Interprofessional Collaboration in Management of Type 2 diabetes with Attention to Social

Determinants of Health

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Abstract

Interprofessional collaboration (IP) is an approach used by healthcare organizations to improve the quality of care. Studies examining effects of IP with patients with type 2 diabetes mellitus (T2DM) have shown improvement in A1C, blood pressure, lipids, self-efficacy and overall greater knowledge of disease process and management. The purpose of this project was to evaluate the impact of IP with attention to identifying and addressing social needs of patients with T2DM. Participants at least 18 years of age with an A1C >6.5% were identified; Spanish speaking patients were included in this project. The intervention included administration of Health Leads questionnaire to assess social needs. Monthly in person or phone meetings were conducted during a 3-month period. The patient had the option to meet with the doctor of nursing practice (DNP) student as well as other members of the team including the clinical pharmacist and social work intern. Baseline A1C levels were extracted from chart at 1st monthly meeting. Post A1C levels were drawn at the 3 month follow up with their primary care provider. Study outcomes include the difference in A1C goal attainment, mean A1C and patient satisfaction. Pre A1C levels in participants ranged from 7.1% to 9.8% with a mean of 8.3%. Post A1C levels ranged from 6.9% to 8.6% with a mean of 7.7%. Two cases were excluded as they did not respond to the intervention. A paired-samples *t* test was calculated to compare the mean pre A1C level to the post A1C level. The mean pre A1C level was 8.24 (*sd* .879), and the post A1C level was 7.69 (*sd* .631). A significant decrease from pre to post A1C levels was found (t (6) = 2.82, p<.05). The prevalence of Type 2 Diabetes is on the rise, as are the costs. This nation's healthcare system must promote interprofessional collaboration and do a better job of addressing SDOH to more effectively engage patients in the management of their disease.

Keywords: Interprofessional Collaboration, Type 2 Diabetes, A1c, social determinants of health

Incorporating Interprofessional Care to Address Social Factors that Contribute to Diabetes

Disease Management

Diabetes Mellitus (DM) is now considered a pandemic that is affecting millions of people

worldwide (Meetoo, McGovern, & Safadi, 2007). People with diabetes are twice as likely

to have heart disease or a stroke, diabetic retinopathy, which can result in vision loss, kidney

damage, persistent infections, and lower limb amputations (CDC, 2016). Type 2 DM is a chronic

condition upon which social determinants of health have an impact. Per Walker, Smalls,

Campbell, Strom Williams, & Egede, (2014), studies have found associations among increased

incidence, prevalence and burden of disease with increasing levels of poverty and hunger

and lower levels of income and education. There is a need to gather more information on the

relationship between social determinants of health (SDOH) and diabetes.

Problem Statement

In the United States, an estimated 48.3 million people will be diagnosed with Type 2

diabetes by 2050 (ADA, 2017). Due to advances in treatment, individuals with diabetes are

living longer with their condition and its associated complications. It can be especially difficult

for someone to manage their chronic disease if they have unmet social needs such as

transportation, housing, food insecurity, and financial strain just to list a few. Leading studies

indicate social and environmental factors account for nearly 70 percent of all health outcomes

(Healthy People/Health Economy, 2015). Therefore, effective interventions are needed to assist

patients with their unmet social needs, in order to improve health outcomes, and reduce diabetes-

related complications.

