

# USE OF GROUP MODEL BUILDING TO DEVELOP IMPLEMENTATION STRATEGIES FOR EARLY CHILDHOOD OBESITY PREVENTION

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# OVERVIEW

1. Background
  - a. Obesity prevention in early childhood
  - b. Group model building (GMB): what, why, and how
2. “Shape Up Under 5” case study
3. Benefits and challenges
4. Implications for D&I research

# INTERVENING EARLY

Birth – 5 years

Establishing healthy behaviors → healthy weight trajectories

- Feeding/nutrition
- Physical activity
- Screen time
- Sleep

**Gap:** how can communities implement interventions within naturalistic settings, and with sufficient reach and scale to achieve population-level impact?

# GROUP MODEL BUILDING (GMB)

**Participatory** method grounded in system dynamics involving community stakeholders in the process of externalizing mental models and developing visual models to better understand complex systems

Can facilitate design and adaptation of intervention strategies that take into account the inherent complexities of implementation

Glasgow RE. 2008. What types of evidence are most needed to advance behavioral medicine. *Annals of Behavioral Medicine* 35: 19-25.

Hovmand PS. 2014. *Community based system dynamics*. Springer, New York, NY.

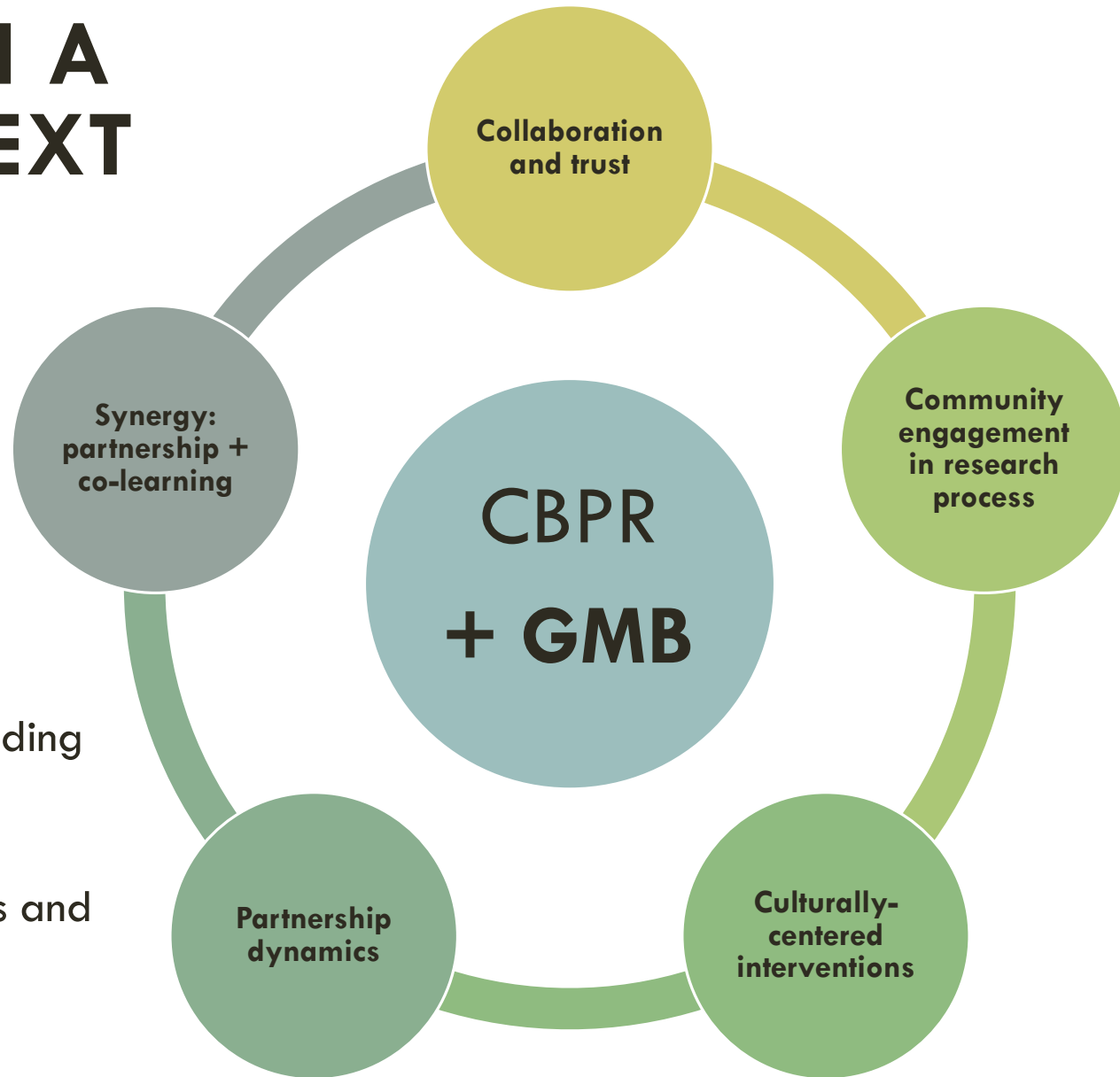
Powell BJ, RS Beidas, CC Lewis, GA Aarons, JC McMillen, EK Proctor, DS Mandell. 2015. Methods to improve the selection and tailoring of implementation strategies. *Journal of Behavioral Health Services & Research*: 1-17.

