

Community Ecosystem Mapping to Inform Community-Engaged Research

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Abstract: Community-engaged research often struggles to reach socially embedded networks where trust, health knowledge, and care decisions circulate. This workshop introduces *Community Ecosystem Mapping (CEM)* as a participatory method to understand how information and support flow within communities. Through guided exercises and mapping tools, participants will learn how to identify community actors, map relational networks, and use these insights to design more responsive and culturally grounded community-engaged research and outreach strategies.

Background

Community-engaged research (CEnR) is increasingly recognized as essential for producing research that is relevant, ethical, and socially impactful. Communities, however, are not homogeneous populations; they are complex systems composed of diverse actors, relationships, institutions, and power dynamics. When this dynamic system is only recognized late in the research process, partnerships may become superficial and public engagement risks becoming tokenistic. Hence, understanding these dynamics early is critical before defining research questions, forming partnerships, or designing recruitment strategies.

Community Ecosystem Mapping (CEM) offers a structured and reflexive process to address these challenges. CEM systematically identifies community actors, relationships, resources, and spheres of influence to develop a nuanced understanding of the community landscape. By mapping formal and informal networks, communication channels, and community assets, this upstream approach helps researchers create a stronger foundation for ethical, inclusive, and contextually grounded research partnerships. Unlike traditional stakeholder mapping approaches, CEM emphasizes relational dynamics, informal influence structures, and community-defined assets that shape engagement processes^{1,2} and has evolved as a practical planning tool that can be adapted across different research contexts and community settings.³

Learning Objectives

1. Understand the philosophy of CEnR and the key principles and elements of CEM.
2. Learn to apply the CEM toolkit as a participatory research tool.
3. Explore how ecosystem mapping can support more effective community-engaged research and outreach.

Intended audience

This workshop is designed for graduate students, researchers, and practitioners interested in participatory research and strengthening community engagement and knowledge translation. It is particularly relevant for individuals working with underserved or hard-to-reach communities. The session will be especially valuable for graduate students and early-career researchers seeking practical tools to better understand community structures, relationships, and communication networks before initiating community-engaged research partnerships.

Format and Activities

This 90-minute arts-based interactive workshop will begin with a brief introduction on CEnR and a conceptual overview of CEM. Facilitators will then guide participants through a structured ecosystem mapping exercise using the CEM Toolkit. A case example from immigrant health research will illustrate how ecosystem mapping identified trusted community organizations, informal leaders, and communication pathways, informing outreach strategies, recruitment approaches, and data collection strategies.

Participants will also engage in hands-on small group activities where they collaboratively map key actors, relationships, and information flows within a hypothetical or real community context. The session will conclude with a short reflection on how ecosystem mapping can be integrated into participants' own research planning and community engagement practices to support more inclusive and contextually grounded research design.

Expected Learning Outcomes

By the end of the workshop, participants will

1. Gain practical experience in developing a basic community ecosystem map.
2. Identify key community actors, relationships, and information pathways relevant to any community-engaged research.
3. Leave with a structured mapping framework that can be applied to their own community-engaged research, outreach, or program design.

Conclusion

The approach presented in this workshop can be adapted across diverse research contexts and community settings, making it a flexible tool for graduate researchers working in community-engaged and participatory research.

References

1. Turin TC, Chowdhury N, Newaz T, Raihan MMH, Rahman N, Rumana N. Nurturing Acceptance for Research in the Community: Conceptualising Engagement Towards Research Through Normalisation Process Theory. *Health Expect.* 2025;28(4):e70356. doi:10.1111/hex.70356
2. Turin TC, Kazi M, Rumana N, Lasker MAA, Chowdhury N. Employing diffusion of innovation theory for 'not missing the mass' in community-engaged research. *BMJ Open.* 2023 Aug;13(8):e069680. doi:10.1136/bmjopen-2022-069680
3. Hyder I, Chowdhury N, Raihan M, Turin TC. Understanding Community Strategically for Health Promotion and Disease Prevention: Employing "Community Ecosystem Mapping." *J Natl Heart Found Bangladesh.* 2024 Sep;13(3):76–9. doi:10.61819/jnhfb.v13i3