Background and Significance

Social Determinants of Health

Social determinants of health influence morbidity, mortality and functioning (Institute of Medicine, 2002). These are conditions (e.g. social, economic, and physical) as well as environments (e.g. school, church, workplace neighborhood, housing) that affect the quality of life, functioning, and overall health of individuals (Healthy people, 2014). A study conducted by Kollannoor-Samuel, et al., (2011), demonstrated that lower socio-economic status indicators were associated with poorer fasting plasma glucose and HbA1C glycemic control. Lack of affordable treatment can be a reason why patients, especially those with chronic conditions, do not adhere to therapeutic recommendations. Patel et al., (2016) used data from the National Health Interview Survey to identify the impact of perceived financial stress, financial insecurity with health care, and food insecurity on cost-related nonadherence and found that financial insecurity with healthcare and food insecurity were associated with a greater likelihood of cost-related nonadherence. A study by Seligman et al., (2012), found that participants with food insecurity were significantly more likely than food-secure participants to have poorer glycemic control. They also reported higher emotional distress related to diabetes. This is partially attributed to increased difficulty following a diabetic diet and therefore feeling less capable of being successful in managing their diabetes. Per Hill, Nielsen and Fox, (2013), "the incidence and prevalence of Type 2 diabetes appear to be socially graded, as individuals with lower income and less education are two to four times more likely to develop diabetes than more advantaged individuals." Furthermore, diabetes can decrease an individual's productivity at work, which can lead to employment related problems. This can cause the patient to feel stressed, which in turn

can have negative effects on the body such as sleep problems, muscle tension and fatigue. (Hill

et al., 2013).

Government policymakers are also noticing social determinants and their relationship to

health outcomes. The Centers for Medicare and Medicaid Services' (CMS) innovation initiative

is based on the Accountable Health Communities Model. The goal of this model is to address

health related social needs through achieving better clinical-community connections to improve

health outcomes and reduce costs (CMS, 2016). Screening for SDOH will facilitate

communication between the patient and provider and can link patients to appropriate low-cost

resources.

However, Garg, Boynton-Jarrett, and Dworkin, (2016) argue that screening for social

determinants of health can have unintended consequences. One barrier is that this process is

different from screening for medical problems for which diagnostic tools (eg. lab tests) are

available and routinely used by providers (Garg et al., 2016). In addition, providers may be

uncomfortable inquiring about social determinants due to lack of experience, inadequate training,

and perceived lack of time to address social needs during a standard 15-20-minute appointment.

Patients can become frustrated if expectations are not met. Per Garg et al., (2016) "screening for

any condition in isolation without the capacity to ensure referral and linkage to appropriate

treatment is ineffective and, arguably, unethical."

Interprofessional Collaboration

Typically, standard treatment practices for patients with diabetes include a review of

systems, focused exam, medical management with brief instruction, and follow-up in three

months (Jessee & Rutledge, 2012). However, conventional treatment strategies need to improve.

A study evaluating the effectiveness of a coordinated team group visit for T2DM found that

participants had better clinical outcomes including improved fasting blood glucose and HgA1c,

greater knowledge and better self-efficacy than those that received standard care (Jessee &

Rutledge, 2012). Another study also implemented a multidisciplinary approach consisting of

five 15-minute appointments with a diabetic educator, nutritionist, pharmacist, nurse

practitioner/endocrinologist, and psychologist at a diabetes management clinic in Phoenix,

Arizona. A retrospective chart review found significantly reduced HbA1c, diastolic blood

pressure and an increase in the percentage of patients meeting blood pressure goals of

<140/90mmHg (Buckley, et al., 2014). An added benefit to an interprofessional approach like

the ones described above is that group visits aid in the prevention of T2DM by addressing

hypertension, hyperlipidemia, and obesity. Barceló et. al., (2010) conducted a study that

evaluated an interprofessional coordinated care approach versus the standard of care for diabetic

patients in Mexico. Results showed a statistically significant improvement in A1C levels of

participants that were in the coordinated care intervention group. A study by Hutchinson (2014)

evaluated if using an interprofessional care team improved diabetes outcoming in underserved

populations. Results found that using an interprofessional care team had significant

improvements in health outcomes including a 10% improvement in HgA1c, a 9% improvement

in systolic blood pressure and a 62.6% reduction in triglycerides. Another study showed that

integrated care was associated with a 20% improvement in glycemic control among patients with

T2DM (Al Asmary et al., 2013). Interprofessional collaboration is a fairly new process, but the

literature shows that it can have a positive impact on various outcomes for patients and

professionals.