Richardson GP. 2011. Reflections on the foundations of system dynamics. *System Dynamics Review* 27(3): 219-243.

Vennix J. 1996. *Group model building*. John Wiley & Sons, New York.

# GMB WITHIN A CBPR CONTEXT

- Grounded in community expertise, experience, and language
- Identifies leverage points, barriers, and facilitators
- Promotes shared understanding and empowerment
- Bridges disparate priorities and builds consensus



CBPR Conceptual Model, Adapted from Wallerstein et al., 2008 & Wallerstein and Duran, 2010

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# GMB “HOW TO”

Select **activities/scripts** that work toward addressing a common problem of interest

- *Scriptapedia*
- Sequence of activities and boundary objects
- Divergent versus convergent
- Adaptable to fit context

**Roles:** room set-up, facilitator, meeting convener, modeler, reflector, debriefer, note takers, process coach

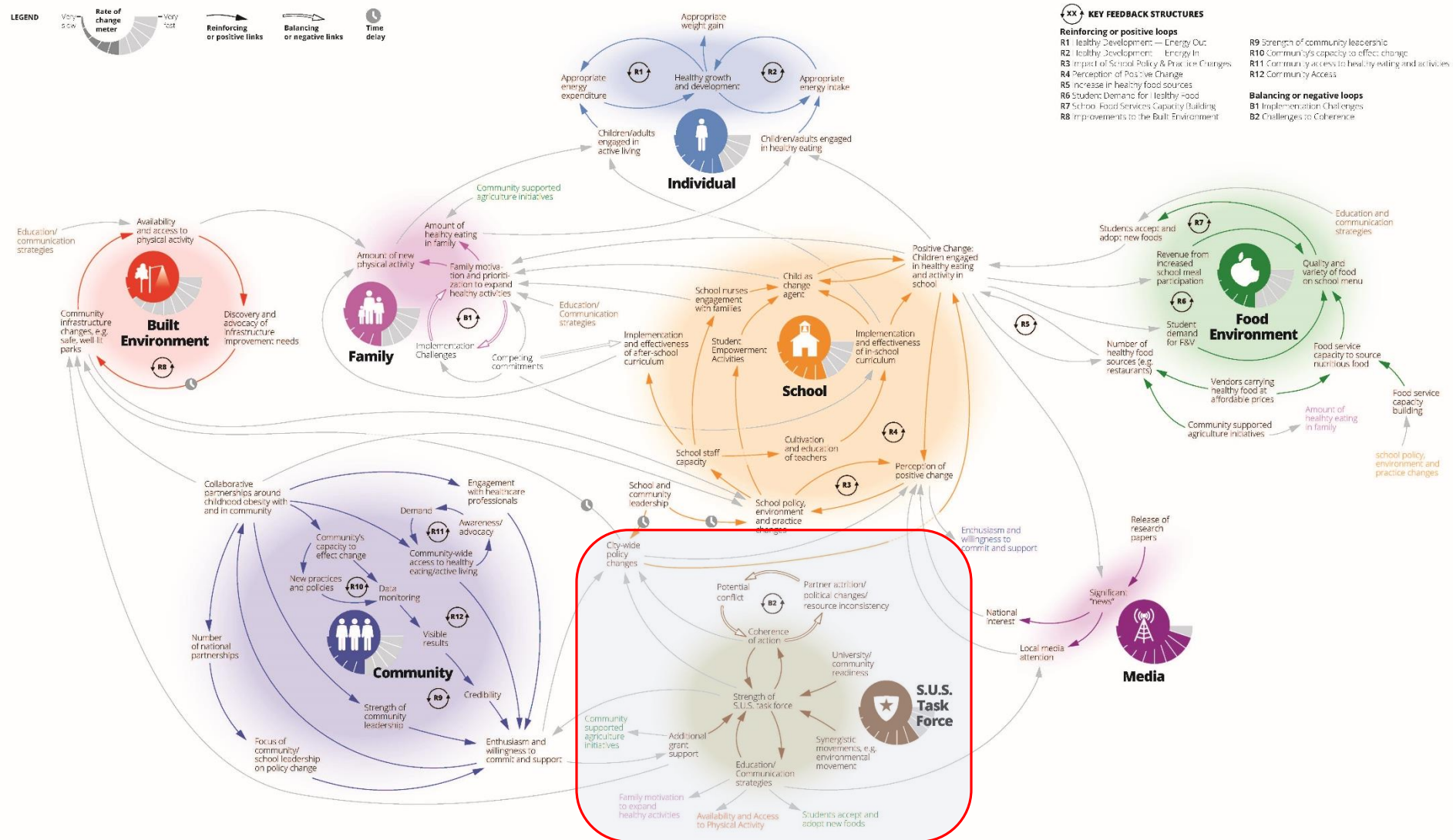
**What helps:** expertise, practice, and creativity

