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Public health program planning logic model for community engaged Type 2 diabetes management and prevention

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ABSTRACT

Diabetes remains a growing epidemic with widening health inequity gaps in disease management, self-management knowledge, access to care and outcomes. Yet there is a paucity of evaluation tools for community engaged interventions aimed at closing the gaps and improving health. *The Guide to Community Preventive Services* (*the Community Guide*) developed by the Task Force on Community Preventive Services (the Task Force) at the Centers for Disease Control and Prevention (CDC) recommends two healthcare system level interventions, case management interventions and disease management programs, to improve glycemic control. However, as a public health resource guide for diabetes interventions a model for community engagement is a glaringly absent component of the *Community Guide* recommendations. In large part there are few evidence-based interventions featuring community engagement as a practice and system-level focus of chronic disease and Type 2 diabetes management. The central argument presented in this paper is that the absence of these types of interventions is due to the lack of tools for modeling and evaluating such interventions, especially among disparate and poor populations. A conceptual model emphasizing action-oriented micro-level community engagement is needed to complement the *Community Guide* and serve as the basis for testing and evaluation of these kinds of interventions. A unique logic model advancing the *Community Guide* diabetes recommendations toward measureable and sustainable community engagement for improved Type 2 diabetes outcomes is presented.

1. Background

The Task Force on Community Preventive Services was established by the U.S. Department of Health and Human Services (DHHS) in 1996 to develop a guide on successful and not-so successful community-based health promotion and disease prevention interventions (Truman et al., 2000). The Task Force produced The Guide to Community Preventive Services (*Community Guide*) based on systematic review and assessment of the quality of available scientific evidence of interventions identified as effective strategies for disease prevention (Task Force on Community Preventive Services, 2002). As an evolving document, the *Community Guide* serves as a reference tool for planning community-based interventions involving both population and clinical care system solutions to address several disease areas. One such area the *Community Guide* covers is interventions for diabetes mellitus (diabetes) (CDC, 2012).

Diabetes has become an increasing public health concern with adult and child obesity reaching epidemic proportions (CDC, 2011). Over the next decade, costs associated with treatment, rehabilitation and lost productivity associated with the disease are projected to rise at an exponential rate. In addition, racial and socioeconomic health equity gaps are also expected to widen if improperly or inadequately addressed (Peek, Cargill, & Huang, 2007). The *Community Guide* recommends health care system level interventions (case management and disease management) and diabetes self-management education (DSME) for improving glycemic control (blood sugar levels) in persons with diabetes (Norris et al., 2002). The recommendations are as follows:

1.1. Health care system level interventions

- Case Management—Assign a case manager to plan, coordinate, and integrate care for people with diabetes.
- Disease Management—Identify everyone with diagnosed diabetes in the community or health care delivery organization and implement care plans proven to be effective then track, measure, and manage health outcomes.

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1.2. Diabetes self-management education (DSME)

- Provide diabetes DSME in community gathering places for adults with Type 2 diabetes such as community centers, libraries, and places of worship.
- Provide diabetes DSME in the home for children and adolescents with Type 1 diabetes.

Based on the available evidence considered robust or sufficiently effective, the recommendations suggest that health care system level interventions like disease management will: (a) lower blood sugar levels by improving physician monitoring for diabetic retinopathy (eye disease); (b) prevent foot lesions and nerve damage; and (c) monitor for signs of possible kidney damage. DSME on the other hand, which can be implemented both in community and health care delivery settings, will improve an individual's control over the disease by increasing knowledge of diet, exercise and medication. Both interventions are believed to improve the patient's outcomes through affecting psychosocial mediators such as self-efficacy, social support and health beliefs (Schulz et al., 2005; Jack, Liburd, Spencer & Airhihenbuwa, 2004).

However, a disconnection remains between the *Community Guide* Type 2 diabetes recommendations and tested models of community engagement. Evidence-based presentations of models of community engagement aligned with the recommended diabetes interventions from the *Community Guide* can further efforts for more effective and sustainable outcomes in the fight against Type 2 diabetes. The logic model and recommendations that follow highlight such links and aim to advance thinking and discourse toward realizing and sustaining capacity building, efficacy and social investment among key community change agents for lower diabetes risk factors and improved health. The logic model inputs, activities and desired outcomes focus on Type 2 diabetes as an example of a preventable chronic disease requiring intensive community engagement coupled with diligent and well thought-out case management, disease management and DSME intervention (Fig. 1).

