

Implementing recommendations for community engagement for the research, development and release of gene-drives: An architectural approach

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The U.S. National Academies of Sciences, Engineering and Medicine's recent report—*Gene Drives on the Horizon: Advancing Science, Navigating Uncertainty, and Aligning Research with Public Values*—defines community engagement as *seeking and facilitating the sharing and exchange of knowledge, perspectives, and preferences between or among groups who often have differences in expertise, power, and values*. The report issues eight recommendations specific to community engagement related to the funding, design, planning, management and evaluation of community engagement activities. Similar calls for guidance on community engagement for applications of gene drives have arisen in a recent report from the J. Craig Venter Institute—*Policy and Regulatory issues for Gene Drives in Insects: Workshop Report*.

A fundamental challenge for the development of effective guidance and coordinated implementation of recommendations for community engagement in any context is the absence of a shared understanding of what community engagement *is*, what it *is not*, and *how it works*, to produce *specific outcomes of value, for relevant stakeholders*. In the absence of such an account, recommendations to develop “guidance for best practices for community engagement” (Venter Institute Report, p. 10), run the risk of unravelling into fruitless debates about the meaning of concepts, rather than effective direction for policy, practice and management.

In this paper, I describe an empirically-based “architecture” for community engagement drawn from a series of case studies in a variety of global health research contexts. I draw on Alvan Feinstein's application of the term in his seminal book—*Clinical Epidemiology: The Architecture of Clinical Research*—to articulate and describe the conceptual foundations of community engagement, its key structures and functions, and their relevance and potential value for research program design, operational and management strategies, and evaluation. I then attempt to demonstrate the applicability of this community engagement architecture by illustrating how it might be used to guide responses to the National Academies Gene Drives Report recommendations.