Perceived Barriers of Adult Medicine Nurses for Providing Self-Management Education to Type 2 Diabetic Patients

THESIS

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Abstract

According to available literature, controlling type 2 diabetes through self-management prevents additional complications that will increase healthcare costs. Nurses are in the first line for providing patients with self-management education and training, they typically get to know the patients on a more personal level than the physicians and address feelings and attitudes rather than just the disease itself. The fact that self-management education being provided by nurses is not consistent despite positive results and policy enforcement/recommendation is concerning. This study aims to assess the perceived attitudes and perceived barriers that exist thus contributing to the literature by describing the perceived self-management provider barriers that exist in a city funded Public Health system serving under represented communities, where the need for providing said self-management education is crucial.

This study will address the following research objectives:

1. Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging.

2. Describe adult medicine nurses level of training and ability to provide diabetes self-management education.

3. Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.
This is a descriptive study utilizing a triangulation technique employing pre-collected de-identified data from both a questionnaire and focus groups/interview to optimize the objectives of the study. The data was collected as a quality assurance program by a second year Master of Public Health candidate completing Practicum hours at a large public health department in a major metropolitan American city. The sample utilized was convenience sample; thirty four participants (both nurses and CMAs) for the questionnaire and eight total nurses (from five different clinics) for the focus groups/interviews. None of the available participants declined participation. The data was examined qualitatively by three separate field experts for the emergence of themes and checked against each other for consensus.

Themes emerging as barriers to providing patient education were both patient/provider and organizational in nature. Patient/provider barriers included themes such as: education level of patient, patient understanding/acceptance of illness, compliance of medication, diet or exercise, language barrier, culture/religion, age of patient and income. Organizational barriers included themes such as: lack of current materials, time, short staffing, and lack of Certified Diabetes Educators. The themes that emerged were consistent with the available literature.

Perceived expertise of the nurses was found to be inconsistent between the questionnaire and focus group/interview. Of the nurses who took the questionnaire, 75% felt they were knowledgeable and confident in their ability to provide appropriate self-management training. The other quarter stated their knowledge was “adequate” and they need more training. The focus groups/interviews, responses painted a different picture.
The same nurses responded in these groups stating they did not feel confident in their knowledge and needed more time to perform the function and up to date training and materials to keep up with current practices. This difference is speculated to be due to the different methods utilized to collect the data.

Finally, the methods used to provide self-management education identified were in line with adult learning techniques such as repeat, practical, reinforce and teach back. The responses are consistent with what the literature recommends, indicating the nurses know and understand the principles that are found in the literature. However, there is an opportunity to develop a more systematic approach in order to overcome the barriers identified through the first research question and ensure continuity of care.
Acknowledgments

I would like to express my special appreciation and thanks to my advisors both Professors Dr. Jill Clutter and Dr. Randi Love, you have been a tremendous mentor for me. I would like to thank you for encouraging my research and for allowing me to grow as a research scientist. Your advice on both research as well as on my career have been priceless. I would also like to thank my committee members, professor Dr. Elizabeth Klein and professor Dr. Georgianna Sergakis for serving as my committee members even during tight time constraints. I also want to thank you for letting my defense be an enjoyable moment, and for your brilliant comments and suggestions, thanks to you.
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Fields of Study

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Major Field:  Allied Medical Professions
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Chapter 1: Introduction

STATEMENT OF THE PROBLEM

Type 2 diabetes is a metabolic disorder that is characterized by high blood glucose in the context of insulin resistance and relative insulin deficiency. Type 2 diabetes accounts for over 90% of diagnosed diabetes cases. It is associated with older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity. Diet, insulin, and oral medication to lower blood glucose levels are the foundation of diabetes treatment and management. Many people with type 2 diabetes can control their blood glucose by following a healthy meal plan and exercise program, losing excess weight, and taking oral medication (6, 63).

Diabetes affects 25.8 million Americans of all ages; 8.3 percent of the U.S. population in 2011. 18.8 million have been diagnosed with diabetes while 7.0 million people have been estimated as undiagnosed. Numbers continue to rise as obesity and inactivity increase and the aging population continues to grow. About 1.9 million people over 20 years of age were newly diagnosed in 2010 (6). Diabetes can increase one’s risk for developing other chronic diseases and complications (57). Therefore, cost of treating type 2 diabetes and its complications has increased substantially over the years.
In America, The National Council of Aging reports that chronic diseases account for 75% of the money our nation spends on health care, yet only 1% of health dollars are spent on public efforts to improve overall health (36). Costs associated with Americans living with diabetes were reported in 2007 totaling $174 billion from both direct and indirect cost (6). Direct costs ($116 billion) include medical expenditures while indirect costs ($58 billion) include disability, work loss and premature mortality.

Policymakers and managers of health services, in developing and developed countries alike, are increasingly giving serious consideration to self-management support for people with chronic conditions. This is because the burden of chronic disease is rapidly becoming the main contributor to loss of life and well-being, and is impinging on the effective structural and economic function of health care systems (16, 27, 45-46). The number of people with chronic conditions is enormous and growing.

The cost savings associated with chronic disease self-management and fewer complications include fewer emergency room visits, inpatient stays, outpatient visits and fewer hospitalizations (36). With diabetes being a chronic disease, cost savings are obvious through self-management intervention and reduce healthcare costs substantially. Wang et al. found that both lifestyle and metformin interventions for preventing type 2 diabetes in China could result in substantial cost savings in anticipated health expenditures in 2030 (58). The study showed excessive costs increase proportional to the number of complications, so the importance of preventing complications through the use of more effective regimens should be considered. Wood conducted a study evaluating a hospital based diabetes education program. Ninety-three hospitalized patients with
diabetes were followed for a 4-month period after discharge. Fifty-three of them attended an inpatient diabetes education program. The study demonstrated a decrease in emergency room visits 4 months after a short-duration intervention, thus improving economic burden (64).

As health care reform is ongoing in attempting to see better health outcomes and lowering costs, nursing becomes a valuable and visible contributor to managed care systems. Today, as self-management support is often being performed more and more by nurses, aligned expectations for patient education must occur for successful patient self-efficacy. Behavioral change for patients is a complex process and requires more than the simple acquisition of knowledge. The nurse plays an important role in providing the patient with the ability to achieve said behavioral change with regards to the health condition at hand (52).

Many factors contribute to lack of providing appropriate patient education. In most settings, the proportion that is being managed according to clinical guidelines is low (15, 29, 44, 67). Both identifying and understanding barriers to ensure adherence to diabetes standards of care in the patient’s self-management and the clinician interventions are the first steps in improving diabetes care and success in diabetes management.

PURPOSE & RESEARCH QUESTIONS

Diabetes self-management refers to the various tasks which persons with type 2 diabetes need to perform and engage in on a regular basis, including self-monitoring of blood–glucose, taking medications properly, physical activity, healthy eating, foot examinations at regular intervals, and other self-management activities (32). Since cost
benefits are being realized through this activity, more policies are enforcing that providers (i.e. nurses) equip patients with the appropriate skills and education to accomplish this. There are many barriers that may impact this effort, such as patient, provider and organizational barriers. The research questions focus on addressing the perceived barriers of nurses.

After reviewing the literature regarding patient/provider barriers, several themes have been identified. Factors include attitudes and beliefs, and provider knowledge, adapting to learning styles, literacy and communication, cultural sensitivity and technology (32). In addition to these themes, nurses reported lack of counseling skills and insufficient time as organizational barriers in effective lifestyle counseling (20). Furthermore, theories to address some of these themes include Health Belief Model, The Social Cognitive Theory and Self-efficacy model, Adult Learning Theory and Motivation for Learning, and Collaborative Communication (18, 24, 47, 52). This research will use pre-collected de-identified data that was gathered in two parts. Questions were constructed in a questionnaire for part one and administered through focus group/interview in part two to address themes and theories identified throughout available literature. See the appendix A and appendix B to review the research questions from both part one and two.

In this study, the following research questions were addressed:

1. Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging.
2. Describe adult medicine nurses level of training and ability to provide diabetes self-management education.

3. Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.

DEFINITION OF TERMS

Type 2 Diabetes – Non-insulin dependent diabetes “adult onset diabetes”

Self-management – ability of individual to apply techniques, skills, or interventions to effectively take care of his or her diabetes

Barrier – obstacle that prevents movement or access

Perceived barriers – The adjective "perceived" (barriers) implies that the individual's judgment about the number and strength of barriers is a cognitive process.

ASSUMPTIONS & LIMITATIONS:

The following limitations are identified:

1. The data being utilized is pre-collected and de-identified. It was gathered for purposes outside the scope of this study.

2. The participants were asked to self-report their perceptions regarding patient education and barriers to providing this education to diabetic patients. This study did not confirm self-reported information with further assessments. The sole use of self-reported data may not have been an accurate representation of what is actually occurring in the clinical setting.

3. The sample was a convenience sample of adult medicine nurses in an unidentified, large publically funded department of public health clinic system; five
clinics total. Participation was on a voluntary basis and therefore random selection was not applied.

4. The study was used to describe participants’ perceptions of barriers to providing type 2 diabetic patients with self-management education, as well as their attitudes towards patient and organizational barriers. This information is purely subjective, and therefore may not be most representative of the target population.

SIGNIFICANCE OF STUDY

According to the literature, controlling type 2 diabetes through self-management prevents additional complications that will increase healthcare costs. The fact that self-management education being provided by nurses is not consistent despite positive results and policy enforcement/recommendation is concerning. This study aims to assess the perceived attitudes and perceived barriers that exist thus contributing to the literature by describing the self-management provider barriers that exist in a city funded Public Health system serving under represented communities, where the need for providing said self-management education is crucial.
Chapter 2: Literature Review

1) DIABETES

a) Etiology –

Diabetes mellitus, or simply diabetes, is a group of metabolic diseases in which a person has high blood sugar, either because the pancreas does not produce enough insulin, or because cells do not respond to the insulin that is produced (6, 62). There are three types of diabetes:

• Type 1 - Insulin dependent diabetes “juvenile diabetes”
• Type 2 – Non-insulin dependent diabetes “adult onset diabetes”
• Gestational diabetes

Type 2 diabetes accounts for over 90% of diagnosed diabetes cases, while Type 1 diabetes and Gestational diabetes account for the remaining cases.

Type 2 diabetes is a metabolic disorder that is characterized by high blood glucose in the context of insulin resistance and related insulin deficiency. When the body does not respond normally to the insulin it makes, it requires more and more insulin to maintain normal blood sugar levels. Over time, the necessity of producing all this extra insulin puts a terrible strain on the insulin-producing (beta) cells in the pancreas. Eventually these cells can’t make enough insulin, insulin production falls off, and insulin deficiency develops. If this happens, blood sugar levels can increase dramatically.
Type 2 diabetes is associated with older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity. African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Native Hawaiians or Other Pacific Islanders are at particularly high risk for type 2 diabetes and its complications. Type 2 diabetes in children and adolescents, although still rare, is being diagnosed more frequently among American Indians, African Americans, Hispanic/Latino Americans, and Asians/Pacific Islanders.

Diet, insulin, and oral medication to lower blood glucose levels are the foundation of diabetes treatment and management. Many people with type 2 diabetes can control their blood glucose by following a healthy meal plan and exercise program, losing excess weight, and taking oral medication. Medications for each individual with diabetes will often change during the course of the disease. Some people with type 2 diabetes may also need insulin to control their blood glucose.

