



## Primary care-public health linkages: Older primary care patients with prediabetes & type 2 diabetes encouraged to attend community-based senior centers

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### ABSTRACT

The Institute of Medicine (IOM) suggests that primary care-public health integration can improve health outcomes for vulnerable patients, but the extent to which formal linkages may enhance patients' use of community resources, or the factors that may influence providers to encourage their patients to use these resources, remain unclear. We conducted baseline assessments in 2014–2015 with 149 older adults with prediabetes or diabetes who had recently joined three senior centers linked to a network of primary care clinics in San Antonio, Texas. In addition to collecting sociodemographic and clinical characteristics, we asked members to identify their source of primary care and whether a health care provider had encouraged them to go to the senior center. We also asked members why they had joined the senior centers and which programs interested them the most. Members' source of primary care was not associated with being encouraged to attend the senior centers by a health care professional. Multivariable analysis indicated that participants with total annual household incomes of \$20,000 or less [OR = 2.78; 95% CI = (1.05, 7.14)] and those reporting 12 years of education or less [OR = 3.57; 95% CI = (1.11, 11.11)] were significantly more likely to report being encouraged to attend the senior center by a health care provider. Providers who are aware of community-based resources to support patient self-management may be just as likely to encourage their socioeconomically vulnerable patients with prediabetes or diabetes to use them as providers who have a more formal partnership with the senior centers.

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### 1. Introduction

Prediabetes and type 2 diabetes (T2D) dramatically increase with age and are major contributors to adverse health outcomes associated with aging, including functional limitations and disability (Centers of Disease Control and Prevention, 2014; Cowie et al., 2009; Blaum et al., 2003; Halter et al., 2014; Gregg et al., 2000; Espinoza et al., 2012). Lifestyle change strategies are important for preventing and controlling diabetes and reducing modifiable risk factors for cardiovascular disease (The Diabetes Prevention Program Research Group, 2005; The Look AHEAD Research Group, 2010; Avery et al., 2012; Sigal et al., 2006). Although self-management support has been identified as one of the

essential elements in the provision of high-quality care for individuals with chronic illnesses such as diabetes (Wagner and Groves, 2002; Wagner et al., 2001), health care providers have struggled to identify approaches to support self-management activities that are sustainable and cost-effective, especially within the constraints of the traditional primary care clinic. (Bodenheimer et al., 2002). The Chronic Care Model suggests that linkages to self-management support resources in the community are important for patients with chronic illnesses. (Wagner and Groves, 2002; Wagner et al., 2001). Comprehensive, community-based senior centers may play an important role in helping to preserve the health of aging primary care patients. Studies indicate that senior center participation in general is associated with positive health outcomes (Aday, 2003; Aday et al., 2006), and that preventive screenings and health promotion programs can be efficaciously delivered in senior centers (Baker et al., 2007; Sarkisian et al., 2007; Hendrix et al., 2008; Li et al., 2008; Layne et al., 2008; Speer et al., 2008; Frosch et al., 2010; Clark et al., 2011; West et al., 2011). As noted by the Institute of Medicine (IOM), there is great potential to leverage the infrastructure of community resources to implement and

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sustain effective interventions to improve health outcomes in lower income and minority individuals (Institute of Medicine, 2012).

Although there are recent attempts to implement evidence-based self-management programs in community organizations such as senior centers (Administration on Aging, 2012), a 2012 systematic review and “environmental scan” found that few examples of clinical practice-community organization partnerships exist. (Porterfield et al., 2012). The IOM suggests that the integration of primary care and public health can occur on a continuum, ranging from working in isolation in separate silos to a complete merger (Institute of Medicine, 2012). IOM implies that varying degrees of integration (i.e., mutual awareness, cooperation, collaboration, partnerships) can be used to achieve better health results (Institute of Medicine, 2012), but the extent to which formal primary care-public linkages may enhance patients' use of community resources, or the factors that may influence providers to encourage their patients to use community-based resources, remain unclear.

In this paper, we present an exploratory study describing the characteristics of Medicare-eligible adults with prediabetes and T2D who are new members of community-based multi-purpose senior centers. The senior centers, which are supported through a unique partnership between an innovative network of primary care clinics and a city municipality, serve vulnerable, older adults from lower income, predominantly Hispanic neighborhoods. Because of the IOM's suggestion that primary care's linkage to community resources can help to improve health outcomes in vulnerable patients, our objectives were to determine whether members' source of primary care was associated with their report of being encouraged to attend the senior center by a health care provider, and which patient-level characteristics prompted these referrals. Our assessment incorporated an exploration of members' reasons for joining the senior centers and the programs that interested them the most.