        The Interprofessional Education Collaborative Expert Panel (2011) guides healthcare

organizations and providers in understanding the core competencies of an interprofessional

collaborative practice. A benefit to implementing interprofessional collaboration is that

healthcare professionals will shift the way they think and interact with one another as well as

learn to recognize that each professional's expertise is valid and important to address the needs

of the client/family/population (WHO, 2010). An interprofessional approach can also address

barriers expressed by patients, such as excessive wait times for appointments. Who will be part

of the coordinated care team will depend on the practice and chronic disease. The team can

include primary care providers, (physicians, nurse practitioners, physician assistants), behavioral

health specialists, pharmacists, social workers, and physical and occupational therapists.

However, there are barriers to implementing an interprofessional approach. One of these

barriers is scope of practice restrictions. For example, legislation can limit a podiatric foot and

ankle surgeon to only address issues below the ankle and not be allowed to perform surgery

adjacent to the ankle. There is also resistance from providers who have traditionally treated

certain conditions and do not want to use other providers of the healthcare team. This must

change to properly address the diabetic epidemic in the United States and provide the best care to

patients with diabetes.

Internal Evidence

Currently at a Southwestern medical facility, Medicare patients are given a health risk

assessment (HRA) tool to fill out when they are new to the practice. The HRA questionnaire

addresses self-assessment of health status, physical/mental functioning, behavioral risks (e.g.

tobacco use, diet, alcohol consumption, physical activity, motor vehicle safety), and

psychological risks (e.g. stress, social isolation, pain/fatigue). This assessment is placed in the

chart for providers to use and review. However, many patients do not have this assessment on

their chart and providers do not use it as standard practice with their patients. There is not an

effective screening tool in place to identify social needs, which would then prompt a referral to the interprofessional care team project that is currently taking place.

Interprofessional coordinated care is an innovative approach that has the potential to address not only the biological component of a chronic disease, but also address social determinants of health to produce better treatment outcomes for populations living with chronic illness such as T2DM.

PICOT Question

Conventional treatment strategies, which include a single provider approach are costly and most of the time patients are referred to other specialists, which results in added costs to the patient. In addition, a process to screen for social determinants of health may result in improvement of an individual's ability to manage their health conditions once they leave the medical office. This inquiry has led to the clinically relevant PICOT question: In patients with Type 2 diabetes mellitus (T2DM), how does an interprofessional approach to addressing social determinants of health (SDOH), as compared to a single provider approach, impact HbA1c?

Search Strategy

An exhaustive review of the literature was performed, including an electronic database search and scanning of reference lists to answer this question. Four databases were searched: CINAHL, Pubmed, Scopus and Medline. Key words used in each database search included: ('interprofessional' or 'interprofessional relations' [MeSH terms] or 'multidisciplinary' or 'collaborative care' or 'team based') AND ('treatment outcome' [MeSH terms] or 'outcome assessment' [MeSH terms]) AND ('Diabetes Mellitus, Type 2' [MeSH terms]) AND ('social determinants of health' [MeSH terms]). Each keyword was searched independently yielding at times thousands of results. The keywords were then combined, and limits were placed. Overall,

30 studies were initially reviewed for inclusion in the literature review but after completing rapid

critical appraisals on the studies, only ten were chosen that met the criteria and addressed the

components of the PICO question. The ten studies were reviewed and organized into evaluation

and synthesis tables. Three systematic reviews, two qualitative studies, one randomized control

trial, two quasi-experimental studies, one retrospective and one cross sectional study. All articles

required a medical diagnosis of diabetes however each study had different inclusion criteria for

HbA1c parameters. There was a moderate degree of heterogeneity in tools used for

measurement. However, all studies evaluated HbA1c which is well known validated blood test.

Patient satisfaction in regard to care received also was assessed. For all studies, the sample

populations inclusion criteria only included adults 18 years and older. The mean age ranged

from 55-65 in 8 of the studies. One of the qualitative studies evaluated the process of

interprofessional collaboration among healthcare workers and therefore the mean age is younger.