Patient education and self-care practices are also important aspects of disease management that help people with diabetes lead normal lives. Self-management education or training is a key step in improving health outcomes and quality of life. It focuses on self-care behaviors, such as healthy eating, being active, and monitoring blood sugar. It is a collaborative process in which diabetes educators help people with or at risk for diabetes gain the knowledge and problem-solving and coping skills needed to successfully self-manage the disease and its related conditions.

b) Prevalence
Diabetes affects 25.8 million Americans of all ages; 8.3 percent of the U.S. population in 2011. 18.8 million have been diagnosed with diabetes while 7.0 million people have been estimated as undiagnosed. Numbers continue to rise as obesity and inactivity increase and the aging population continues to grow. About 1.9 million people over 20 years of age were newly diagnosed in 2010.

About 27% of the 65 and older population have been diagnosed with diabetes. This is significant because this population often suffers from other health conditions which are compounded with the presence of diabetes. The table below is an excerpt taken from the 2011 National Diabetes Fact Sheet commissioned by the CDC (6).

<table>
<thead>
<tr>
<th>Ages &gt;= 20 years</th>
<th>25.6 million, or 11.3 percent, of all people in this age group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages &gt;= 65 years</td>
<td>10.9 million, or 26.9 percent, of all people in this age group</td>
</tr>
<tr>
<td>Men</td>
<td>13.0 million, or 11.8 percent, of all men ages &gt;= 20 years</td>
</tr>
<tr>
<td>Women</td>
<td>12.6 million, or 10.8 percent, of all women ages 20 years or older</td>
</tr>
<tr>
<td>Non-Hispanic whites</td>
<td>15.7 million, or 10.2 percent, of all non-Hispanic whites ages 20 years or older</td>
</tr>
<tr>
<td>Non-Hispanic blacks</td>
<td>4.9 million, or 18.7 percent, of all non-Hispanic blacks ages 20 years or older</td>
</tr>
</tbody>
</table>
This is not just a problem in the United States. The prevalence of diabetes is growing worldwide with 220 million people reported as having the disease. The World Health Organization (WHO) projects that diabetes related deaths will double between 2005 and 2030 and suggests that simple lifestyle measures such as diet and exercise change can be used for prevention (65).

e) Complications and Cost

Diabetes can increase one’s risk for developing other chronic diseases and complications (57). Therefore, cost of treating type 2 diabetes and its complications has increased substantially over the years. The table below is a list of complications associated with diabetes as reported by the CDC (6):

Table 2. Complications Associated with Diabetes as Reported by the CDC (6)

<table>
<thead>
<tr>
<th>Complication</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heart disease and stroke</td>
<td>In 2004, heart disease was noted on 68% of diabetes-related death certificates among people aged 65 years or older. In 2004, stroke was noted on 16% of diabetes-related death certificates among people aged 65 years or older. Adults with diabetes have heart disease death rates about 2 to 4 times higher than adults without diabetes. The risk for stroke is 2 to 4 times higher among people with diabetes.</td>
</tr>
</tbody>
</table>

Continued
Table 2 Continued

<table>
<thead>
<tr>
<th>Hypertension</th>
<th>In 2005–2008, of adults aged 20 years or older with self-reported diabetes, 67% had blood pressure greater than or equal to 140/90 millimeters of mercury (mmHg) or used prescription medications for hypertension.</th>
</tr>
</thead>
</table>
| Blindness and eye problems | Diabetes is the leading cause of new cases of blindness among adults aged 20–74 years.  
In 2005–2008, 4.2 million (28.5%) people with diabetes aged 40 years or older had diabetic retinopathy, and of these, 655,000 (4.4% of those with diabetes) had advanced diabetic retinopathy that could lead to severe vision loss. |
| Kidney disease     | Diabetes is the leading cause of kidney failure, accounting for 44% of all new cases of kidney failure in 2008.  
In 2008, 48,374 people with diabetes began treatment for end-stage kidney disease.  
In 2008, a total of 202,290 people with end-stage kidney disease due to diabetes were living on chronic dialysis or with a kidney transplant. |
Table 2 Continued

| Nervous system disease | About 60% to 70% of people with diabetes have mild to severe forms of nervous system damage. The results of such damage include impaired sensation or pain in the feet or hands, slowed digestion of food in the stomach, carpal tunnel syndrome, erectile dysfunction, or other nerve problems. Almost 30% of people with diabetes aged 40 years or older have impaired sensation in the feet (i.e., at least one area that lacks feeling). Severe forms of diabetic nerve disease are a major contributing cause of lower-extremity amputations. |
| Amputations | More than 60% of nontraumatic lower-limb amputations occur in people with diabetes. In 2006, about 65,700 nontraumatic lower-limb amputations were performed in people with diabetes. |
Table 2 Continued

| Dental disease | Periodontal (gum) disease is more common in people with diabetes. Among young adults, those with diabetes have about twice the risk of those without diabetes. Adults aged 45 years or older with poorly controlled diabetes (A1c > 9%) were 2.9 times more likely to have severe periodontitis than those without diabetes. The likelihood was even greater (4.6 times) among smokers with poorly controlled diabetes. About one-third of people with diabetes have severe periodontal disease consisting of loss of attachment (5 millimeters or more) of the gums to the teeth. |

A recently published long-term follow-up of the cardiovascular disease patients with diabetes showed that with strict HbA1c control, reductions in short term and some long term complications will result (33). For example, major reductions in major cardiovascular events over a 16-year period of time were observed. Reduced eye, kidney, and heart complications in those with improved glucose and blood pressure control were also documented.

Globally, the annual direct costs of diabetes, which include costs incurred for patient transport and care in addition to direct medical costs, for people age 20 to 79 years are estimated to be at least $129 billion and as much as $241 billion or possibly
more in 2006 (19). The direct costs of diabetes consume from 2.5% to 15.0% of annual healthcare budgets, depending on local prevalence and the sophistication of available treatments. In 2025, diabetes care costs are anticipated to account for between 7% and 13% of the world’s healthcare budget. In America, The National Council of Aging reports that chronic diseases account for 75% of the money our nation spends on health care, yet only 1% of health dollars are spent on public efforts to improve overall health (36). Costs associated with Americans living with diabetes were reported in 2007 totaling $174 billion from both direct and indirect cost (6). Direct costs ($116 billion) include medical expenditures while indirect costs ($58 billion) include disability, work loss and premature mortality.

When evaluating the relationship between diabetes disease management and improved health and cost outcomes, it is useful to consider three separate links: 1) enhanced disease monitoring (e.g. regular HbA1c testing, LDL testing, foot exams, retinal exams); 2) improved physiological outcomes (i.e. HbA1c levels, LDL levels, and blood pressure levels); and 3) improved health outcomes (e.g. reduced incidence of complications and premature death) and reduced medical care utilization (e.g. reduction in diabetes-related hospital admissions)(12). There is a considerable literature suggesting that diabetes disease management programs can be effective at improving monitoring and physiological outcomes over the short to medium time frame. For example, several papers provide evidence that diabetes management programs lead to increased rates of disease monitoring and (in some studies) to reductions in HbA1c and lipid levels.
A recent study by Fireman and colleagues (2004) presents the longest evaluation of the utilization and cost consequences of diabetes disease management reported in the literature. The authors examine testing rates, physiological outcomes, utilization, and medical care costs over a six year time period for Kaiser patients with four different chronic diseases (asthma, coronary artery disease, diabetes, and heart failure). For diabetic patients, disease management was associated with increased testing rates (A1c and LDL); improved physiological outcomes (lowered LDL levels); and increased use of guideline-recommended medications. In the utilization and cost analyses, the experiences of diabetic patients were compared to the experiences of patients without diabetes over the same time period. In terms of percentage changes, utilization among diabetics compares favorably to utilization among non-diabetics – diabetic patients experienced larger percentage decreases (physician visits, ER visits, inpatient admissions) or smaller percentage increases (inpatient days) in utilization relative to the comparison group. The authors note that as prevalence and diagnosis rates for diabetes increased over the time period, the average health improvements and utilization decreases may have been due to decreases in the average illness severity over time (11).

The cost savings associated with chronic disease self-management and fewer complications include fewer emergency room visits, inpatient stays, outpatient visits and fewer hospitalizations (36). Wheeler et al. compared potential cost savings between a group receiving a disease self-management program versus a group not receiving the program (control group). Program participants experienced 46% fewer in-patient days (P <0.05) and 49% lower in-patient costs (P <0.10) than the control group, thus
demonstrating a disease self-management program can reduce health care utilization and potentially yield monetary benefits (59). With diabetes being a chronic disease, cost savings are obvious through self-management intervention and reduce healthcare costs substantially. Wang et al. found that both lifestyle and metformin interventions for preventing type 2 diabetes in China could result in substantial cost savings in anticipated health expenditures in 2030 (58). The study showed excessive costs increase proportional to the number of complications, so the importance of preventing complications through the use of more effective regimens should be considered. Wood conducted a study evaluating a hospital-based diabetes education program. Ninety-three hospitalized patients with diabetes were followed for a 4-month period after discharge. Fifty-three of them attended an inpatient diabetes education program. The study demonstrated a decrease in emergency room visits 4 months after a short-duration intervention, thus improving economic burden (64). Other studies examine cross-sectional differences in rates of complication and medical care utilization for patient groups with different HbA1c levels. These studies find lower rates of complication and lower utilization among diabetics with lower HbA1c levels (12).

2) CHRONIC DISEASE SELF-MANAGEMENT

a) Policy

Policymakers and managers of health services, in developing and developed countries alike, are increasingly giving serious consideration to self-management support for people with chronic conditions. This is because the burden of chronic disease is rapidly becoming the main contributor to loss of life and well-being, and is impinging on
the effective structural and economic function of health care systems (16, 27, 45-46). The number of people with chronic conditions is enormous and growing. Numerous clinical practice guidelines today explicitly include recommendations that optimum care includes patients engaging in self-management.

According to the WHO 2008 policy brief, there is no correct approach to chronic disease management. Evidence throughout the world suggests that, to be successful, policy-makers should consider the following (59):

− providing strong leadership and vision at the national, regional or organizational level;
− ensuring robust collection of information and data-sharing among all stakeholders;
− providing care based on people’s needs and an ability to identify people with different levels of need;
− targeting key risk factors, including widespread disease prevention initiatives;
− supporting self-management and empowering people with chronic diseases; and
− involving a wide range of stakeholders such as individuals, the voluntary and community sector, clinicians, private industry and public services

According to The Patient Protection and Affordable Care Act Title IV. Prevention of Chronic Disease and Improving Public Health, there is an effort in the United States to enforce the importance of managing chronic illness. To better orient the nation’s health care system toward health promotion and disease prevention, a set of initiatives will provide the impetus and the infrastructure. A new interagency prevention council will be supported by a new Prevention and Public Health Investment Fund. Barriers to accessing clinical preventive services will be removed. Developing healthy communities will be a
priority, and a 21st century public health infrastructure will support this goal (38). As the 
Act works towards creating healthier communities, the CDC will provide grants to states 
and large local health departments to conduct pilot programs in the 55-to-64 year old 
population to evaluate chronic disease risk factors, conduct evidence-based public health 
interventions, and ensure that individuals identified with chronic disease or at-risk for 
chronic disease receive clinical treatment to reduce risk (38). Also, the HHS Secretary 
will provide funding for research in public health services and systems to examine best 
prevention practices. Federal health programs will collect and report data by race, 
ethnicity, primary language and any other indicator of disparity.

