correct treatment.
- III. Getting the precondition language right is something that only the facilitator needs to be very comfortable with as they will mainly be the person writing the post-it notes.
 - ✓ **Decide on the LONG TERM OUTCOME:** *This is the final outcome that the intervention is accountable for achieving. It is often the same as the primary and secondary outcomes of the evaluation, for example improvements in symptom severity and functioning levels in people who receive the intervention.*
 - ✓ **Decide on PRECONDITIONS and determine the pathways that connect them:** *Work backwards through the logical steps (preconditions) that need to be achieved if the impact is to be achieved. Only include the preconditions that are needed to reach the goal and without which the goal could not be achieved. Focus on how the change can be produced rather than the interventions you want to deliver.*
 - ? *Ask the question: **What long-term, intermediate and early preconditions are necessary to produce this impact?** Start at the end and work backwards. Arrange the preconditions on a causal pathway where it is necessary for one precondition to be achieved before other preconditions higher up the causal pathway are achieved.*

- C. Once the precondition framework is filling out, start adding in the specific **INTERVENTIONS** that need to happen in order to move from one precondition to the next.

- ✓ *Map onto the pathway of change the specific components of the intervention that you need to do in order to achieve each precondition (e.g. community awareness campaign, treatment components based on mhGAP guidelines), and the specific activities that are required to make each component happen (for e.g. conduct training workshops and develop training materials). This reveals the often complex web of activities that is required to achieve your ultimate goal.*
- ? *Ask the question: **What interventions should be initiated to achieve preconditions and the long term outcome?***

? Ask the question: **What resources are required to implement the interventions** and maintain the contextual supports necessary for the interventions to be effective, and how does the program gain the commitment of those resources?

D. At the same time, add any **ASSUMPTIONS** or **RATIONALE** to the links in the causal chain as they occur to the group.

✓ As you build up the causal pathways linking each precondition to the next, think about the following:

- *Rationale: Why do we think a given precondition will lead to (or is necessary to) reach the one above it? For e.g., what is the evidence base that providing training for primary health care workers in the use of screening tools to detect maternal depression will lead to increased detection of maternal depression?*
- *Assumptions: Are there any major barriers to the precondition that need to be considered in our planning? E.g., are the primary health care workers too overloaded with other tasks to attend a 5 day training course on the diagnosis and treatment of depression, and are the length of patient consultations too short to allow for adequate diagnosis and treatment decisions to be made? If these barriers exist to the extent that they will prevent the next precondition in the causal pathway from being achieved, then either the interventions need to be designed to break down the barriers, or the intervention has to be redesigned to work around these barriers.*

? Ask the question: **What contextual conditions are necessary to achieve the preconditions?** Describing the barriers and facilitators to achieving the preconditions will determine the assumptions around conditions necessary to achieve the preconditions.

E. Define **INDICATORS** of success and match these to the preconditions they will measure the achievement of

✓ For each precondition, choose at least one indicator to measure whether that precondition has been achieved. Then decide on how each indicator will be measured and by whom (evaluation methods). Key questions to ask comprise:

- **Who or what** will be impacted (for e.g. mothers with depression and their infants)
- **How** does the indicator have to change by in order for us to claim that we have reached our precondition (for e.g. 20% reduction in prevalence of maternal depression).
- **How long** will it take to bring about the necessary change in this indicator in the target population? (e.g. 3 months after start of intervention).

✓ A critically important part of ToC is to decide **HOW MUCH** change is necessary in the precondition to move up the causal chain, or how much change is 'good

enough'. E.g., how many people do we need to train in order to be able to deliver the intervention as intended, or how much awareness of depression in the community is necessary for people to start seeking care? Pre-specifying the level of change needed to affect a precondition makes it easier to design the components of the intervention to affect that level of change.

- ✓ *Because preconditions are at different levels, indicators must also be measured at multiple levels, e.g. patient, community, stakeholders and care providers. This results in a more rounded evaluation with a wider range of indicators evaluated than is often the case, for e.g. knowledge and attitude surveys, strength of relationship between stakeholders, and the level of stigma towards mental illness in the community. These indicators are in addition to the standard outcome measures of effectiveness (e.g. clinical and functioning patient level outcomes) or routine process indicators such as number of people trained adherence to medication or number of therapy sessions attended.*
- ✓ *As well as WHAT to measure, ToC provides a rationale structure for WHEN to measure each precondition, as measurement points are determined by when the intended preconditions caused by the interventions specified in the TOC occur.*

- F. Be aware that interventions that take place later in the causal chain will be shaped by the preconditions of earlier interventions in the chain, so the ToC can evolve over time, and the exact nature of the later components of the intervention may not be known until later in the process (once the formative and piloting work has been done).
- G. The key thing to focus on is **MAPPING OUT THE PRECONDITIONS FRAMEWORK** or causal pathway, and not get trapped into thinking about the specific intervention components that you think you will use, as this restricts your thinking as to what is needed to achieve the desired impact.