The composition on the care team varied among the studies. A combination of diabetic

educators, providers, behavioral therapists and podiatrists were used. Five major outcome areas

were noted: A1c, blood pressure, lipid profile, self-efficacy, and quality of life. The remainder of

the measured outcomes exhibited heterogeneity.

Evidence Summary Supporting Project

In adults with T2DM, interprofessional collaboration will positively impact HbA1c

levels. The difficulty with this process is that interprofessional collaboration is done differently

among various practices. There is not a standardized process in evaluating an individual's social

needs. However, this gives flexibility to create a collaborative team that is appropriate for the

clinical setting and population. In addition, several studies showed that by working in an

integrated team, patients had a reduction in weight, lipid levels, and blood pressure. Patients also

had higher satisfaction in the care they received in teams versus traditional care. In addition,

SDOH also have an impact on health outcomes in patients with T2DM. Therefore, evaluating

SDOH with T2DM will be a vital component of the interprofessional care the patient will

receive. A social worker will be an important professional to include in any interprofessional

care team to address unmet social needs a patient may have. Synthesis table (Appendix A) is

available for review of all 10 critically appraised studies.

Purpose and Rationale

The purpose of this project is to determine the impact of interprofessional collaboration

on diabetes disease management and how it may assist health providers in better addressing

social determinants of health and achieving overall improved health outcomes.

Contribution of Theory Conceptual Framework to Utility of Evidence

The Chronic Care Model (CCM) was created in 1998 to address the deficiencies of a

healthcare system that was not properly addressing patients with chronic conditions. The CCM

model represents an approach that reconstructs medical care through partnerships between health

systems and communities. There are six components to the CCM (Appendix B): 1) health

system- organization of health care), 2) self-management support, 3) decision support, 4)

delivery system design, 5) clinical information systems, and 6) community resources and policies

(Stellefson, Dipnarine, & Stopka, 2013). A systematic review conducted by the Centers for

Disease Control and Prevention and results indicate the CCM approaches are effective in

managing diabetes in US primary care settings (Stellefson et al., 2013). Therefore, this model

will be used as a framework for the project. This project has components of the CCM integrated

such as having monthly visits with patients willing to participate to provide self-management

support. The social work intern will be able to provide the patient with community resources and

policies. The interprofessional team will provide coordinate care and remove barriers to care by working together as a team.

Evidence Based Practice Model

The Rosswurm and Larrabee Model for Evidence-Based Practice Change was chosen to guide this project. This model is comprised of six steps (See appendix C for diagram of model). The first step is to assess the need for change in practice. There is opportunity for improvement of a current interprofessional team project that is underway. An assessment of internal and external data shows that interprofessional collaborative teams have an impact on patient's health outcomes including HbA1c and patient satisfaction. There is a need to better identify and address SDOH. The second step is to locate the best evidence. The search strategy was described above, and rapid critical appraisals forms were used to evaluate the evidence. Step three is to critically analyze the evidence. Synthesis of the evidence was done in order to evaluate if the body of evidence supports a practice change. Step four is to design practice change. It will be important to clearly define the proposed practice change, and outcomes and resources will need to be defined. Step four includes the implementation of the intervention by means of a pilot study. Adjustments can be made by using feedback if necessary. The last step is to integrate the change into practice. Staff in-service education was provided to reinforce implementation of the new practice change. Ongoing monitoring can be used to identify any refinements in the new practice (Rosswurm and Larrabee, 1999).

Methods

This project was a continuation of a previous project started in the fall of 2017. The previous student found that there is a need for team-based care for individuals with type 2 diabetes in this primary care practice.

Statement of Ethical Approval

Upon approval from site privacy board and Arizona State University Institutional Review Board, patients were given the Health Leads Questionnaire to assess for social needs by medical assistants. All project participants gave written consent prior to taking part of the project.