Requiring all clinicians, hospitals, social service groups and other providers to 
implement an integrated chronic disease management program necessitates incentives 
and a strong policy framework. Legal changes may be required. In many countries, 
organizations are unlikely to work together effectively unless there is strong leadership 
and some reorganization of care structures and funding. This may involve shared budgets 
between organizations, capital rewards for reducing health care service use, bonuses for 
achieving health care targets or opportunities to take part in innovative services. For 
example, countries need to test which initiatives for encouraging organizations to work 
together to support chronic disease management are most effective in their context.

Health systems are not always amenable to change, which makes the job of 
policy-makers more difficult. The financial implications of change are significant. But 
the implications of not changing are even more marked. Funds need to be allocated to 
restructuring, to financial incentives, to training staff and to monitoring progress.
Providers will require multifaceted clinical, evaluation and interpersonal skills, spanning the range of health promotion to palliative care. Interdisciplinary working may be required, and staff members need to acquire more advanced data analysis and monitoring skills. All stakeholders must recognize the seriousness of the issue and that significant change is needed.

b) Benefits

This paper discussed cost of health expenditures for patients with type 2 diabetes both on a national and global scale. The cost savings associated with chronic disease self-management and fewer complications include fewer emergency room visits, inpatient stays, outpatient visits and fewer hospitalizations (36, 58). However, self-management is much more than an association of dollars to the overall goal. It starts with improving self-efficacy and the overall quality of life (QOL) for the patient.

The goal of patient education is not only for the patient to understand his/her current health condition but also to be able to make healthcare decisions that achieve optimal health (self-management and self-efficacy). Through self-management support, patients will benefit from a set of cognitive and behavioral self-care skills to minimize complications or delay their onset entirely (39). Some benefits include an increase in:

- Coping skills (ie, managing emotions related to chronic conditions)
- Goal setting for specific and moderately challenging behaviors
- Self-monitoring (ie, keeping track of behaviors)
- Environmental modification (ie, creating a context to maximize success)
Self-reward (ie, reinforcing one’s behavior with immediate, personal, and desirable rewards)

• Arranging social support (ie, gaining the support of others).

Cochran et al conducted a meta-analysis study that examined the effects of interventions designed to increase physical activity in adults with chronic illnesses. The parent study retrieved any intervention study that included a recommendation to increase physical activity, including diabetes self-management interventions. Exhaustive searching yielded 20 comparisons across 1892 subjects. Each of these effect sizes were statistically significant, meaning that the hypothesis that interventions to improve diabetes self-management results in increased QOL was supported. One possible explanation for the improvement in QOL involves self-efficacy (8).

Patients who attend diabetes education or intervention programs are shown to demonstrate better knowledge, use of the glycemic index and glycemic control, medication adherence, perception of the illness, better psychological outcomes better A1C values, and better diet and exercise practices (8, 18, 31, 57, 63,). Optimal health, increased QOL, and better continuity of care is achieved with self-management; additional benefits such as cost savings will follow.

3) PATIENT EDUCATION

a) Theory and Application

The healthcare setting has many opportunities to educate patients. Doctor visits, hospital discharge, in emergency rooms, email and telephone consultations are just a few examples. It is up to the healthcare provider to take advantage of the opportunities given
to achieve the most impact. The health-promoting providers can be doctors, nurses, technicians, certified diabetes educators, etc. There may be several providers during a given appointment or providers may take opportunities to counsel the patient after the visit via telephone or email.

Theory

Adult learners are self-directed and self-regulated. This requires that the information being taught must have personal meaning to the individual adult learner. For some, this may require that the nurse is able to identify the teachable moment and convince the patient of the importance of learning particular details regarding their illness and/or recovery (18).

After identifying the teachable moment, application is key. To be effective, patient educators/providers must be familiar with the theoretical basis of patient and family education. Most nurses learn about the theoretical basis of their profession before they begin to practice clinically in order to provide understanding of how nursing knowledge is built. That being said, it is only intuitive that understanding the theories in patient education will allow the nurse to reach his or her potential and implement the most effective teaching strategies (52).

Theories provide the framework from which nurses use tools and adapt them to each patient. Below is a list of several theories that may be applied to provide patient education. If applied appropriately to patients, optimal results may be achieved by the nurse to meet the individual patients and their families. Whether barriers exist or are perceived, tools are available to overcome them.
Influenced by health education and communications schools of thought; individual perceptions, modifying factors, and likelihood of actions are components of the Health Belief Model (18). The model was originally developed to predict the likelihood of a person taking recommended preventive health action and to understand a person’s motivation and decision making about seeking health services. The model attempts to identify compliers and noncompliers by examining six factors considered important to health care decisions (41).

1. The patient’s perceptions of the severity of the illness
2. The patient’s perceptions of susceptibility to illness and its consequences.
3. Value of the treatment benefits (eg. Does the cost and adverse effects of the treatment outweigh the disease consequences?)
4. Barriers to treatment (eg. Degree of social support, expense, regimen complexity, length of treatment, and side effects)
5. Costs of treatment in physical and emotional terms
6. Cues that stimulate taking action toward treatment of illness (eg. Illness on family or friends, television or other media coverage, newspaper stories, or health pamphlets)
The Social Cognitive Theory and Self-efficacy model

Self-efficacy has been defined as one's belief in one's ability to succeed in specific situations. One's sense of self-efficacy can play a major role in how one approaches goals, tasks, and challenges (61).

The theory of self-efficacy lies at the center of the Social Cognitive Theory. This theory proposes that behavior is affected by personal factors, such as cognitive, affective, and biologic influences, and the environment through social and physical influences. Although this theory includes both the person and the environment, the environment, as described in the theory, is only important in as much as it is cognitively and mentally understood by and through the individual (47).

Because self-efficacy is developed from external experiences and self-perception and is influential in determining the outcome of many events, it is an important aspect of social cognitive theory. Self-efficacy represents the personal perception of external social factors. According to Bandura's theory, people with high self-efficacy (that is, those who believe they can perform well) are more likely to view difficult tasks as something to be mastered rather than something to be avoided.
Table 3 Continued

| Adult Learning Theory and Motivation for Learning | The Adult learning theory is based on the premise that adults require certain considerations to effectively learn. The adult learner is one that has developed a pattern of behaviors, thoughts, and feelings that influence how teaching is received and learning is experienced. Adult learners are characterized by autonomy, rigidity, goal and relevancy orientation, practicality, and experience (24). Adults enter into learning for the purpose of change in skills, behavior, knowledge, or attitudes; therefore, this motivation is a key factor in initiating education. Awareness by the patient of the importance of what is being learned is essential because adults are motivated by their personal need to know the information. The individual must be able to see the personal application of what is being taught within the context that it is occurring. |

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Table 3 Continued

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<thead>
<tr>
<th>Collaborative Communication</th>
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<td>The adult patient is predominantly motivated to learn about what most concerns them. Collaborating with the patient to assess for primary and secondary concerns and willingness to learn fosters the environment of teaching and learning through mutual goal setting and clarity of expectations (18). Involvement of the patient in this assessment and planning improves the likelihood of active participation in the learning process because it meets the need of the adult learner to be self-directed.</td>
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Patient educators must be familiar with the theoretical basis of patient and family education. Theories provide the framework from which clinicians use tools that can be adapted to each patient. Clinicians may educate their patients and families using any combination of theories to achieve best results. Through this process arises the opportunity for the achievement of optimal patient outcomes.

b) Role of nurses

As health care reform is ongoing in attempting to see better health outcomes and lowering costs, nursing becomes a valuable and visible contributor to managed care systems. Reforms are sweeping across the traditional settings and influencing nursing education and requiring those pursuing a bachelor of science in nursing to gain new knowledge of patient education in many practice settings. To achieve accreditation by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO), health
care organizations in the United States must show evidence that all patients receive teaching in which learning occurred. In addition to individualized teaching, JCAHO requires an organization-wide patient and family education focus and evidence of the impact of education on the patient and family (22). JCAHO expectations for nurses with respect to patient and family education goals are as follows:

- Assist the patient to understand information related to a specific disease process
- Development, implementation, and evaluation of a patient teaching program for a group of individuals experiencing the same health condition

In the past, there was incongruence between nurses' and patients' perceptions of the nurse's role in patient education (54). Today, as self-management support is often being performed more and more by nurses, aligned expectations for patient education must occur for successful patient self-efficacy. Behavioral change for patients is a complex process and requires more than the simple acquisition of knowledge. The nurse plays an important role in providing the patient with the ability to achieve said behavioral change with regards to the health condition at hand (52).

In addition, the health care environment is changing. Because of the changing environments of health care delivery, clinicians practice in various settings, and patient education is integrated in the care delivered in these settings. Patient care increasingly takes place in the home with the patient and their families forcing nurses to adapt to the logistical and clinical components of caring for a patient at home and to the patient’s resources and needs, as well as the patient’s and family’s learning capacity (41).
In order to be successful in providing patient education along with adapting to the changing environment, collaborative efforts must be made. Collaboration with nurses include, development of trust between the patient and other members of the healthcare team, documentation of the patient assessment, collaboration with other team members by recognizing own limitations and consulting expertise (41). Doctors look to the nurse to carry out the daily management, while the other healthcare clinicians look to the nurse for creative ways of reinforcing of teachings, medication adherence and answering questions that were unanswered by the physician.

Regardless of the clinical care environment — hospitals, nursing homes, ambulatory care centers, the home — nurses nearly always have the closest relationship with patients. They are the front-line providers who monitor and meet patient needs; they are the information conduit from patient to physician; and they are the patient advocate who lobbies for both patient and family (17). So it is only natural that they also play a role in self-management support and patient education as well as being creative in execution.

i) Barriers

Diabetes self-management refers to the various tasks which persons with type 2 diabetes need to perform and engage in on a regular basis, including self-monitoring of blood–glucose, taking medications properly, physical activity, healthy eating, foot examinations at regular intervals, and other self-management activities (32).
Many factors contribute to lack of providing appropriate patient education. In most settings, the proportion that is being managed according to clinical guidelines is low (15, 44, 29, 67).

Both identifying and understanding barriers to ensure adherence to diabetes standards of care in the patient’s self-management and the clinician interventions are the first steps in improving diabetes care and success in diabetes management. Factors include patient, provider and organizational factors. Some of the factors are listed below.

Table 4. Factor/Barrier Comparison (14-15, 20, 29-32, 40, 47-49)

<table>
<thead>
<tr>
<th>Types of Factors</th>
<th>Barrier to Self-management</th>
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<td>Patient, Provider and Organizational</td>
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<td>Organizational</td>
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(1) Patient Barriers

Patient factors include knowledge, physiological, psychological, adherence, attitudes and beliefs, learning styles, culture/literacy/communication, social support and technology (14, 20, 31, 32, 40, 49,).