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# Shape Up Somerville Systems Diagram (2002-2005)



# COMPACT

## Childhood Obesity Modeling for Prevention and Community Transformation

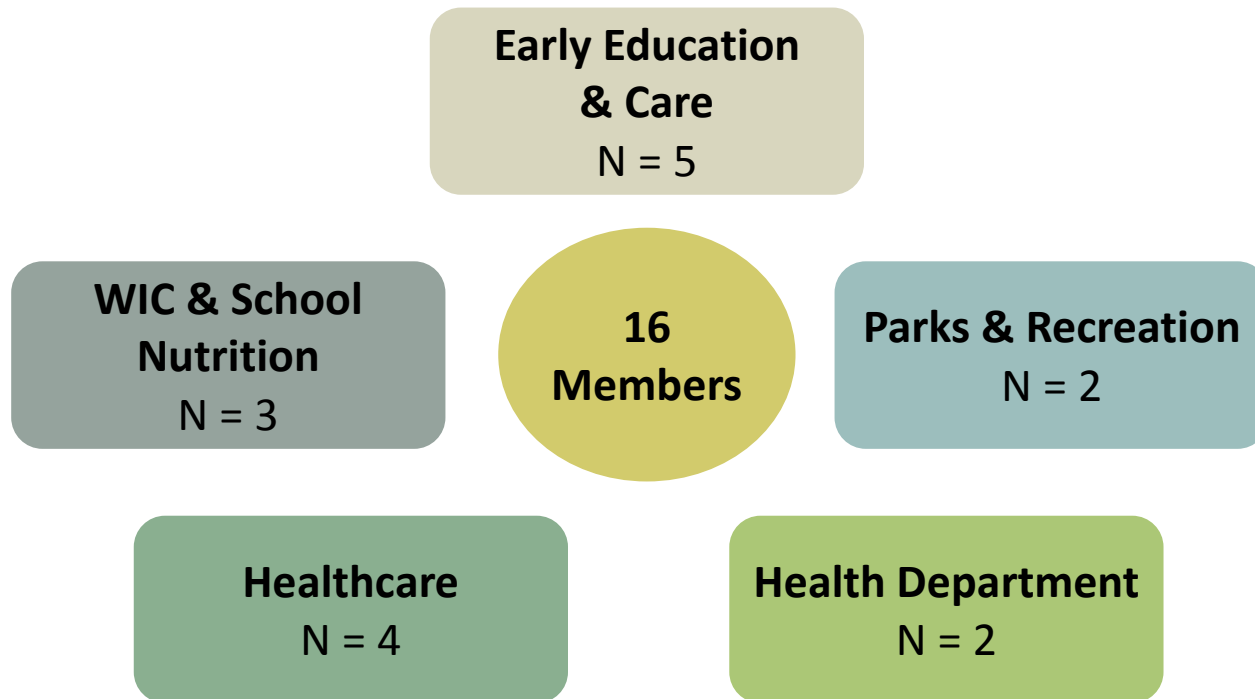


Using systems science to understand: *what interventions work, for whom, and under what circumstance?*

1. Learn from successful, completed whole-of-community interventions
2. Convene a multisector steering committee to design and conduct a new CBPR intervention that promotes healthy weights of young children