Key advantages of using Theory of Change

It is a **common sense** approach.

It provides information about **how, why and whether** an intervention works.

It **helps a diverse range of stakeholders reach a realistic consensus** on what is to be achieved, how, using what resources and under what constraints.

It **embeds the intervention in the real world** and helps design an evaluation that will work and be implemented in real world health systems, rather than just an intervention that it is possible to evaluate in a research setting. This makes it **more likely that the intervention will be effective and be scaled up**.

It provides an **overarching theoretical framework which clearly identifies knowledge gaps** and so helps you to choose the appropriate formative and evaluation research methods within the logical steps of the MRC framework for complex interventions.

It integrates process and effectiveness evaluations into the same study under one theoretical framework and provides a framework for what is to be evaluated and when.

It facilitates **timely and informative information** about the progress of the project which can be **understood by a diverse range of audiences**.

What makes a good Theory of Change and what are the challenges when creating one?

It should be **plausible**.

Do evidence and common sense suggest that the activities, if implemented, will lead to desired preconditions?

Challenge: Tenuous causal links

The process of constructing a ToC may illustrate how tenuous some of the links between interventions and preconditions are if we do not have enough evidence to make a plausible case that doing X will cause Y. For e.g., there is a very small evidence base for the effectiveness of interventions to combat stigma to generate demand for mental health services. This does not mean that we shouldn't include this component in our intervention, but does indicate that we need to conduct more detailed formative work to develop this component, and to provide stronger evidence for whether this part of the intervention is effective.

In addition, one of the hardest things about ToC is that stakeholders have to be able to identify, prioritise, and then measure key interventions in advance, and predict the effect that these will have on preconditions. This is very hard to do. It is much easier to do the more common process of looking back at the effect of an intervention and constructing a plausible story for how we ended up where we did. It is much harder to project forward the effect that action A will have on precondition B and therefore to plan exactly where we want to go and thereby increase our chances of getting there.

It should be **doable**.

Will the economic, technical, political, institutional, and human resources be available to carry out the initiative?

Challenge: Political will/feasibility/healthcare context

Agreeing on how interventions lead to preconditions can be politically charged if achieving those preconditions implies major resource reallocation, or changes in work patterns away from the current status for e.g. task sharing. But strength of ToC is that these issues are brought centre-stage at the start of the intervention development process, and if any of them are politically unacceptable, or the resources will not be available, then all stakeholders have to compromise and be realistic and downgrade the preconditions to match the resources and political context in which the intervention is to be delivered. For e.g., if task sharing by having primary health care nurses prescribe anti-depressants is not politically acceptable, but it's the only way of achieving delivery of anti-depressants at scale in the resource context of the setting, then policy makers will have to compromise on the amount of change they will be able to effect (because fewer women will get anti-depressants if they have to see a clinician to get them so health outcomes won't change as much).

It should be **testable**.

Is the Theory of Change specific and complete enough for an evaluator to track its progress in credible and useful ways?

Testable: May make evaluation design more complex

Evaluation using the ToC framework could potentially be more complex as more preconditions need to be measured at more time points and at more levels (for e.g. patient, community, healthcare providers and stakeholders). It is currently unclear whether there are offsetting efficiencies by using a well-designed ToC that mean that overall the investment in evaluation is no greater than that which would be required for any good evaluation.

Further reading

The material in this guide was developed from a number of sources including the following key ones:

Anderson, AA. The community builder's approach to Theory of Change. A practical guide to theory development. The Aspen Institute Roundtable on Community Change.

http://www.dochas.ie/Shared/Files/4/TOC_fac_guide.pdf

Breuer E, De Silva M, Fekadu A, Luitel N, Murhar V, Nakku J, Petersen I, Lund C. (2014). Using workshops to develop Theories of Change in five low and middle income countries: lessons from the Programme for Improving Mental Health Care (PRIME). *Intl J Ment Health Syst*, 8:15

Craig, P, Dieppe, P, Macintyre, S, Michie, S, Nazareth, I, Petticrew, M. 2008. Developing and evaluating complex interventions: new guidance. Medical Research Council.