2. Rethinking community engagement

At its core, public health research and practice is shaped greatly by community engagement on a variety of levels, but significant concerns remain regarding authentic community ownership and sustainability from such efforts. Whether defined as community outreach, community mobilization or community organizing, relationships between civic and social groups, residents, local organizations and public health professionals are central to health promotion and prevention (Jones & Wells, 2007; Kieffer et al., 2004; Minkler & Wallerstein, 2003). The intensity and degree of engagement will be defined by the model of engagement chosen for a given context or environment. *The Principles of Community Engagement* [Second Edition] has defined four main models that influence engagement. The four models include Social Ecological Model, Active Community Engagement Continuum (ACE), Diffusion of Innovation and Community-Based Participatory Research (CBPR) (CDC, 2013).

The most familiar of these is perhaps the Community-Based Participatory Research model (CBPR) as it has been elevated as the optimal public health intervention approach over the last decade or so (Higgins & Metzler, 2001; McKnight, 2000). CBPR collaborations however are primarily meant to help researchers initiate, refine and often redefine research questions and develop and disseminate culturally and linguistically appropriate questionnaires and health literature. One of the underlying premises of

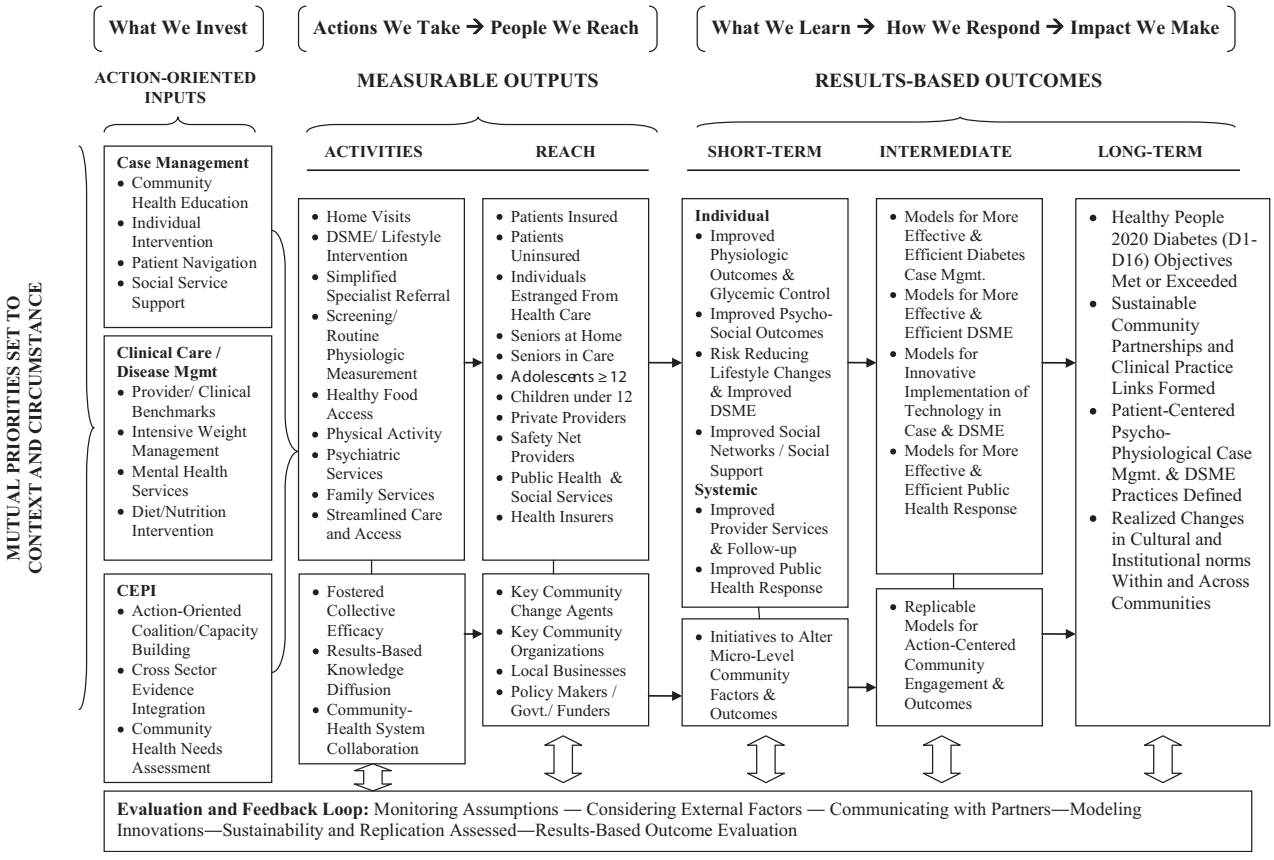

Fig. 1. Draft logic model for community engaged Type 2 diabetes intervention.