# SHAPE UP UNDER 5 COMMITTEE



# USE OF GMB IN SHAPE UP UNDER 5 COMMITTEE MEETINGS

Meeting theme

Objective

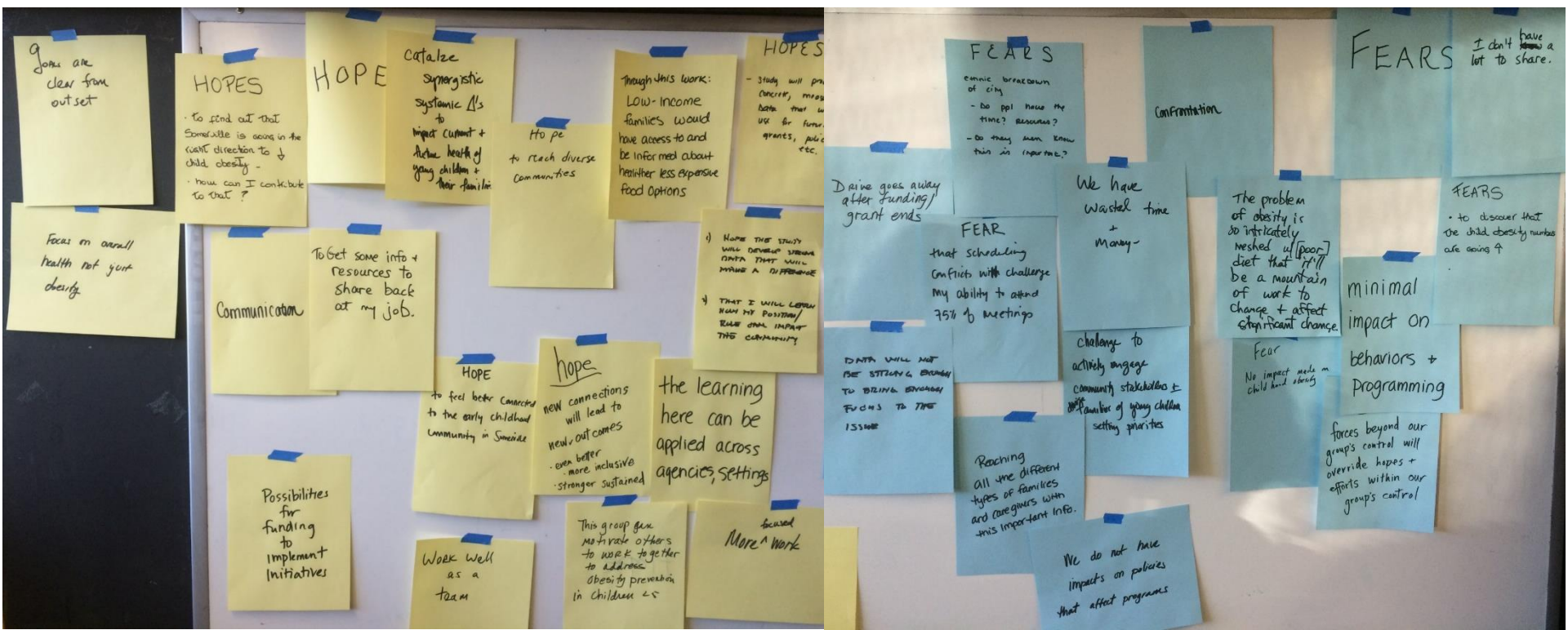
GMB activity



**Meeting theme:** Introductions & Setting the Stage

**Objective:** To