<http://www.mrc.ac.uk/Utilities/Documentrecord/index.htm?d=MRC004871>

Connell, JP, Kubisch, AC (1998). Applying a Theory of Change Approach to the Evaluation of Comprehensive Community Initiatives: Progress, Prospects, and Problems. In *New Approaches to Evaluating Community Initiatives, Vol. 2: Theory, Measurement, and Analysis*, The Aspen Institute, United States of America.

<https://communities.usaidallnet.gov/fa/system/files/Applying+Theory+of+Change+Approach.pdf>

De Silva, M. J., Breuer, E., Lee, L., Asher, L., Chowdhary, N., Lund, C., & Patel, V. (2014). Theory of Change: a theory-driven approach to enhance the Medical Research Council's framework for complex interventions. *Trials*, 15(1), 267.

Eccles, M, McColl, E, Steen, N, Rousseau, N, Grimshaw, J, Parkin, D, Purves I. 2002 Effect of computerised evidence based guidelines on management of asthma and angina in adults in primary care: cluster randomised controlled trial. *BMJ*. 26; 325(7370): 941.

Power, R, Langhaug, LF, Nyamurera, T, Wilson, D, Bassett MT, Cowan, FM. 2004. Developing complex interventions for rigorous evaluation: a case study from rural Zimbabwe *Health Education Research Theory & Practice*. Vol 19 no.5, 570–575

Weiss, C. 1995. Nothing as Practical as Good Theory: Exploring Theory-based Evaluation for Comprehensive Community Initiatives for Children and Families. In *New Approaches to Evaluating Community Initiatives: Concepts, Methods, and Contexts*, ed. James Connell et al. Washington, DC: Aspen Institute.

Website about Theory of change developed by ActKnowledge: <http://www.theoryofchange.org/>

Annexe 1: Common Theory of Change terminology and definitions

| Terminology | Definition | Examples |
|--|---|---|
| Impact (ultimate outcome, goal) | The real world change you are trying to affect. The program may contribute towards achieving this impact, and not achieve it solely on its own. | <ul style="list-style-type: none"> - Reduced prevalence of depression in a district. |
| Long term outcome | The final outcome the program is able to change on its own. | <ul style="list-style-type: none"> - Reduced prevalence of depression in the population receiving the intervention |
| Precondition (short-term, intermediate and long term outcomes, milestones) | The intended results of the interventions. Things that don't exist now, but need to exist in order for the logical causal chain not to be broken and the impact achieved. | <ul style="list-style-type: none"> - Changes in knowledge, attitudes and skills - Improvements in health status |
| Ceiling of accountability | Level at which you stop measuring whether the preconditions have been achieved and therefore stop accepting responsibility for achieving those preconditions. Line often drawn between impact and long term outcome. | <ul style="list-style-type: none"> - Project aims to change individual patient outcomes, but does not accept responsibility for changing levels of health problems in the wider population (the goal), as it cannot achieve this on its own (though it may contribute to this wider goal). |
| Indicator | Things you can measure and document to determine whether you are making progress towards, or have achieved, each precondition. | <ul style="list-style-type: none"> - Number of staff trained - Knowledge of and attitudes towards mental illness among carers - % people with mental illness diagnosed in primary care - Reduction in prevalence of mental illness |
| Interventions (strategies) | The different components of the complex intervention. A dotted arrow is used to show when an intervention is needed to move from one precondition to the next A solid arrow is used when one precondition logically leads to the next without the need for any intervention | <ul style="list-style-type: none"> - Community awareness campaign - Inter-personal therapy - Anti-depressant medication |
| Rationale | Key beliefs that underlie why one precondition is a precondition for the next, and why you must do certain activities to produce the desired preconditions. Can be based on evidence or experience. | <ul style="list-style-type: none"> - Mothers and their families need to be educated about the signs and symptoms of maternal depression in order for maternal depression to be detected in the community. |
| Assumptions | An external condition beyond the control of the project that must exist for the precondition to be achieved. | <ul style="list-style-type: none"> - Political will to support the program exist - Funder continues to fund project - Task-sharing is politically and culturally acceptable |

Annexe 2: Example Theory of Change map for maternal depression in Goa

