

GEORGE WARREN BROWN SCHOOL OF SOCIAL WORK

Utilizing System Dynamics and Community Based Participatory Research to assist in the development of an Early Childhood Intervention Program

Beth L. Rotter, PhD, MPH¹, Nancy L. Zoellner, MPH², Peter S. Hovmand, PhD, MSW², Tom Santel, MBA¹, Kel Ward, BS¹

¹BJC HealthCare Raising St. Louis, ²Washington University in St. Louis



Background

- In 2011, board members from a large Midwestern hospital system decided to develop a community health intervention program
- Large low-income population with significant health disparities within the service footprint of the hospital system
- Community members and healthcare service providers highlighted that an early childhood intervention would have the most impact
- Growing scientific evidence shows that critical periods of human brain development occur during pregnancy and in the early years of life
- Initial concepts of *Raising St. Louis* early childhood development program:
 - Ground program design and delivery with community input
 - Engage existing, effective organizations as core delivery service providers
- Group model building (GMB) is a participatory method for engaging stakeholders to understand dynamic systems¹
- System dynamics has increasingly been used in Public Health to design and inform community based interventions²⁻³

Methods

Two project phases were identified:

- Provider
- Community

The first phase involved five GMB workshops with providers to understand the existing service delivery systems, identify areas of overlap and gaps, and explore design options for a "braided program."

The second phase included three GMB workshops with community stakeholders, cofacilitated by trusted community members, to understand resources needed to raise a child and identify meaningful services. Community organizations identified and recruited key individuals to participate in the GMB sessions.

Phase 1 (Provider Phase): Group Model Building (March, 2013)



Phase 2 (Community Phase): Group Model Building (July, 2013)

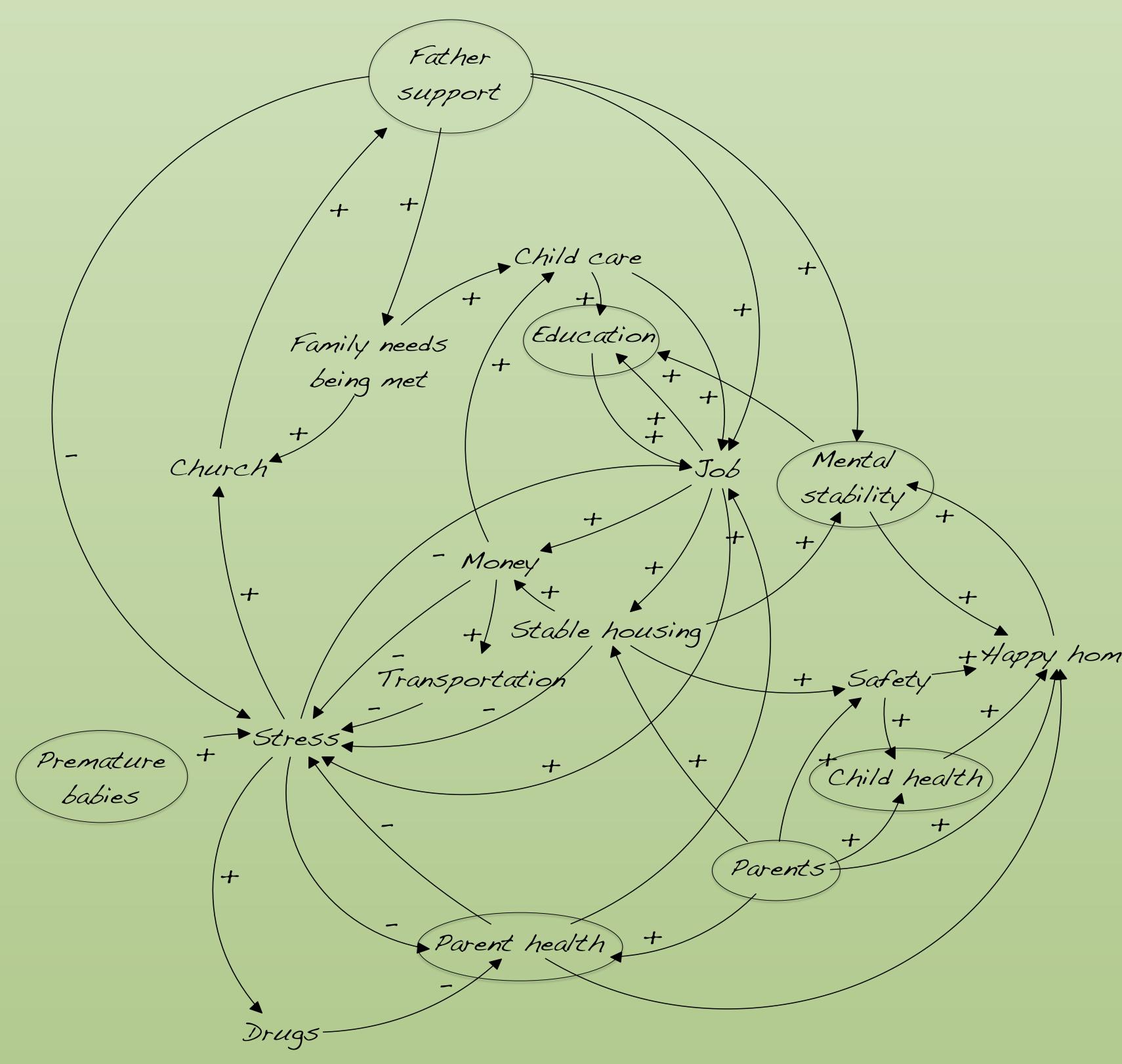




sings

Results

Phase 2 (Community Phase): Causal Loop Diagram (Workshop 2, July 30, 2013)



Conclusion

With input from the provider and community GMB sessions, the *Raising St. Louis* team:

- Developed the Service Delivery Model for the program
- Clarified and refined program goals and objectives
- Informed the design of the program's evaluation plan

This participatory work helped to formalize sustained relationships with key provider and community stakeholders.

The Raising St. Louis early childhood initiative launched in January 2014 and is actively recruiting and serving families in six zip codes in North St. Louis city.

References

¹Hovmand, P, Anderson, D, Rouwette, E, Richardson G, Rux, K, & Calhoun, A. (2012). Group model-building "scripts" as a collaborative planning tool. *Systems Research and Behavioral Science*, 29(2): 179-193.

²Homer, J & Hirsch, G. (2006). System dynamics modeling for public health: Background and opportunities. *American Journal of Public Health*, 96: 452-458.

³Hirsch, G, Homer, J, Evans, E, & Zielinski, A. (2010). A System Dynamics Model for Planning Cardiovascular Disease Interventions. American Journal of Public Health, 100(4): 616-622.

Acknowledgements

This work would not have been possible without the following:
Participants of the Provider and Community GMB sessions, Wohl Community
Center, Jeffrey Boyd, Ald., Carletta Washington, PhD, The Maternal and Child
Family Health Coalition, The Father Support Center, and the BJC HealthCare Board