establish group expectations for committee involvement and community impact

**GMB activity: Hopes & Fears**

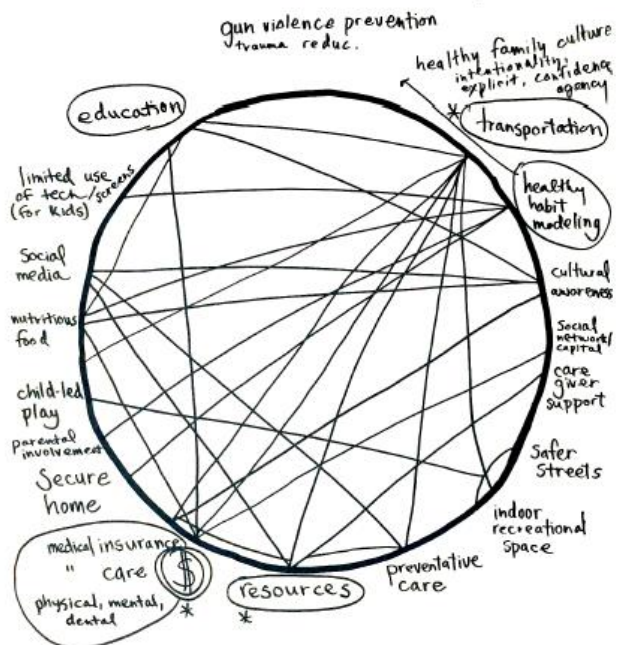
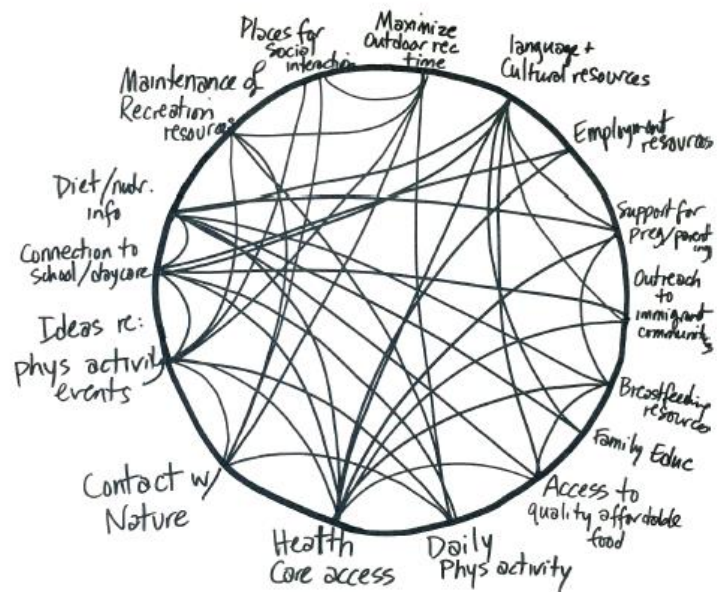
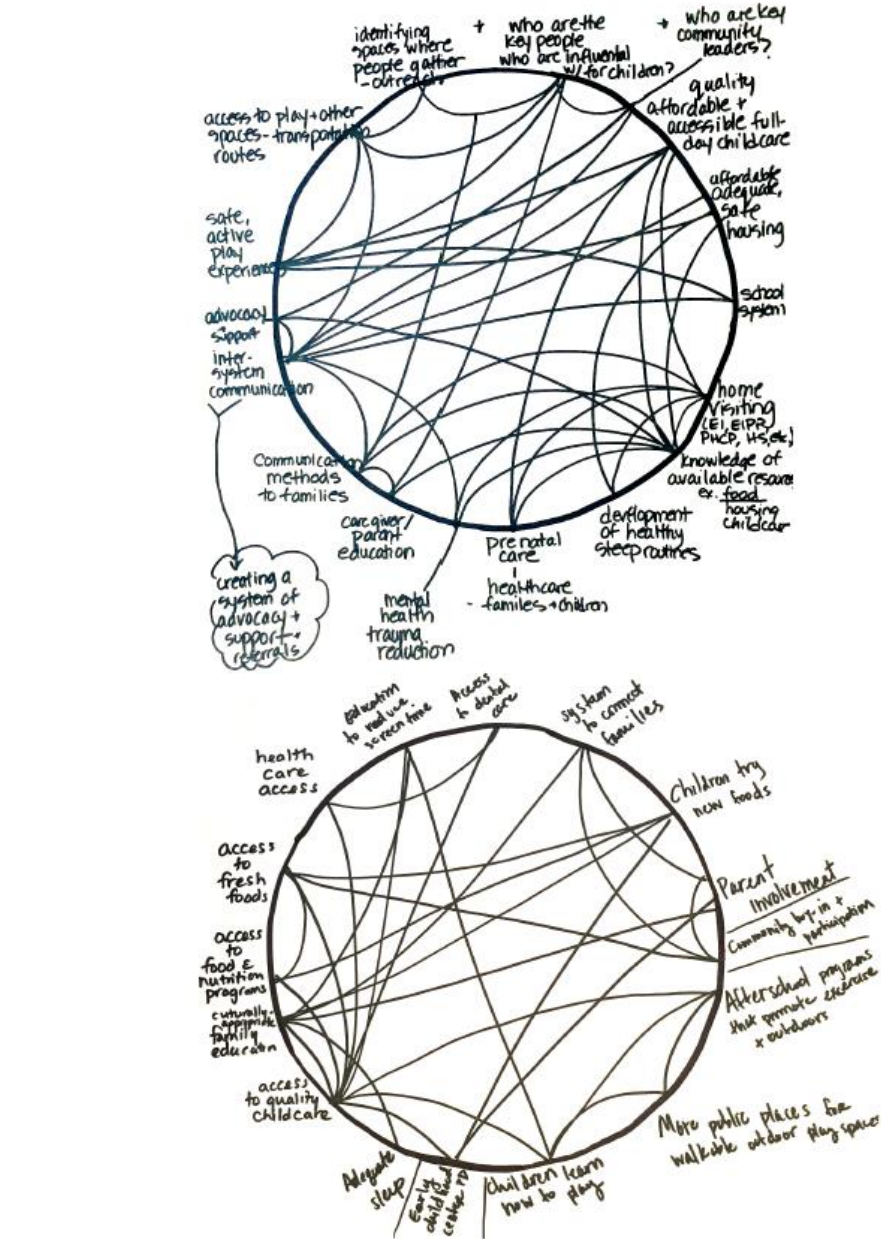




