

Restructuring Interventions to Restructure Inequity: A Paradigm Shift Toward Complexity

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Background

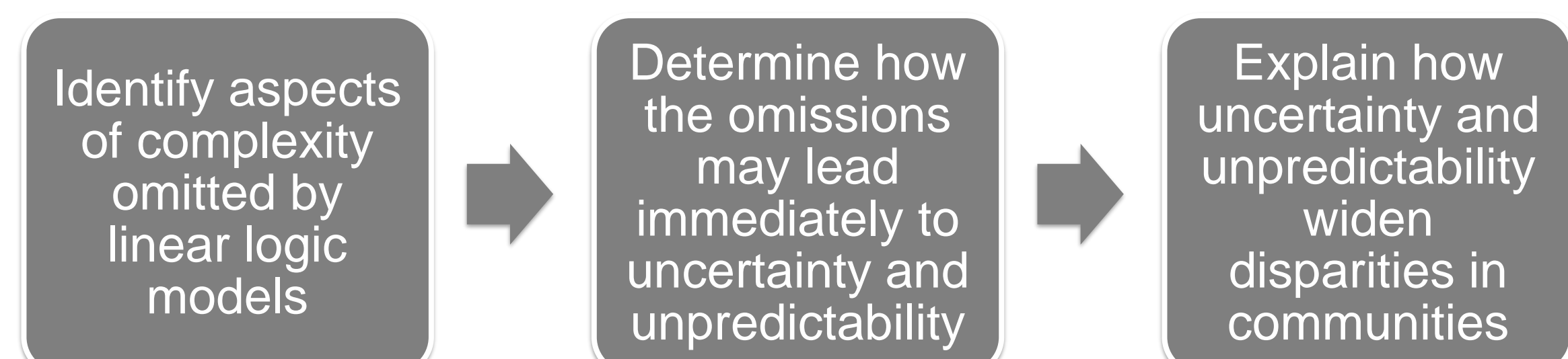
Many complex, community-based health interventions, including those aimed at reducing disparities, have proven unpredictable and ineffective upon scale-up.

Although some researchers have proposed inadequate methodology and even shortcomings in theories as explanations for this ineffectiveness, others highlight the overly simplistic planning sometimes used with complex interventions.

Previous research has demonstrated that ineffective and unpredictable interventions can result in benefit for only the already-advantaged groups in a target community, ignoring marginalized groups and effectively widening disparities.

These overly simplistic approaches manifest particularly in the use of planning models.

Purpose



Complex Systems in Public Health

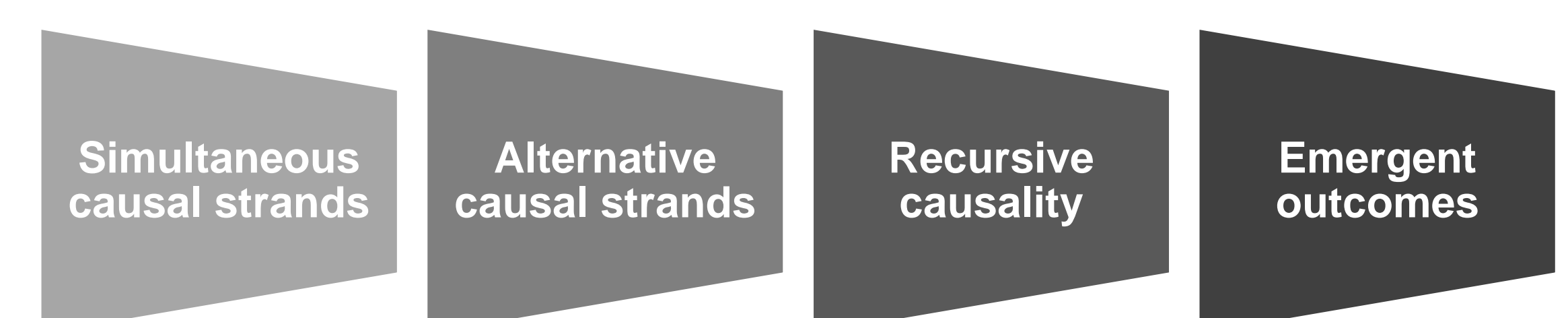
“Complex” systems are distinct from merely “complicated” systems in their non-linearity, disproportionate outcomes, and emergent properties. That is, they are inherently unpredictable.

Both interventions and their focus communities can be characterized as complex systems.

One method for planning an intervention is to create a logic model, which outlines planned activities and their intended results.