Knowledge:

Little insight and knowledge of one's own behavior and health is a known barrier for diabetes self-management (20). For example, patients must have confidence in their own knowledge and ability when managing their diabetes (self-efficacy/predisposing factors), they must have empathy towards diabetes education (need factors), and perceive the seriousness of diabetes in order to do something about it (14). Some activities where appropriate knowledge are important include (but not limited to) are:

- knowledge and understanding of a specific diet and exercise plan (14)
- remembering to take medications
- knowledge about medication action side effects, schedules and adjustments (31).
Physiological:

Patient motivation is determined by existing physical and emotional restrictions, the immediate need to know information, and overall level of confidence. To address the barriers related to physical and emotional impairment, the nurse is understandably limited. Acknowledging the likelihood of these influences allows for adjustments in assessment, planning, and implementation. For instance, if a known disability exists, such as visual or hearing impairment, pain, or anxiety, alterations inherent to such circumstances must be considered. Some examples include, Sensory impairments, physical limitations, and effects of medications may diminish the patient’s capability to fully use their usual learning style (18).

Psychological:

Within the health care setting, situational psychological states such as anxiety, depression, fear, and acceptance or denial of illness are some of the factors that influence capacity and motivation to learn. The ability of the patient to concentrate is significantly affected while they are hospitalized. Common mental stressors can significantly impair comprehension and alter the patient’s usual style of learning (18). An example of a barrier being created due to psychological factors is demonstrated with helplessness and frustration from lack of glycemic control despite adherence (31). Patients may stop trying to control blood sugar if they feel the efforts aren’t accomplishing the end goal.

Adherence:

Adherence, as defined by the World Health Organization, is “the extent to which a person’s behavior (taking medications, following a recommended diet and/or executing
lifestyle changes) corresponds with the agreed recommendations of a health care provider (48). Rates of medication non-adherence in older adults have been documented from 25% to 59% depending on population and settings (68). More than 10% of hospital admissions for older adults may be attributed to medication non-adherence, resulting in great financial costs. In the general population, financial costs of medication non-adherence have been estimated to be $300 billion (9). In addition, medication non-adherence in older adults has been shown to result in poor quality of life and undesirable clinical outcomes (47).

Glycemic control is affected by poor patient adherence to treatment regimens, for example, failure to keep appointments or take medications as recommended. Among patients with diabetes, adherence rates were lower for insulin use than for oral hypoglycemic agents. Misperceptions regarding the potential seriousness of the disease as well as to differences in patients’ understandings of the disease as well as those of health care providers contribute to adherence as well (32).

Furthermore, studies show depression may have an effect on adherence. Higher depressive-symptom scores are associated with poor self-care behaviors, significantly with poor participation in education programs. The evaluation and control of depressive symptoms among diabetic patients would improve their adherence to self-care behaviors (40).

Attitudes and beliefs:

People with diabetes hold a wide range of attitudes and beliefs about diabetes and its treatment which in turn affects the way they perceive the need for and importance of
self-management education. An example of attitudes affecting self-management would be with regards to insulin treatment. Studies show patients have a fear of daily insulin injections. Other negative attitudes include the belief that taking insulin means life is more restricted (32). Other examples of attitude unwillingness may be caused by: a. Not liking to change or not wanting to change b. Age c. Previous experience with dietician d. Excuses (20)

*Learning Styles:*

Although the inclusion of more than one approach might be confusing for some, most people possess multimodal preferences. Skills of both the patient and nurse are often enhanced by the inclusion of more than one approach (18). A variety of methods and media that highlight more than one learning preference should be used whenever possible to meet the most universal needs of individuals. For example, many find diet change to be difficult, the use of more than one approach may prove to be beneficial (57).

In the past, many providers would use a didactic approach to giving education, but the literature shows that counseling and inclusion of the patients thought and values are more effective. Didactic methods in the absence of counseling does not allow learners to think critically and perceive their own personal and social reality, steps that are critical for adapting to chronic disease (37).

*Literacy/Communication:*

In the United States, literacy is equated with the ability to read and write English (55). The average adult American reads at the eighth to ninth grade level, and one of five read at the fifth grade level or below. In cases in which materials are produced in English,
persons for whom English is a second language may be reading at grades 1 or 2 or lower. For patients with language barriers, the communication is even more difficult (20).

The results of the National Adult Literacy Survey showed that about 22% of adults in the United States demonstrated the lowest level of literacy (35). Another 25% of respondents scored in the next level of literacy described as limited. These percentages represent about 90 million of the 191 million adults in the United States. When considering these data, it is no wonder that often clinicians in low-income communities see a disproportionate percentage of patients with limited literacy skills (55).

Basic communication may inadvertently block the potential for learning. The vocabulary and jargon often used by health care providers can be an obstacle (18). Many low-literate patients are ashamed of their inability to read (35, 55). Consequently, they may avoid admitting their inability to health professionals, making the job of communications more difficult. These patients are often embarrassed when they are not able to successfully complete the necessary instructions. Their embarrassment keeps them from admitting that they do not understand and need further instruction, often using a different format. This issue is a sensitive one and can have a definite impact on the overall quality of the patient education process and, most certainly, patient outcomes that are influenced by patient education. On the contrary wrong information from the environment (social influences) can have a negative impact (20).

Social support:

Numerous studies showed that lack of social support affects perceived barriers to self-care and future mortality and morbidity (20, 32, 43, 57, 63). Coached patients
perceive greater availability of social resources or someone to talk to about one’s problems or do things with, increasing competency and adherence (63).

Also, recent patient-support programs have been oriented to problem solving, action planning, goal setting, dealing with difficult emotions, healthy living, medication and symptom management, and working in partnership with health professionals (28). This orientation is much closer to a capabilities approach than is the typical compliance with medical regimen orientation and acknowledges that skills learned are transferable to other areas of life.

In addition, some communities rely heavily on their communities for guidance and way of living. For example, in Mexican American communities, enhancing the receptivity and impact of interventions it has been shown beneficial to have insiders within communities who are trained in health promotion and disease prevention. They have the opportunity, knowledge, and skills to encourage fellow community members to practice positive health-related behaviors. They are skillful in building of trust relationships and the different kinds of social support, which removes barriers to health care and enables individuals to make transitions from health-related knowledge to health behavior (43).

*Time:*

Working full and part-time, being over 65 years of age, having a regular primary care physician or fewer diabetes symptoms were contributing factors to attrition behavior in our multivariable logistic regression. The most common reasons given by participants
for attrition from the program were conflict between their work schedules and the center’s hours of operation (enabling factors) (14),

(2) Provider Barriers

Provider factors include attitudes and beliefs, and provider knowledge, adapting to learning styles, literacy and communication, cultural sensitivity and technology (32). Furthermore, nurses reported lack of counseling skills and insufficient time as barriers in effective lifestyle counseling (20).

Attitudes and beliefs of providers:

Physicians’ attitudes toward diabetes management may be more important than their actual knowledge of the disease. Clinicians’ beliefs, attitudes, and knowledge influence patients’ adherence to the prescribed regimen. Many clinicians still consider type 2 diabetes to be a non-serious disease (32). In addition, general practice did not have a long history of providing preventive services to patients. For that reason, primary care nurses reported having difficulties getting rid of old or inappropriate routines (20).

Furthermore, clinicians should be offered training to enhance their sense of competence and confidence to effectively deliver patient support services. Often nurses report lacking sufficient knowledge about physical activity, smoking cessation, and even more notable, about specific diet advice in order to provide adequate lifestyle counseling (20). Confidence is generated by several factors: the ability to meet learning goals, the challenge of learning large amounts of information, and the comfort of operating from their personal learning preference or style. Adult learners need to be a part of the planning process in order to be motivated. This includes the development of achievable
and relevant mutually valued goals (7). To meet this requirement, abundant information can be broken down into small easily achievable amounts of learning designed to first meet short-term goals. This will build confidence because the adult learner is able to master the new knowledge (18). These skills in collaborative goal setting and follow-up and ability to respect the patient’s choice will allow for a more complete patient education experience (25).

Some nurses mention they sometimes lack motivation themselves because they have to repeat the lifestyle message again and again, and they have little hope that the patient will change. That makes them feel very powerless. Other nurses don’t not like to be judgmental and are hesitant to discuss lifestyle behavior change if they thought that would put the relationship with the patient at stake. Lack of empathy can also occur when nurses do not understand why it is so difficult to change a specific lifestyle which is not a barrier for themselves. Furthermore, they found it difficult to be patient and listen carefully when they were stressed for time (20).

**Knowledge:**

Nurses repeatedly highlighted a deficiency in their lifestyle counseling skills. They do not know how to develop a concrete and structured action plan in cooperation with the patient. They also reported having difficulties in adapting their counseling to the stage in which the patient is (20, 63).

**Learning Styles:**

Failure to assess the learning style characteristics of individual patients is a common barrier in planning and implementation of patient teaching (18). As mentioned
above, most people possess multimodal preferences. Skills of the provider are often enhanced by the inclusion of more than one approach. Though we may have the ability to use multiple tools and formats that address favored learning styles, it is vital to first assess the individual patient’s needs, readiness, and capabilities.

Targeted educational interventions utilizing both a didactic approach and a counseling approach are often most affective. Educational interventions are effective at changing knowledge but are not effective in changing medication adherence behavior. Counseling often involves patient contact by a health care provider, most likely a pharmacist, nurse, or physician, for varied frequencies and lengths of time. Education and counseling are frequently combined with other interventions such as encouraging the use of cues and medication organizers and self-monitoring of medication effects (47, 63).

Clinicians who provide self-management education at diagnosis and on-going in conjunction with healthcare management should ask patients about their needs or desires for information, self-care activities that are problematic for them, and discuss rather than order therapeutic self-care regimen components. Classes should include not only meal planning but recipes common to the culture of the area. Additionally, participants should be asked about specific foods they were accustomed to eating prior to diagnosis and alternate recipes or portion information should be provided (37).

**Literacy:**

Providers must consider the patients level of literacy in order to provide materials to appropriately match the patient’s level for comprehension or ability to read.

Patient–provider interaction and communication:
Patients’ disease perceptions are influenced by the types of services they receive and the types of health care professionals they encounter as part of their diabetes care. Good patient–provider communication predicts better diabetes self-care, better diabetes outcomes, or both. Unfortunately, many patients report significant barriers in collaborative diabetes management, which in turn affects adherence (32, 47).

Furthermore, consistency is very important for a self-management program. Often times clinicians are not consistent and this is confusing for patients and will be reflected in the data supporting an education program (57). Some of these inconstancies may be due to population disparities or level of prevalence, but efforts must be made to treat all patients with a certain standard of care (66).

Culture Sensitivity:

Culture influences an individual’s beliefs, attitudes, knowledge, and behaviors, and can affect diabetes self-management. To date, no research has been done comparing cultural beliefs in diabetes self-management across different racial ethnic groups (32).

Values and beliefs that are unique to each patient are determined by the individual’s cultural norms. Culture is much broader than race or country of origin. Generally, culture is identified by shared practices and traditions of a similar group. Using this characterization, differences in experience, sexual orientation, gender, and age would be considered as cultural distinctions. Learning styles are understandably influenced by these principles. In addition to attending to the innate needs of the adult learner, the nurse must be culturally sensitive to particular perceptions of illness, health beliefs, family roles, and communication when assessing learning styles of diverse
patients. This requires nurses to ascertain as much information as possible about the explicit ways of the lives of the patient’s in their care. However, it is also vital to consider individuals and not assume they adhere to all traditions inherent to their cultures customs (18).