Meeting theme: Priority Sharing

Objective: To identify early childhood health priorities and connections between them

GMB activity: Connection Circles

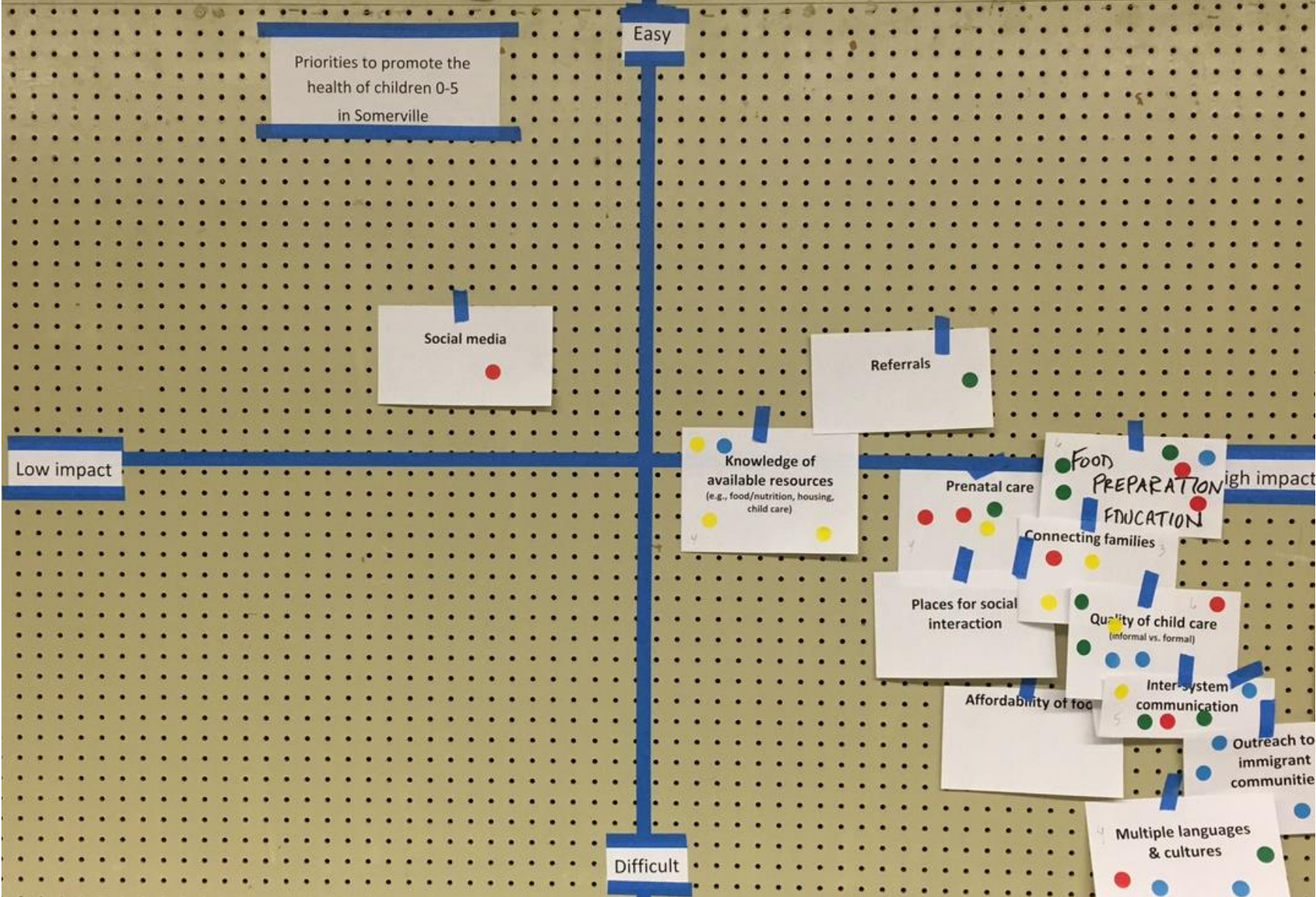




**Meeting theme:** Priority Consensus & Intervention Areas

**Objective:** To assess the feasibility and impact of