Given that complex systems are inherently unpredictable, better controlling interventions requires identifying and reducing as many uncertainties as possible within the planning (logic model) phase.

The following aspects of complex systems must be accounted for:

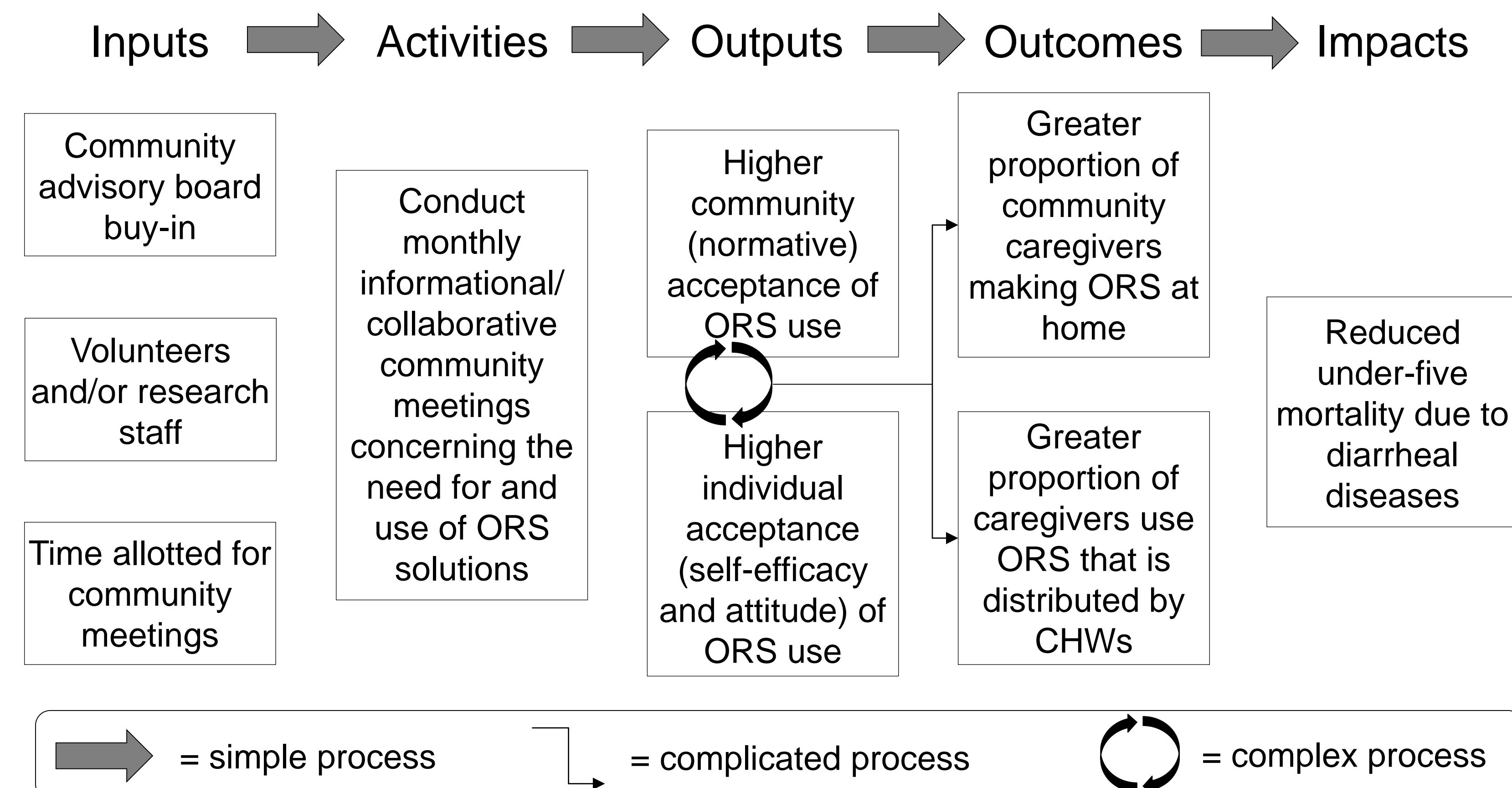


Characteristics of Complex Interventions

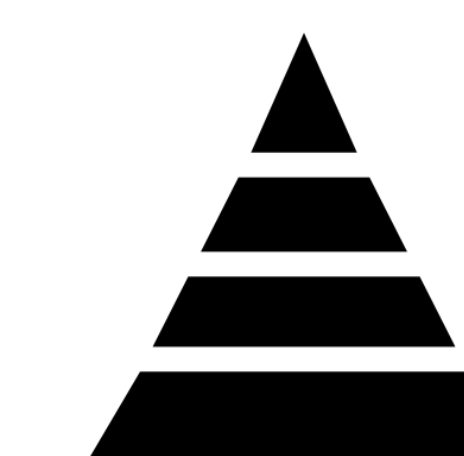
Characteristic of complex systems	Explanation	Example within a public health intervention: Reduction of under-five mortality from diarrhea
Simultaneous causal strands	An outcome may rely on several causes – not just one.	Seeking treatment for under-five diarrhea requires simultaneously adequate levels of, according to the Theory of Planned Behavior: attitude toward use of oral rehydration salts (ORS) solutions, an enabling normative environment surrounding their use, and perceived control of their use (self-efficacy).
Alternative causal strands	An outcome may be achieved via several causal pathways, depending on context.	ORS can either be prepared in-home or distributed by community health workers (CHWs). A community intervention targeting care-seeking would depend upon whether a CHW system already existed; if not, in-home preparation may require higher levels of attitude, normative beliefs, and self-efficacy.
Recursive causality	Small initial effects can lead to large outcomes, and vice versa, through feedback loops or critical tipping points.	Changing social norms concerning the need for ORS involves changing intent of individual caregivers to use it, which contributes to changing community-level normative attitudes. Community norms then serve to convince more individuals. This cycle may need to occur several times before enough people are willing to accept a community-wide distribution of ORS.