For those to whom English is a second language, understanding may be particularly difficult and usual learning styles may be altered to accommodate language issues.

The most noticeable barriers to assessing learning style and abilities are those associated with the needs of a culturally diverse population. The nurse must reflect on his or her own health beliefs and practices and determine if personal views have influenced the assessment of learning style and choice of teaching strategies. Coming from a background that is very different from the patient’s background may result in poor communication and some behaviors may be perceived by the patient as offensive. For example, the family roles within a given culture may require that teaching is undertaken with a specific relative or group. To ensure that health behaviors will be implemented, the learning style of the key members must be addressed. Understanding the health care practices of the individual and family is essential (7). Family members’ behaviors and attitudes can both support or challenge the patients’ self-management practices, and, in turn, chronic disease management affects the wellbeing of both patients and family members (43). Family-oriented interventions promote better psychosocial adaptations for both the person affected by diabetes and other family members.

Additional Cultural Considerations:
Changing demographics, economy, and political factors affecting health care delivery in a multicultural environment have complicated the clinician’s ability to provide comprehensive patient care. In addition, the new health care reform platforms are reflective of a shift in thinking toward disease prevention and health promotion. To be an effective health care provider and to achieve optimal outcomes, it is imperative that the provider is cognizant of the social determinants of health and their influence on individual health of patients. Differences in health can be attributed to socioeconomic, political, cultural, educational, and geographic dimensions (8).

Developing Healthy People 2020 (56) and the recent health care reform platform (40) require us to use a new lens to focus on preventive care. This concept dictates a shift to health education that focuses on health promotion and disease prevention instead of a focus on health outcomes. This upstream preventive approach encompasses assessment and understanding of health behaviors influenced by the health determinants seen through a cultural lens (23).

**Technology:**

In today’s world there are a variety of communication tools at our disposal. The only requirement for using them is that the clinician and the patient must both be able to use the same tools, particularly if they are planning to use synchronous techniques.

Providers can use technological communication tools to ask and answer questions, point patients in different directions, or clear up any misunderstandings. These tools fall into two categories, synchronous and asynchronous environments (13).

Synchronous communication tools require both parties to be online at the same time. The
traditional example of a synchronous tool would be a standard telephone call, whereby both the clinician and the patient are holding phone handsets to their ears concurrently.

Asynchronous communication does not require both to be online at the same time; rather, a patient can pose a question and check back later for a response. The traditional example of this would be the US Mail. Making the patient an informed person through use of a myriad of technologies will become the focus of patient education for years to come.

(3) Organizational Barriers

Organizational factors include lack of time, technology, healthcare system/poor cooperation between practice nurse and other health providers, and ethics (20, 32).

*Lack of time:*

The primary care nurse tries to promote behavioral change in a supportive, empathic, and comprehensive way, and in the meantime, she must see to it that practical barriers are overcome to facilitate the behavioral change of the patient. These activities take place in the limited time span of a quarterly check-up appointment that, in the Netherlands, takes usually 15 to 20 minutes. In addition, during this time, the glucose level, blood pressure, and weight must be measured, and information about the effect of the medication is updated. Not surprisingly, some studies suggest that nurses lack time and skills to promote lifestyle changes and risk reduction (20). Sometimes, there just aren’t enough hours in a day.

*Technology:*
In today’s world, access to information is much more available and no longer has to be filtered through the patient’s primary care provider. The Internet now competes with the clinician in providing educational content to the patient. Search engines such as Google and Bing allow the user to type in a few key words and have access to hundreds of Web sites all related to diagnosis. However, the level and quality of information the patient may access is problematic, as these Web sites are often not evaluated or ranked on quality of information and appropriateness for the patient population. Unfortunately the voice of the clinician often gets drowned out in the din of information, both good and bad, that is available online.

Since patients now have access to a variety of treatment information, some of which is not particularly valid, there are websites that seek to address some of those invalid treatments as well. The National Institutes of Health provides a Web site that looks at alternative medicine approaches, and many disease-specific organizations, such as the American Cancer Society, also report on the efficacy of alternative therapies (1, 34).

*Using the technology to our advantage:*

The bright side is, the patient has become a partner, and not just a consumer, in her or his own health care plans and treatment. This situation requires that the patient becomes familiar and educated about all of her or his treatment options (69). The good news is that there are more informational resources written to the level of the health care consumer than ever before. The health care provider’s role in informing the patient has now changed. Whereas at one time it was to provide specific information on treatments,
now it includes ways to educate the patient as to where to find the best information for specific health care issues and how to make the optimal choices (13).

**Health care system:**

In the current health care system, overstretched primary care providers need to complete many preventive activities, deal with chief complaints, write prescriptions and referrals, and handle other issues within a 10- to 15-min office visit. Thus, it is difficult for primary care providers to devote extensive time to the behavioral, psychosocial, and emotional issues of persons with type 2 diabetes (32, 47).

The money available to run appropriate healthcare programs is another health care system organizational barrier. Free clinics face enormous challenges to survive and provide quality care. These clinics often serve those members of the community suffering most from diabetes or other chronic illness. The primary challenge is maintaining sufficient funding. Although volunteers contribute greatly, there are some unavoidable personnel costs. A recent survey of free clinics reported that free clinics typically have a baseline paid staff of medical providers and administrative personnel. The dependence on grants or donations for this funding requires significant time spent on pursuing those resources, especially for management staff. In addition, free clinics must provide liability insurance coverage for volunteers (49). In addition, limited resources to obtain recommended equipment, medicines, laboratory tests and provider services is and has been a challenge (31).

**Ethical Dilemma:**
The neglect of patient education goes against The Code of Ethics for Nurses which describes the nurse’s duty to advocate for and strive to protect the health, safety, and rights of the patient, with the primary commitment being to the patient (2).

Part of the cultural moral ignorance related to patient education also extends to bioethics. For example, although the doctrine of informed consent seems to be friendly to assuring patient understanding, frequent disclosure of information to patients or research subjects is all that is required. There is a false assumption that disclosure automatically leads to understanding with no assistance. Evidence of incomplete patient understanding has led to questions about whether informed consent is an achievable norm. The answer, of course, is that it likely is, if the norm includes definition of appropriate education to help patients reach understanding (42).

Nurses responsible for patient education frequently report ethical conflicts with physicians over authority to dictate what patients are taught. Perhaps, when real team-based care, in which one member can challenge another, is practiced, the situation may be different (42).

(4) Overcoming Barriers of Providing Patient Education (41, 70)

While there are many benefits to effectively providing patient education as stated above, failure to appropriately educate might endanger the patient leading to health complications, increase morbidity and potentially mortality.

Ethical issues deserving of discussion include lack of professional standards of practice and availability of a cluster of highly predictive measurement instruments that
should be developed. Some models to influence compliance of patient education services should be considered, such as the following:

*Feedback to both Providers and Patients*

• Improvement in the current professional practice model, making norms for adequate patient self-management support clear and delivering first feedback and then consequence to practitioners who do not meet them. Such an approach requires coordinated activity among payers and/or accreditors

• Some Public Health models for diabetes track (through laboratory reports of HbA1C) quality of outcomes being attained by physicians and their patients with diabetes, with feedback to both. Public health approaches have most frequently been associated with control of infectious diseases but could easily be extended to chronic diseases, which are also a major threat to the public’s health.

*Influence Moral and Operating Norms through Advocacy*

There are several steps that professionals, often in conjunction with patient and family advocacy groups, can take to change the moral and operating norms around patient self-management.

• Becoming a certified educator (CE). CE’s are well established in diabetes care. These individuals are qualified in providing appropriate education and techniques to both Patients and Providers. Utilizing their expertise can prove extremely valuable.

• Nurses regularly serve in other roles in which the importance of patient education can be reinforced. These include roles in safety and quality assurance and in institutional ethics committees. Much chronic disease care occurs in ambulatory settings, an area
where little patient safety research and safety improvement work has been accomplished. Outpatient settings are often fragmented, lacking systems of accountability for locating errors, correcting them, and developing systems to increase safety.

- Nurses in many areas of practice must play advocacy roles in changing the system to make patients safer through patient education. Oncology and the rapidly evolving use of oral chemotherapy can be taken as an example. Since 2005, at least 10 oral chemotherapy medications have been introduced into the market. Many people incorrectly believe that these medications are less toxic than intravenous chemotherapy; yet, most insurance companies, including Medicare, do not reimburse for nursing time spent on educating patients how to safely take these medications. To play an advocacy role for chronic disease and self-management may have tremendous impact in the reimbursement and consequently the overall practice of providing education.

(5) Developing Appropriate Diabetic Patient Education

Applying a Competency-Based Patient Education Lesson/Program:

The traditional health education approach is still predominant in primary care of patients with type 2 diabetes. An implementation strategy based on motivational interviewing can help to overcome 'jumping ahead of the patient' and promotes skills in lifestyle behavioral change. Nurses should be trained in agenda setting to structure the consultation based on prioritizing the behavior change for diet, exercise, medication adherence and glucose monitoring (10, 20, 60).

When developing and applying a competency-based patient education lesson/program, each nurse must answer the following questions (4, 5, 50):
• What are the essential objectives/competencies for patient self-management of health?
• What teaching methods will yield the intended learning?
• What are the most appropriate methods to evaluate how well a patient has achieved the competencies?
• How should the evidence of learning be documented?

It is important to use multiple instruction and evaluation strategies based on the nature of each patient’s ability to learn (50).

Furthermore, the Nurse must take into account the Patients learning styles and make the experience a collaborative effort. Tackling program attrition will inevitably involve the implementation of multiple strategies to address the numerous barriers that exist for different groups of individuals (14, 31).

*Defining Patient Education Objectives:*

Developing learning objectives that are patient focused directs the focus of the teaching toward specific learning as opposed to transmitting volumes of information that may not be completely useful to the patient. The creation of patient-centered learning objectives takes the focus of the teaching encounter away from the nurse and directs it toward the patient. To be effective, the objectives must consider the needs and the learning style of the patient, and serve as a fundamental guide that teaching contributes to an outcome and competencies rather than to an end in itself and ensure that patients attain the required abilities for self-management (26, 50).
Educational outcomes and objectives might be considered with regard to their levels of measurement. For example, the objective for a teaching encounter with newly diagnosed diabetes might be related to explaining the differences between different types of insulin. The process focuses on the student’s ability to articulate information about types of insulin, and to draw conclusions for comparison. The objective organizes the interaction, provides clear focus for the discussion, and provides criteria for evaluation. The scope is limited to information about the two different types of insulin. Information about how to administer insulin and the physiologic effect of insulin on the disease process would be subsumed in another objective or group of objectives. An outcome related to the end product or goal of patient teaching would focus on the patient’s overall ability to medically manage and control the diabetic disease process. An overall patient outcome would consider the totality of the patient’s ability to manage a disease process or maintain an optimal level of health.

Creating Instructional Objectives for Patient Education:

The nurse who is educating the patient will consider what is to be taught, and what level of knowledge, affect, or psychomotor skill is appropriate for the creating an objective. There are several important considerations to consider when creating educational objectives. As the focus of the interaction will be the behaviors of the patient, the objectives are to be written in terms of patient behaviors, not the behaviors of the nurse or other health care provider. The purpose of the objectives is to focus the instruction on the behaviors that will be observed and measured in the patient (70). To
this end, it would be appropriate to begin each objective, or a list of objectives, with the phase: “The patient will.”