intervention areas

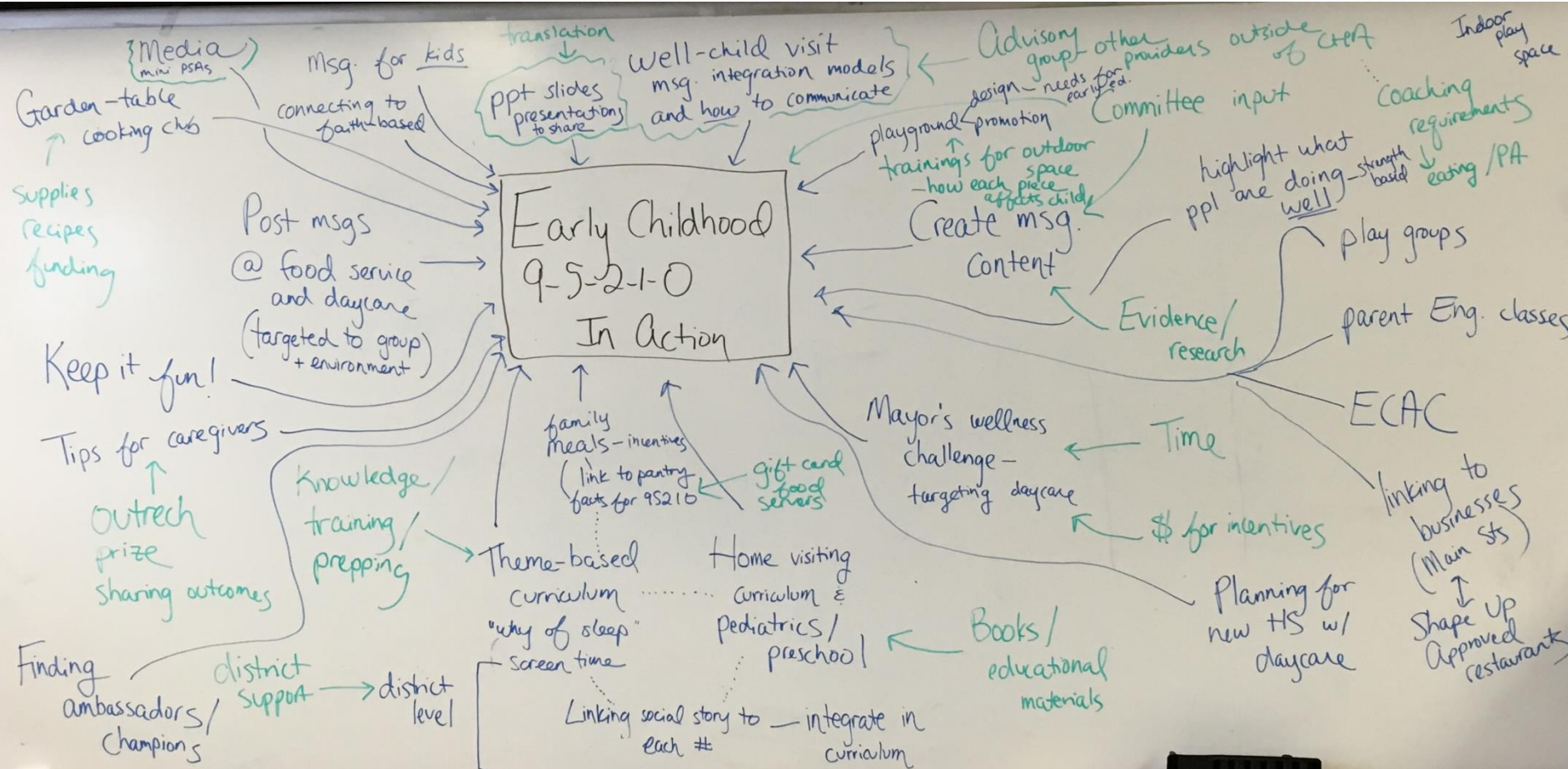
**GMB activity:** Feasibility & Impact Grid



**Meeting theme:** Early Childhood 9-5-2-1-0 in Action & Committee Roles

**Objective:** To identify potential activities and resources to disseminate a cohesive, whole-of-community obesity prevention campaign