Emergent outcomes	The implementation of the intervention may produce novel outcomes as a result of unpredictable dynamics – the whole is greater than the sum of the parts.	The feedback loop described above may change the behavioral intent of the majority of community members, resulting in community-wide acceptance of ORS but also (unintentionally) in the marginalization of late adopter caregivers and subsequent opposing factions.

Note: “Outcomes” here refer only to the next step in a causal pathway – not necessarily to end results.

Example: Social Norms and ORS Use



Relevant HEAL Principles



Systems Thinking

Understanding and accounting for complex systems dynamics facilitates equitable uptake of intervention benefits

Sustainability

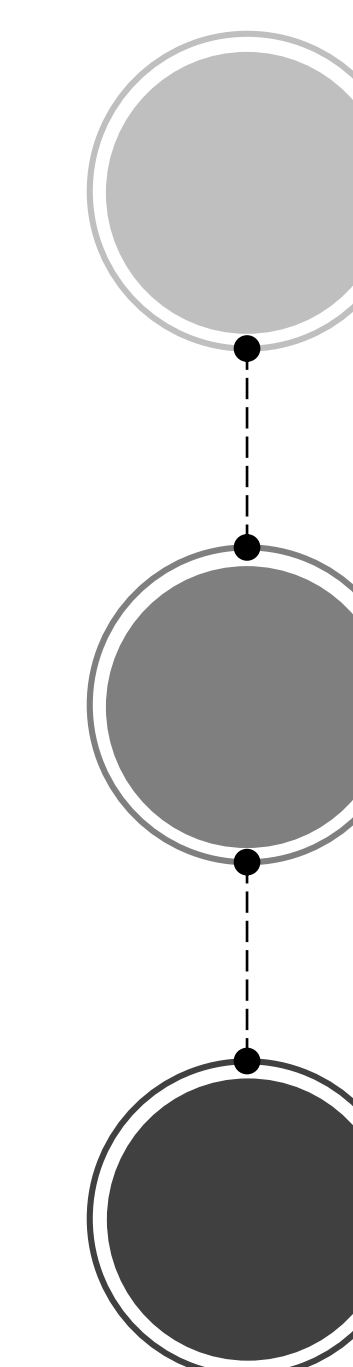
Embedding complexity within intervention design increases the likelihood of long-term sustainability for marginalized groups



Social Justice Foundation

Proper design of complex health interventions improves equitable access to preventive health

Implications for Equity



Unpredictability in intervention design leads to ineffectiveness in implementation.

In some cases, like not accounting for several simultaneous causal strands, marginalized groups derive no benefit. In others, like feedback loops causing marginalization, the intervention itself widens disparities.

Public health practitioners must identify and reduce as many uncertainties as possible within complex interventions and their settings for marginalized groups to receive any benefit and hence to shrink disparities.

Limitations

While the use of complexity in program design improves sustainability, it is also tedious and can slow down the implementation process.

The need for a paradigm shift alludes to difficulties with the widespread adoption of this approach – among researchers and funders alike – meaning its use would require changes in funding criteria.