Participants and Setting

Patients were eligible for this project if they met the following criteria: (a) 18 years of age or older, (b) active diagnosis of Type 2 Diabetes, (c) A1C >6.5%, (d) English or Spanish as primary language. This project took place in a primary care facility in the Southwestern United States

Study Design and Intervention

The following health care professionals were part of this project in order to promote interprofessional collaboration: DNP student, primary care physician, clinical pharmacist, and Master of Social Work (MSW) student. The Health Leads questionnaire consisted of 10 yes/no clinically validated health questions pulled from the following sources: Veterans Administration Questionnaire, Children's Health Watch Survey, Behavioral Risk Factor Survey, U.S. Department of Justice, Survey of Income and Program Participation, STOFHLA tool, and the USDA Household Food Survey (Health Leads, 2016). During the office visit, the primary care provider reviewed patient's current A1C level. Afterward, the questionnaires were reviewed by the DNP student. Patients and their families were invited to spend one day or more a month for a total of 3 months in meetings with the DNP student and if needed, other members of the collaborative team. During the first meeting, written consent was obtained, and the DNP student gave diabetes counseling. Patient specific goals were established and if the patient had any

unmet social needs, the DNP student referred them to the MSW student. The clinical pharmacist would send weekly data of patients that met criteria for screening; she was also available for medication counseling. Subsequent monthly meetings were done in person or via phone, whichever was most convenient for the patient. Goals were re-evaluated and if any unmet social needs arose during conversation, the patient was referred to the MSW student again. A post-intervention A1C was measured during the patient's 3-month follow up visit with primary care provider. This project did not have a proposed budget in place as community resource list was already established by the facility and interprofessional care team did not receive compensation for being part of the team.

Project Results

A total of 69 patients were given the Health Leads questionnaire by the medical assistants. Out of the 69 patients who completed the questionnaire, 19 consented to participate in the project. Seven of the participants were female (36.8%) and twelve were male (85.7%). A total of fifteen participants were Hispanic (78.9%) and four patients were Caucasian (21.1%). Participants age ranged from 41 to 86 with a mean age of 66. Six (31.6%) participants spoke Spanish as their primary language.

The following social needs were identified through the Health Leads Questionnaire: "In the last 12 months, did you ever eat less than you felt you should because there wasn't enough money for food?", with 5.3% answering positively (n=1); "Are you worried that in the next 2 months you may not have stable housing?", with 5.3% answering positively (n=1); "In the last 12 months, have you needed to see a doctor but could not because of cost, with 15.8% answering positively (n=3); and "Do you ever need help reading hospital materials?", with 36.8 % answering positively (n=6). The participants were referred to the MSW student for assistant with

these social needs. A total of nine participants (n=9) completed the 3-month project; the rest were lost to attrition.

Pre and Post intervention A1C levels were measured. Pre A1C levels ranged from 7.1% to 9.8% with a mean of 8.3%. Post A1C levels ranged from 6.9% to 8.6% with a mean of 7.7%. Two cases were excluded as they did not respond to the intervention. A paired-samples *t* test was calculated to compare the mean pre A1C level to the post A1C level. The mean pre A1C level was 8.24 (*sd* .879), and the post A1C level was 7.69 (*sd* .631). A significant decrease from pre to post A1C levels was found (t (6) = 2.82, p<.030).

Discussion

Overall this project had a positive impact on patients A1C levels. Of the nine participants that completed the project, two had an increase in the post A1C levels. This project was completed over the holiday season which both participants stated as a reason for a rise in A1C levels as they overindulged in holiday foods & drinks. High attrition rate was also noted. The DNP student made several attempts to follow up via phone but was unsuccessful. Participants who did answer the phone call stated life events such as caring for loved ones, moving, change in insurance health plans, and lack of time off from work, as reasons for not coming in for 3-month follow up. Thus, a longer project time frame would be helpful in decreasing attrition rate as more time would allow participants to come in for follow up.

Regarding the impact this project had on the provider level, patients expressed a greater understanding of Type 2 diabetes disease process and management when receiving information in their native tongue.