The objectives must be measurable. Focusing on specific behaviors allows the patient to demonstrate what they have learned, while the nurse observes and evaluates the behavior as evidence that learning has occurred (2).

*Using Instructional Objectives for Patient Education:*

Once objectives that correlate to the patient’s diagnosis and learning needs are formulated, it is important to communicate these to the patient. This contact directs the teaching interaction, keeps the focus on the patient’s learning needs, and keeps the learning session from redirection toward broad topics and unrestricted information. The emphasis is on educational objectives, which help educators delineate and communicate what they intend students to learn as the result of the teaching interaction.

*Tips for improving patient education materials:*

As a significant number of Americans fall within the category of basic or below-basic literacy skills, the majority of teaching tools should be designed with this fact in mind. Printed materials are routinely used with other teaching strategies. To be understood by the majority of patients, written documents and other modes of patient education should be developed at the fifth grade reading level (7, 18).

Also, patients are better able to make connections between words and mental images during the learning process if words and corresponding visuals are physically presented. With words alone, patients try to form their own mental images and connect those with words, but this process is more difficult for low-literate learners. Visuals
facilitate this process. The cognitive and compensatory functions of patient education materials with their visuals are particularly important for patients whose primary language is not English (55).

The addition of visual cues increases the ability of the low-literate patient to store and retrieve visual information. Color in visuals acts as an additional cue to aid the patient’s understanding, eg, the white color for a beverage conveys the type as milk without the client having to read the word milk or dairy. Cues can explain complex text, helping patients understand the meaning of words they would otherwise skip. In this instance, the visual provides cues to understanding text (ie, cognitive function). Abstract black-and-white line drawings are less effective than realistic black-and-white line drawings for patient education materials and health surveys when the realism of color is not an option.

The effort to improve readability should not result in a product with a childlike appearance. This could be insulting to the adult patient. Comparing realistic and nonrealistic versions of instructional materials, realistic materials are more effective in the learning process and, consequently, the preferred choice for low-literate patients being served in low-income community clinics. For example, a photograph of a diabetic patient’s insulin monitoring machine is more realistic than a line drawing of the same equipment (55). To more accurately communicate health messages, the preferred choice of low-literate patients/clients is a representative color-illustrated text style for educational materials.

Evaluation:
Evaluation is the process of collecting and interpreting information for making judgment and providing evidence about learner achievement of learning outcome objectives. Different objectives require different evaluation methods. To ensure content validity, the evaluation tasks should not only reflect the objectives, but also reflect the instruction. Based on analysis of the learning outcome objectives and instructional activities in the context of both content knowledge and cognitive levels, the education nurse selected the evaluation methods listed below (50).

Some examples for evaluation are listed below:

Evaluation of example objective 1 requires that patients understand the meaning of defined concepts. Both short-answer and multiple-choice formats are appropriate (4). The intent is to increase the probability that understanding rather than remembering is being evaluated. For the short-answer questions, patients can be asked to explain concepts in their own words. For the multiple-choice format, patients can be asked to recognize parallel interpretations of the concepts taught. For patients with limited reading and writing skills, patient educators may read the questions and ask for verbal responses.

Evaluation of example objective 2 involves tasks that required patients to analyze how component concepts relate to one another. Analysis can be evaluated with multiple-choice format. Learners are given a set of data and have to decide which information is most relevant and what action(s) to take. To construct multiple-choice items at the cognitive level of analysis, the scenario or situation presented must be novel (30, 51). Using the exact same scenario presented during instruction only yields evidence of remembering. In addition, all selection options should be plausible. Implausible selection
options allow the patient to use the process of elimination to arrive at the correct answer. Choosing the most appropriate/relevant option from all plausible alternatives requires discriminating judgment (30, 51). A demonstration used for evaluation of objective 2 follows:

Sometimes it is difficult to design plausible distracters (incorrect options) for a question using a specific clinical scenario. In this case, patient educators can use common patient misconceptions or generated phrases that sound correct. Another strategy is to design homogeneous alternatives that reflect parallel content and grammatical structure so that patients must make finer distinctions among similarities (30, 51).

Evaluation of example objective 3 involves judging patients’ behavior modification. Behavior change occurs over time. Although instruction activities for modifying patient behavior usually begin before discharge, much of actual learning occurs in the home. When opportunities for direct observation are lacking, patients’ verbal or written reports may provide relevant data for evaluating compliance with medical regimen (21). After being discharged, individual patients meet their provider during regularly scheduled appointments to review logs and determine level of achievement. The process required patients to analyze and evaluate their own performance.

*How should the evidence of learning be documented?*

To promote interdisciplinary communication, continuity of care, and support quality improvement efforts, written documentation of all aspects of patient education is critical. To meet JCAHO standards, documentation of patient education should reflect
essential information for self-care, instructional activities, evaluation methods used, and specific actual outcomes (53). To ensure that patients attain the required abilities for self-management, patient education needs to be competency-based. The main focus of competency-based education is on the outcomes; instructional activities and evaluation methods must be carefully aligned with the intended learning outcome objectives (4, 5). Incongruence among these elements may result in ineffective patient education.

4) SUMMARY

As the landscape and health reform changes are underway, there is a need and push towards better health outcomes and lowering health expenditures. Costs associated with diabetes complications are grand in number and in order to sustain our programs for future generations, efforts must be made now. Patient education is a strong vehicle to empower nurses and patients to achieve optimal results through self-management. Unfortunately, as this practice is fairly recent and many challenges are presented as barriers to achieving self-management success.

Patient, provider and organizational barriers should be identified and mitigated through appropriate application of education theory. Today, many patient educations programs and interventions have been evaluated and continue this trend. Through research and trial of said application, we will only get better at implantation of patient education. Perceived barriers will always exist in a dynamic environment, but our attitudes and perseverance will drive for results and ultimately achieve better health outcomes for our society. Identifying what barriers exist for our front-line providers will tell us which direction to proceed in order to overcome them.
Chapter 3: Methods

The purpose of this study to use pre-collected de-identified data to describe perceived barriers from adult medicine nurses to provide self-management education to adult type 2 diabetic patients. The data were collected by a second year Master of Public Health candidate completing Practicum hours at a large public health department in a major metropolitan American city. Through an effort to support a continuing education diabetes workshop for nurses, data were collected regarding nurses attitudes towards providing diabetes education to patients and offer suggestions based on the literature for alleviating some of the barriers. The data were collected in two stages:

a) Questionnaire - Clinicians attending the workshop (not physicians) prior to the workshop

b) Focus groups/Interviews - Adult-medicine nurses representing each public health clinic serving adult patients in the unidentified department of public health system; five clinics total

Questions for both stages were constructed based on review of literature for themes identified as barriers to providing patient education and theories for adult learning; these themes and theories were used to construct the questions used for both the questionnaire and focus group interviews. The research study was deemed exempt by The Ohio State University Institutional Review Board

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RESEARCH QUESTIONS

In this study, the following research questions were addressed:

1. Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging.
2. Describe adult medicine nurses level of training and ability to provide diabetes self-management education.
3. Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.

RESEARCH DESIGN

This was a descriptive study that utilized qualitative analysis employing pre-collected de-identified data from both questionnaire and focus group responses to optimize the objectives of the study (triangulation technique). A questionnaire was used to describe perceived barriers from adult medicine clinicians (nurses and CMAs) to provide self-management education to adult type 2 diabetic patients. Five focus groups/interviews (Adult medicine nurses only) were then used to describe attitudes and perceptions barriers to providing self-management education to adult type 2 diabetic patients. The focus groups/interviews reinforced findings from the original questionnaire and were specific to the views of Adult medicine nurses.

STUDY POPULATION

The pre-collected data was gathered through a department of public health clinics system servicing a major American metropolitan city. The Quality Assurance group within the department conducted a continuing education diabetes workshop for nurses
and was looking to identify potential gaps and challenges of adult medicine nurses for providing self-management education to adult type 2 diabetic patients in the clinical setting. The populations for this data collection were convenience samples for both stages. The first stage was a convenience sample of nurse and CMA clinicians attending a mandatory seminar to address techniques and knowledge for providing self-management for diabetic patients. The clinicians were required to fill out the questionnaire while attending the seminar. See Appendix A for the questionnaire. Thirty-four clinicians participated in the questionnaire. For the second stage focus groups were conducted at five adult medicine clinics and involved adult medicine nurses only. The number of nurses varied from 1-5 nurses depending of staff resources at the particular clinic. See Appendix B for the questions involved during the focus group interviews. The population was a convenience sample and participation in the study was voluntary. All adult medicine nurses in the clinic system were asked to participate, none declined participation.

INSTRUMENTATION AND DATA COLLECTION

The questionnaire and focus group questions are provided in Appendices A and B which were constructed based on themes of provider barriers and theories for adult learning.

The themes are as follows:

- Attitudes and Beliefs
- Knowledge
- Learning Styles
• Literacy/Communication
• Culture Sensitivity
• Technology

The theories are as follows:
• Health Belief Model
• The Social Cognitive Theory and Self-efficacy model
• Adult Learning Theory and Motivation for Learning
• Collaborative Communication

Questionnaires were provided at the during the diabetes self-management seminar and collected for stage one. Transcription was performed during the second stage at the focus groups/interviews by the interviewer per participant responses to the questions asked and verified upon completion.

DATA ANALYSIS PROCEDURES

Qualitative data was examined separately by three field experts for the emergence of themes among the data and checked against each other for consensus.
The pre-existing data used for this study were two-fold. A questionnaire was administered via convenience sample of all clinic support staff (nurses, CMAs and nurses aids), with fifteen questions for the first phase at a diabetes education continuing education course. The responses from only the nurses were used for the purpose of analysis in this study. As a follow-up to the questionnaire, focus groups/interviews were conducted with nurses at each of the five clinics treating adult patients. Nine questions were used in during the focus groups. The questions used in both the questionnaire and focus group/interviews were grouped to match the research questions introduced in this study. Any of the questions not used in the grouping were used to describe the clinic setting or demographic. The full survey and focus group questions can be found in the appendices. The grouping and questions are listed below:

Research question #1 - Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging:

Questionnaire

1. Describe the factors—patient and professional—that make giving information in health care challenging.

2. Identify factors that can affect patients’ responses to information received.
4. Identify resources and strategies that can improve your effectiveness when giving information.

8. How would you describe your resources available to support patient education in your clinical setting?

9. Are there particular types of patient groups for whom you find it challenging to give information? Why is this?

Focus Group/Interview

What would you say are the barriers to providing patient education?

What are the barriers for patients being compliant?

Research question #2 - Describe adult medicine nurses level of training and ability to provide diabetes self-management education.

Questionnaire

6. Are you an expert in your field? If not, how do you judge what information you feel confident to share with a patient?

7. How would you describe your range of skills and knowledge of the topics discussed in your patient education setting?

Focus Group/Interview

Are you an expert in the field?

Research question #3 - Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.

Questionnaire

3. What are some techniques you may use to get your message across effectively?
10 How do you assess patient understanding? What do you do to overcome lack of understanding?