**GMB activity: Structure Elicitation**

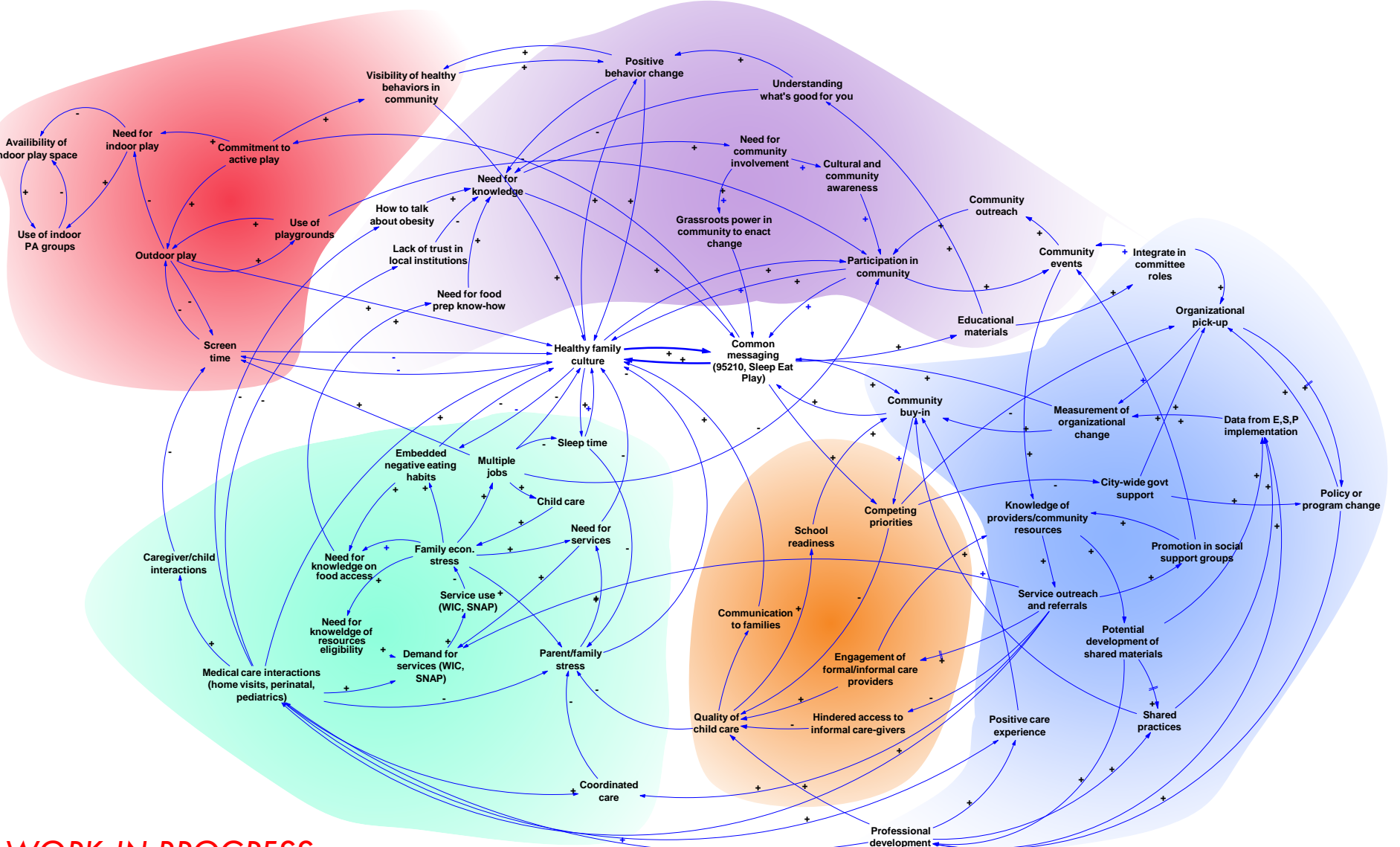




Meeting theme: Putting the Committee on the Map

Objective: To show how the role of each committee member connects to the system of promoting healthy weight in early childhood

GMB activity: Causal Loop Diagram



WORK IN PROGRESS

# BENEFITS

- Collaborative, multisector efforts
- Awareness of unique stakeholder roles and connections between them
- Buy-in to mental models
- Fit within CBPR principles

# CHALLENGES

- Evaluation
- Complexity of models and nonlinear thinking
- Training, expertise, and facilitation

# SUMMARY & IMPLICATIONS

- GMB supports effective development of tailored D&I strategies that meet community needs and priorities
- Can be used over time to address multiple processes and outcomes
- Prioritizes a highly participatory research design with buy-in from key stakeholders
- Tool for community-based interventions to tackle complex and dynamic public health problems

# THANK YOU!



Shape Up Under 5 committee  
Shape Up Under 5 research team  
COMPACT colleagues