After completion of this project, the primary care office supervisor agrees that screening of social needs should be implemented system wide. However, this facility will need to decide who will be designated to review the screening forms and refer the patient to the social worker for assistance with their social needs. Although universal screening of social needs was the goal, the Health Leads questionnaire was not given to all eligible patients, which contributed to low recruitment. Barriers to implementation of universal screening via the Health Leads questionnaire included acceptance from Medical Assistants (MA) of this new task, perception of importance of giving questionnaire to patient, and overall motivation to screen every eligible patient. Including key individuals such as the clinical manager in universal screening implementation may improve this barrier.

On a separate note, the Health Leads questionnaire identified the need for accessible and affordable dental services. A study evaluating individuals with diabetes and periodontal disease receiving care at all Veterans Administration medical centers and clinics in the United States showed that long-term periodontal care improves long-term glycemic control among individuals with type 2 diabetes (Merchant et al., 2016). Currently, Arizona's Medicaid agency, Arizona Health Care Cost Containment System (AHCCCS) covers emergency dental care with AHCCCS- contracted dentists for adults age 21 and older (max $1,000/year) (AHCCCS, 2017). Unfortunately, preventative dental care and other dental treatments like root canals are not covered. Dental care is crucial for patients that have type 2 diabetes; therefore, policy makers in Arizona should continue to work on improving the affordability of dental services, especially for the underserved.

Conclusion

According to the CDC, in 2006 the United States spent over $7,000 dollars per person, more than twice the average of 29 other developed countries in health-related expenditures (CDC, 2009). As a healthcare system, we have made tremendous progress in developing and using effective screening interventions such as mammograms, colon cancer screening, and cervical screening to name a few. However, our healthcare system is remains essentially reactive. Individuals tend to seek care if they have an illness, injury or bothersome symptom. However, primary care offices have an opportunity to address unmet social needs, especially with patients with chronic conditions. Without a strategic standardized screening process, patient's social needs will continue to negatively impact their ability to manage their chronic disease. The diabetes disease price tag in the US for 2012 was $245 billion (ADA, 2013). These costs will continue to rise and be very costly to society. Therefore, it is the hope of this project to provide a systematic approach to assessing SDOH with the use of an interprofessional care team in order to improve the patient's ability to better manage their chronic disease.

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Appendix A

Table 1

Synthesis Table

	Zwarenstein	Walker	Walker	Korner	Author Jessee	Gucciardi	Fitzgerald	Brown	Bishay	Al Asmary
					Study Characteristics					
Year	2009	2014	2014	2016	2012	2016	2017	2016	2013	2013
Design:										
SR	X		X	X						
CSS		X						X		
RCT								X		
QES					X					X
Qualitative						X	X			
Retrospective									X	
Setting:										
Community	X	X	X	X	X	X		X		
Hospital	X		X					X	X	
Alliance grantee sites							X			
Outpatient teaching hospital										X
					Population Demographics					
Time		12 months			3 months	1 year period	5 year period	6 month pilot	Full study program was 30 months	Max 6 months
PC										
FG		38.4%				!00% DE 43.8% PCP		37% IDEAS	55%	58.5%

CG- comparison group, **CHW-** community health worker **DSME-** diabetic self-management education, **DV-** dependent variable, **DE-**diabetic educators, **EC-**exclusion criteria **FG=** female gender, **GMV:** group medical visits, **HgA1c-** glycated hemoglobin, **HP-** healthcare professional, **IDEAS-**Integrated diabetes education and assessment service, **IC**: inclusion criteria **IPC-**interprofessional collaboration, **IG-**intervention group, **IPT-** interprofessional teamwork **IV=** independent variable**, MG=** male gender, **MMSE-** mini mental status exam **NPCT-** Nurse practitioner coordination team **PCP-**primary care physician, **QES-**quasi-experimental study, **RCT-** randomized control trial, **SDOH-** social determinants of health, **SS-** #of study sites, **T2DM-** Type 2 Diabetes Mellitus