11 Of your patient interaction, who is receiving and giving the information?

12 What format do you use when providing patient information?

15 Some examples of models of health education include:

* Behavior change--the purpose of giving information is to change behavior and enhance concordance with treatment regimens.

* Educational--the purpose of giving information is to inform individuals and allow them to make choices regarding health.

* Client-directed--giving information focuses on a patient-led agenda.

Think about the different health education models described above. Which of these do you usually adopt in your patient education? How might this affect the nature of your relationships with patients?

Focus Group/Interview

What are the methods you use for providing education?

What method do you use to assess patient understanding?

Several methods were employed to ensure trustworthiness of the data. Triangulation of the data collection methods (questionnaires and focus groups), iterative questioning and member checks help provide strength for data credibility, as well as data confirmability. The primary researcher is a healthcare professional and graduate student who had spent several months as an intern completing a practicum in the setting, furthering the credibility of the data collection and interpretation. The data were
examined qualitatively by three separate field experts for the emergence of themes among the data. The emergence of themes was checked against each other for consensus. The use of three separate experts evaluating the data ensures there is consensus among the themes and that the data is not the opinion of only one examiner.

The responses to the questions for both the survey and focus group/interview were assessed for themes that emerged addressing each of the research questions. The themes that emerged for each research question are provided in the table below:
Table 5. Summary of Emerged Themes

<table>
<thead>
<tr>
<th>Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging.</th>
<th>Describe adult medicine nurses level of training and ability to provide diabetes self-management education.</th>
<th>Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient/Provider themes</strong></td>
<td><strong>Organizational themes</strong></td>
<td></td>
</tr>
<tr>
<td>▪ Education Level of patient</td>
<td>▪ Lack of current materials</td>
<td>▪ Audio/visual presentation (Pamphlets and Literature)</td>
</tr>
<tr>
<td>▪ Patient Understanding/Acceptance of illness</td>
<td>▪ Time</td>
<td></td>
</tr>
<tr>
<td>▪ Compliance of medication, diet or exercise</td>
<td>▪ Short staff (nursing), lack of Certified Diabetes Educators</td>
<td></td>
</tr>
<tr>
<td>▪ Language Barrier</td>
<td>▪ Needs more training</td>
<td></td>
</tr>
<tr>
<td>▪ Culture/Religion</td>
<td>▪ Needs more up to date materials</td>
<td></td>
</tr>
<tr>
<td>▪ Age of patient</td>
<td>▪ Money (patients financial situation preventing them from buying medication or missing work to make scheduled appointments)</td>
<td></td>
</tr>
<tr>
<td>▪ Give examples and different scenarios</td>
<td>▪ Expert/comfortable with sharing knowledge</td>
<td></td>
</tr>
<tr>
<td>▪ Check for understanding (if English is not first language); Interpreter</td>
<td>▪ Not comfortable sharing knowledge</td>
<td></td>
</tr>
<tr>
<td>▪ Patient return demonstration</td>
<td>▪ Adequate</td>
<td></td>
</tr>
<tr>
<td>▪ Physical cues</td>
<td>▪ Utilizes resources if not confident</td>
<td></td>
</tr>
<tr>
<td>▪ Post test results (A1c, blood glucose)</td>
<td>▪ Involve family</td>
<td></td>
</tr>
</tbody>
</table>

Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging.

The first research question addresses perceived barriers that make giving diabetes self-management education challenging. Themes pertaining to Patients factors were the majority of perceived barriers mentioned by respondents. Cognitive themes such as
education level and literacy of patients were identified as a perceived barrier from more than half of the participants in the survey and focus group responses, “Most patients cannot read/write. Those that can read/write read at or below a 3rd grade level. Explanations must be very simple.” or “They are unfamiliar with carbohydrates being harmful if eaten in excess.” Culture and beliefs were also identified as a main barrier from more than half of the participants, “Cultural-Many patients are from Mexico or Central America and use home remedies (cactus juice to control blood sugar or nutralife instead of medications. These are cheaper than coming to the clinic. Sometimes, they think they have the evil eye so they go to faith healers called curandero, or healers to remove joint pain called sobadores).” Communication or language barriers existed for nurses providing care to immigrant populations if they were not bilingual. However, for those clinics servicing majority immigrant communities the nurses were bilingual. Language barriers were identified with the written materials if sufficient bilingual pamphlets and literature did not exist. Adherence and compliance were identified as a barrier from a quarter of the participants in both phases, “Medication (because they need to know the effect of medications and relation to blood glucose level, insulin versus non-insulin dependent differences, they may need hypo/hyper glycemic episode in order to really understand the effects of medication), if machines are different they will use machines incorrectly.” Income was identified from half the participants in through the focus groups, “They don’t want to pay for medication; although the clinic offers a free medication program, this must be documented and many of the patients are undocumented. CVS has a 6 dollar per month medication program.” or “Day laborers
don’t want to miss work to meet scheduled appointments or they will get fired.” Finally, other patient factors identified were understanding and acceptance of the illness or age of patient and willingness to change.

Organizational factors identified as perceived barriers were time to perform the education, not enough support staff or certified diabetes educators and lack of sufficient up to date materials. Common responses with staff and time include, “Clinic used to have diabetes class once a week but do not offer any more due to budget cuts.” and “poor leadership from nursing supervisor.” With respect to current up to date materials some comments include, “Limited staff … not keeping up with current literature because drug reps have stopped coming and providing materials and education to the clinicians”, “New technology is unfamiliar, nurses don't want to learn new information either”,

*Describe adult medicine nurses level of training and ability to provide diabetes self-management education.*

For the second research question assessing the confidence level of nurses to provide appropriate education, both provider and organizational barriers emerged as themes. Through the questionnaires, majority of nurses felt they were experts in their field with regards to diabetes education; “yes, I am an expert in my field. I try to give my patient what I believe is the most important piece of information that will assist them in their care” or “I feel that you become an expert in whatever area you're working in”. However, when the follow up focus groups were conducted, all groups were not comfortable with their knowledge and sharing that knowledge. They did refer to literature to support what they were teaching but were afraid they were using out dated
information. Some of these responses include, “Not experts, the teaching tools are there but comes with experience dealing with patients.” and “Somewhat. Not a certified diabetic educator but formerly gave diabetic classes twice a week in a prior role”.

Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.

The final research question looked at the different techniques nurses were using to provide education to patients. The theme of audio/visual resources (pamphlets, literature and video) as a method to transfer information was observed from almost all of the respondents. With this being the primary method of transferring knowledge, up to date materials is critical for the respondents and was identified as a barrier in the first research question. Also, mostly all participants identified application of adult learning principles such as repeat/reinforcement and return demonstration as a common practice for ensuring education is applied, “Repeat demonstration … tell me how you monitor blood sugars.” and “Do assessment to see if they know how to use medicine … asking questions … return demonstration”. Finally, more than half the participants identified using test results to measure adherence to the education practices as a theme. For example “15 minutes per visit per patient so focus on labs (if blood sugar is high find out what problem is) … They may not be taking medications or the foods they eat are whatever is on sale.” and “written logs of blood sugar levels and issues between appointments.” may be used for this purpose.
Chapter 5: Discussion & Recommendations

In summary, the research questions for this study are looking at which perceived barriers exist to providing self-management diabetes education (adult medicine nurses), if nurses felt empowered/qualified to administer it, and what methods are being used to implement said education. The questions are as follows:

1. Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging.

2. Describe adult medicine nurses level of training and ability to provide diabetes self-management education.

3. Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.

Policymakers and managers of health services, in developing and developed countries alike, are increasingly giving serious consideration to self-management support for people with chronic conditions. This is because the burden of chronic disease is rapidly becoming the main contributor to loss of life and well-being, and is impinging on the effective structural and economic function of health care systems (16, 27, 45-46). The number of people with chronic conditions is enormous and growing. Numerous clinical practice guidelines today explicitly include recommendations that optimum care includes
patients engaging in self-management. The clinic system from which the data was collected is no different in following this trend. While there is no formal process or program to implement self-management training of chronic illness at this public health clinic system, it is still something encouraged and perhaps through the Quality Assurance initiative for which the data was initially collected, a process will be implemented in the future.

Describe adult medicine nurses perceptions that make giving diabetes self-management education challenging.

Themes that occurred for the first research question were classic and as to be expected per the literature. The list below is a summary of the themes identified:

Patient/Provider Factors

- Knowledge/Literacy - Education Level of patient
- Language Barrier
- Psychological - Patient Understanding/ Acceptance of illness
- Adherence - Compliance of medication, diet or exercise
- Culture/Attitudes and Beliefs
- Age
- Income - (patients financial situation preventing them from buying medication or missing work to make scheduled appointments)

Organizational Factors

- Technology - Lack of current materials
- Time
Health Care Systems - Short staff (nursing), lack of Certified Diabetes Educators

Knowledge/Literacy/Language barrier - Education Level of patient

Education level/literacy is a common recurring theme found in this study. In the United States, literacy is equated with the ability to read and write English (55). With about 20% of the population falling below basic literacy level (35), it is no wonder this number is disproportionate in the low income communities (some also being immigrant communities) being served by the public health clinic system from which the data was gathered.

Many studies have been conducted seeking to address barriers to providing patients with self-management training, this data here only supports those findings; Chang et al., Nagelkerk et al., and Nam et al. are a few authors who have evaluated barriers to providing patient self-management education and identified education/literacy as a significant barrier (7, 31-32). While literacy and education level do play a role in being able to synthesize information, knowing is only half the battle and may be overcome. That being said, Nam et al. performing a systematic review of literature to address various perspectives and issues on both patient and health care providers’ barriers for diabetes management suggested knowledge is not enough to enact self-management behaviors, “knowledge itself may not be sufficient for motivating an individual to manage their diabetes” (32). Although those knowledgeable may be more likely to engage in self-management activities, consistency may not be established and impact patient outcomes.

Patient Understanding/ Acceptance of illness
Adult Learning Theory and motivation for learning states the adult learner is one that has developed a pattern of behaviors, thoughts, and feelings that influence how teaching is received and learning is experienced, therefore it is no surprise that this was another theme identified by the nurses as a barrier to teaching self-management (24). This suggests that understanding and acceptance of an illness outweighs the knowledge portion in terms of changing behaviors towards employing self-management practice. As the saying goes, you can lead a horse to water but you can’t force him to drink. People with diabetes hold a wide range of attitudes and beliefs about diabetes and its treatment which in turn affects the way they perceive the need for and importance of self-management education. Anderson et al. surveyed 1202 persons with type 2 diabetes, using a revised version of the Diabetes Attitude Scale (DAS) (3). Findings revealed an association between persons with positive attitudes and adherence outcomes. Literature also suggests that knowledge alone is not enough to change behaviors and teach self-management because understanding of the knowledge is also critical. For example Nam et al. sites several studies where transferring knowledge is inconsistent with outcomes, “Common misconceptions about the need for transitioning to insulin therapy may affect a patient’s ability to agree and participate in self-management of type 2 diabetes.”(32). It is important that nurses do not assume transfer of knowledge is sufficient and check for understanding. This check for understanding and repeat demonstration is something that has been identified as a technique the nurses know to use in question three.