## 2. Methods

### 2.1. Study design and setting

We used baseline data from a longitudinal observational study focusing on new members of three multi-purpose senior centers in San Antonio, Texas that are supported by a non-profit 501(c)3 organization, the WellMed Charitable Foundation (WCF). WCF is the philanthropic partner of WellMed Medical Management Inc. (WMMI), a network of primary care clinics and the largest provider of senior health care in South Texas. The WCF jointly funds operating expenses for two of the centers through a unique partnership with the City of San Antonio, which also provides free lunches to members through the Senior Nutrition Program (SNP) funded by the City and the State of Texas. The WCF provides 100% of the operating expenses for the third center, with the City contributing SNP lunches. A WMMI clinic is co-located at each of the three centers, which have a combined membership of over 18,000.

Although WMMI is formally linked to the senior centers, membership is free and open to all adults 60 years and older, and all center services are provided at no cost, regardless of members' health plan. Approximately 30% of the senior center members are WMMI patients, while the remaining senior center members receive their primary care from non-WMMI providers or clinics. Members are required to be independent in their activities of daily living (ADLs), or to be accompanied by a caregiver if not ADL independent. Transportation barriers are minimized because the centers are on major bus routes, and each center provides free transportation to those within a 5 mile radius, if needed.

The senior centers provide a variety of programming to promote the physical, social, and emotional well-being of their members. Because of the high prevalence of obesity and diabetes in South Texas, the centers offer a variety of options to support physical activity, including a menu of exercise classes that vary in intensity and include the four categories of exercises recommended for older adults (Nelson et al., 2007). Each center has a large number of exercise and weight machines, and free weight stations. A personal trainer is available to assess members'

body mass index (BMI) and current level of physical activity, develop a personalized exercise program, and orient them to the exercise equipment. The centers also offer classes on nutrition, healthy eating, and cooking demonstrations, and also serve as distribution centers for the local food bank. The SNP lunches are nutritionally balanced and meet diabetes guidelines. A variety of evidence-based health education classes, such as the Stanford Diabetes Self-Management Program (Lorig et al., 2009), information sessions (e.g., advance directives), and support groups are available. WMMI nurses provide health screenings and immunizations, while social workers provide assistance with, or referrals to, City social services (e.g., elder abuse/fraud, emergency utility assistance). Other amenities include a lending library, cyber café and computer classes, and art classes (e.g., painting, creative writing), as well as various recreational and socialization opportunities, including games, weekly movies, and monthly parties with music and dancing.

### 2.2. Study participants

We recruited adults 65 years or older who were new senior center members using flyers and presentations at member orientation sessions. Individuals who reported being diagnosed with prediabetes or T2D were eligible, including both WMMI and non-WMMI patients. Although senior center membership is open to all adults 60 years and older, we restricted study participation to those 65 years of age and older, since WMMI serves only Medicare-eligible patients. We excluded individuals who reported being enrolled in any clinical trials, having a serious mental illness or drinking > 14 alcoholic beverages a week, or having a life expectancy of less than one year. We also excluded individuals who were planning to relocate to another city or travel for more than one month in the next year. A modest incentive (\$15 gift card) was provided for participating. All participants signed a consent form that explained their rights as research subjects, and all procedures were approved by the Institutional Review Board of the University of Texas Health Science Center at San Antonio.

### 2.3. Data collection

Baseline assessments were completed in person at the centers and included an interview conducted by a bi-lingual research associate in accordance with participants' stated language preference. Participants' responses were recorded and optically scanned into an electronic database. In addition, laboratory personnel at the co-located WMMI clinic assessed participants' height and weight and collected blood samples to assess glycemic control. During the interview, we collected information on participants' sociodemographic characteristics (i.e., age, gender, race/ethnicity, education, household income, work status, marital status). Because distance may act as a barrier, members' home address was collected to estimate their travel distance to the center defined as the shortest path along a transportation network (i.e., road). Participants were also asked to identify their source of primary care.

We assessed physical and mental functional status with the Medical Outcomes Study Short Form-12 Version 2® (MOS SF-12v2®); (Ware et al., 1996; Ware et al., 2002) difficulties in Activities of Daily Living (ADLs) and Instrumental Activities of Daily Living (IADLs); (Katz et al., 1970; Lawton and Brody, 1969) physical activity with the Rapid Assessment of Physical Activity (RAPA); (Topolski et al., 2006) chronic disease count and perceived disease burden with Bayliss' Disease Burden Checklist; (Bayliss et al., 2005) depression severity with the 15-item Yesavage Geriatric Depression Scale (GDS); (Yesavage et al., 1983) and patient activation with the 13-item Patient Activation Measure (PAM 13™). (Hibbard et al., 2004). The interview included an open-ended question asking participants why they joined the senior center. Participants were asked whether a doctor, nurse, or other health professional had recommended that they go to the center. Finally, participants were asked to indicate which activities or programs at the center interested them the most.

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