							28% Hospital			
					Independent Variables					
SDOH		X								
IPC ("team interventions, multidisciplinary interventions")	X		X	X	X	X	X	X	X	X
					Measurable outcomes					
HbA1c		X	X	X	X	X	X	X	X	X
Fasting glucose					X					X
Waist circumference									X	
Blood pressure		X	X							X
Lipid profile		X	X							X
Self-efficacy		X			X					
Patient satisfaction	X			X				X		
QOL		X	X					X		

CG- comparison group, **CHW-** community health worker **DSME-** diabetic self-management education, **DV-** dependent variable, **DE-**diabetic educators, **EC-**exclusion criteria **FG=** female gender, **GMV:** group medical visits, **HgA1c-** glycated hemoglobin, **HP-** healthcare professional, **IDEAS-**Integrated diabetes education and assessment service, **IC**: inclusion criteria **IPC-**interprofessional collaboration, **IG-**intervention group, **IPT-** interprofessional teamwork **IV=** independent variable**, MG=** male gender, **MMSE-** mini mental status exam **NPCT-** Nurse practitioner coordination team **PCP-**primary care physician, **QES-**quasi-experimental study, **RCT-** randomized control trial, **SDOH-** social determinants of health, **SS-** #of study sites, **T2DM-** Type 2 Diabetes Mellitus
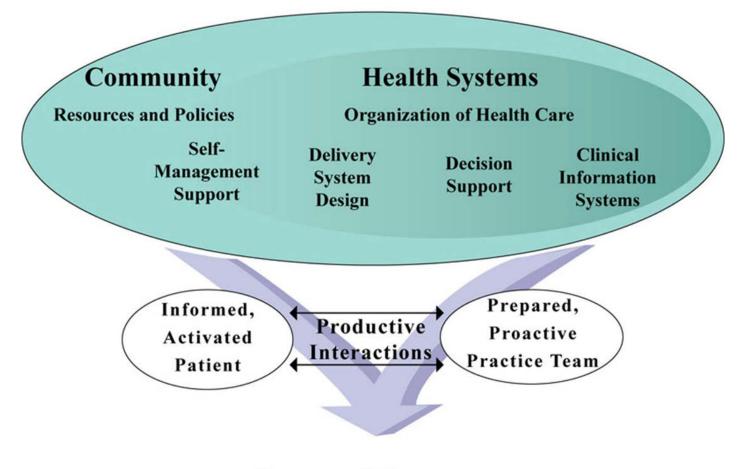
Appendix B

Figure 1

The Chronic Care Model

Community

Resources and Policies

Health Systems

Organization of Health Care

Self-Management Support

Delivery System Design

Decision Support

Clinical Information Systems

Informed, Activated Patient

Productive Interactions

Prepared, Proactive Practice Team

Improved Outcomes

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Appendix C

Figure 2

Model for Evidence-Based Practice Change

Step 1: Assess the need for change in practice
- Include stakeholders
- Collect internal data about current practice
- Compare external data with internal data
- Identify problem
- Link problem, interventions, and outcomes

Step 2: Locate the best evidence
- Identify types and sources of evidence
- Review research concepts
- Plan the search
- Conduct the search

Step 6: Integrate and maintain change in practice
- Communicate recommended change to stakeholders
- Integrate into standards of practice
- Monitor process and outcomes periodically
- Celebrate and disseminate results of project

Step 3: Critically analyze the evidence
- Critically appraise and weigh the evidence
- Synthesize the best evidence
- Assess feasibility, benefits, and risks of new practice

Step 5: Implement and evaluate change in practice
- Implement pilot study
- Evaluate processes, outcomes, and costs
- Develop conclusions and recommendations

Step 4: Design practice change
- Define proposed change
- Identify needed resources
- Design the evaluation of the pilot
- Design the implementation plan

figure 11.4   A model of evidence-based practice change (Larrabee, J. H. [2009]. *Nurse to nurse: Evidence-based practice*. New York: McGraw-Hill. Used with permission.)