Adherence
Adherence - Compliance of medication, diet or exercise is another theme that was commonly mentioned by the nurses. They often associated medication adherence with not fully understanding the function of the medication and physiology behind their illness. Diet and exercise non-adherence was often associated with habit, culture, acceptance and lack of knowledge (healthier foods options or types of exercises that can fit life style) from the responses. The suggestion here is that many reasons can contribute to adherence of medication, diet or exercise and adherence is something to be evaluated on a case by case basis. For example Parka et al. completed a study and determined higher depressive-symptom scores are associated with poor self-care behaviors, significantly with poor participation in education programs. The evaluation and control of depressive symptoms among diabetic patients would improve their adherence to self-care behaviors (40). Schlenk et al., completed a literature review on medication non-adherence among adults age 50 and older and noted rates of medication non-adherence have been documented from 25% to 59% depending on population and settings. The findings from Schlenks review further indicate the need to prioritize and evaluate adherence on a case by case basis especially since financial costs of medication non-adherence have been estimated to be $300 billion, decrease quality of life and increase undesirable clinical outcomes (9, 47).

Culture/beliefs and Age

Behaviors associated with response to illness, such as fear, pain, and anxiety, are culturally determined because it can influence an individual’s beliefs, attitudes, knowledge, and behaviors (7). However, it is also vital to consider individuals and not
assume they adhere to all traditions inherent to their cultures customs (18). Cultural beliefs (and age) was identified as a main barrier by all the nurses in this study, however, this was mostly observed when the provider and patient were of two different backgrounds. Diet, exercise, attitudes towards illness, home remedies are really variable among communities and individuals but the motivation towards making better self-management is heavily influenced by said culture, social support in the community, or leaders of the community. Often times the nurses felt they did not have the authority that resonated with the patient to make a change. The patient may have sought medical treatment as a routine checkup or to get the free medication, but did not take the diet and exercise portion seriously or necessary. Reinschmidt et al. conducted an interesting study at the US-Mexico border (Hispanic community) where a community-based participatory approach was employed (43). The program successfully used community health workers, or promotores de salud, documenting them as effective intermediaries between the community and local health care providers in Mexican American communities. This approach allowed practitioners to incorporate local skills and knowledge and to accommodate local ways of social interaction.

*Income*

In addition to culture, income was another barrier to employing self-management practice and imparting said education. This is less mentioned because the clinic system does offer free medication or doctor visits, however, the hours are inconvenient for the hourly laborer. For those hourly laborers, they would rather not take off of work and risk termination or lose the wages of the time lost. This finding was mentioned more by the
nurses. The literature also finds income to be a factor; cost of treatment may be a significant barrier to diabetes treatment, particularly for patients with a low socioeconomic status and limited to no health insurance coverage or making scheduled appointments due to risk of lost wages. For example, Nagelkerk et al. notes “the cost of medication, educational classes and supplies can deplete the financial resources of people with diabetes and create frustration in disease management …. some participants developed ineffective coping mechanisms, such as halving tablets, testing their blood glucose less frequently or foregoing educational classes, others developed creative solutions for accessing resources and were anxious to share these methods with the group” (31). In addition, Gucciardi conducted telephone interviews with individuals who had Type 2 diabetes (n = 267) and attended a diabetes education center. Findings showed “The most common reasons given by participants for attrition from the program were conflict between their work schedules and the centre's hours of operation” which is consistent with this barrier identified in our study (14).

Technology (current materials), Time, Health Care Systems

Lack of current materials, time to educate their patients, short staffing (nursing), and lack of certified diabetes educators are all organizational barriers that the nurses identified. We can see examples of lack of time or appropriate staffing in the available literature as a noted barrier to self-management education. For example, the Jansink et al. qualitative semi-structured study involved twelve in-depth interviews taking place with nurses in Dutch general practices involved in diabetes care noted, “lack of sufficient time for additional tasks such as keeping pace with new developments … practice
management will not provide more time because it is expensive … there is not enough consultation with the dietician … sometimes the general practitioner has to attend to an emergency and our conversation is left unfinished.”(20)

Appropriate up to date or current materials are another topic found in the literature that this study has supported. For example, Inott et al. and Townsend et al. evaluate learning styles and pay careful attention to developing materials for low-literate patients and help us to understand this barrier can be overcome (18, 55). Some suggestion includes:

• Using visual diagrams to explain complex text
• Using auditory material for processing information through hearing
• Using kinesthetic or tactile methods for those patients who prefer practice and familiarity in order to grasp understanding

• For those communities serving immigrant populations where English is a second language, bilingual materials as well as interpreters are a must to ensure the message is communicated. The data from this study suggests the nursing staffs is bilingual and are able to communicate effectively with their patients, however, written materials in Spanish need to be improved.

Describe adult medicine nurses level of training and ability to provide diabetes self-management education.

The second question looked to answer the confidence level of the nurses and their ability to provide patient education to adult diabetes patients and whether or not they perceived themselves as knowledgeable. The responses were not consistent between the
survey and the focus groups/interviews. Of the nurses who took the survey, 75% felt they were knowledgeable and confident in their ability to provide appropriate self-management training. The other quarter stated their knowledge was “adequate” and they need more training. The focus groups/interviews, responses painted a different picture. The same nurses responded in these groups stating they did not feel confident in their knowledge and needed more time to perform the function and up to date materials to keep up with current practices. We are not sure why there was a change in tune between the phases of data collection; however, the method used may explain the variation. Although the survey questions were open-ended, it was in a class setting and at the end of the day after a class. The responses to the survey were short and to the point. The focus group setting was different and the researcher had more time to sit with the nurses and probe for detailed responses. Perhaps through probing, and the reflection on barriers, both provider and organizational, the nurses may have seen gaps in their ability. In the focus group setting, the researcher listens not only for the content of focus group discussions, but for emotions, ironies, contradictions, and tensions. This enables the researcher to learn or confirm not just the facts (as in survey method), but the meaning behind the facts. Focus group method strives to produce good conversation on a given topic. Good conversation ebbs and flows.

The gaps in training and available resources are also identified through evaluation of perceived barriers with the first research question. For example, issues of being short staffed, lack of time and lack of current materials or a Certified Diabetes Educator are all organizational barriers that also impact confidence in the nurses’ ability to provide
appropriate diabetes self-management skills. With that being highlighted, one might say they are almost set up to fail in performing this function. If the clinics expect the nurses to perform this function, they will need to be empowered to do so. Kosmala et al. conducted a study including 482 clinicians who were surveyed once (cross-sectional design) and 114 clinicians who were surveyed before and after self-management support (SMS) training (longitudinal cohort) which evaluated factors effecting confidence (25).

“We conclude that to facilitate clinicians to practice SMS it is very important to provide relevant professional training, professional support and incentives to foster clinicians’ perceptions of their competence in relation to these practices. Organizations should develop a culture that values SMS, offer training to clinicians to enhance their sense of competence to effectively deliver SMS and support clinicians in finding their own way of supporting SM; in other words to create an optimal context to internalize regulation to support SM.” This study is consistent with the findings in our study. *Describe techniques used by adult medicine nurses when providing diabetes self-management education to adult patients.*

For the third question the techniques used by the nurses in the clinics were identified. The themes identified are in line with adult learning techniques such as repeat, practical, reinforce and teach back. The responses are consistent with what the literature recommends, however, there is opportunity to strengthen their techniques. The literature really encourages analyzing patient ability, collaboration of objectives, utilize appropriate materials, require learner performance and evaluate learning occurred. Inott et al. uses these principles in their ASURE model and states “collaborating with the patient to assess
for primary and secondary concerns fosters the environment of teaching and learning” (18).

The responses in this study suggest techniques to analyze are being utilized but the mention of this is not frequent, only one response seemed to address this step in the process “Every patient has to have vitals taken before their appointments and diabetics will have a glucose reading. This starts the conversation of what medications they use and if their sugar appears to be controlled. We can find out the patients diet that day and if they have run out of insulin.” The literature suggests nurses should be trained in agenda setting to structure the consultation based on prioritizing the behavior change for diet, exercise, medication adherence and glucose monitoring (10, 20, 60). One would argue that is not something that gets much attention. If time is a significant barrier, its appears as if this step may be taken for granted and not getting done or the nurses did not think to mention it.

Use of appropriate materials was addressed in both research questions one and two. We know at this point, the nurses are not using current up to date materials or the current media and tools to impart the education to patients. The literature really stresses the importance of appropriate materials and this study can add immediate value to the clinic system by highlighting this gap. It is important to use multiple instruction and evaluation strategies based on the nature of each patient’s ability to learn (50). Also, literacy, culture and beliefs were commonly identified as impacting ability to learn so these must be taken into consideration. The cognitive and compensatory functions of
patient education materials with their visuals are particularly important for patients whose primary language is not English (55).

CONCLUSION AND RECOMMENDATION

While many barriers both Patient/Provider and Organizational exist as shown through the literature and evaluation of the data used for this research, all is not lost. The nurses seem to know and understand the principles that are found in the literature. There is an opportunity to develop a more systematic approach in order to overcome these barriers and ensure continuity of care. The available literature has demonstrated programs which have been successfully implemented finding creative ways to overcome said barriers and improve provider confidence through adult learning techniques that have shown intended outcomes (18). Some of the recommendations mentioned in this discussion are reiterated below:

- Organizations should develop a culture that values self-management education, offer training to clinicians to enhance their sense of competence to effectively deliver self-management education and support clinicians in finding their own way of supporting self-management.
- It is important that nurses do not assume transfer of knowledge is sufficient and check for understanding.
- As supported by the literature, analyzing patient ability, collaboration of objectives, utilize appropriate materials, require learner performance and evaluate learning occurred is encouraged (18).
- It is important to use multiple instruction and evaluation strategies based on the nature of each patient’s ability to learn (50). Also, literacy, culture and beliefs were commonly identified as impacting ability to learn so these must be taken into consideration with materials being developed accordingly.

- As supported by the literature, we suggest nurses should be trained in agenda setting to structure the consultation based on prioritizing the behavior change for diet, exercise, medication adherence and glucose monitoring (10, 20, 60).

- Prioritize and evaluate adherence on a case by case basis

- Finally, to promote interdisciplinary communication, continuity of care, and support quality improvement efforts, written documentation of all aspects of patient education is critical. To meet JCAHO standards, documentation of patient education should reflect essential information for self-care, instructional activities, evaluation methods used, and specific actual outcomes (53). Documentation allows the clinics to develop metrics and identify areas of improvement or enhancements going forward.

Studies such as this one is also a good example of evaluating current state and proposing suggestion for going forward. It is a good indication for the clinic system here to prioritize self-management education and instill a program that supports self-management empowering the nurses to do their jobs.
References:


17. Howell W (2013). Available at:


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Appendix A: Diabetes Self-management Questionnaire

Profession (title): ________________________________

The following questions are based on personal experiences and attitudes gained in your clinical setting regarding patient education. Please be as detailed as possible.

1. Describe the factors--patient and professional--that make giving information in health care challenging.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

2. Identify factors that can affect patients' responses to information received.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

3. What are some techniques you may use to get your message across effectively?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
4. Identify resources and strategies that can improve your effectiveness when giving information.
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

5. How often are you involved in giving information to patients?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

6. Are you an expert in your field? If not, how do you judge what information you feel confident to share with a patient?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

7. How would you describe your range of skills and knowledge of the topics discussed in your patient education setting?
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
8. How would you describe your resources available to support patient education in your clinical setting?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

9. Are there particular types of patient groups for whom you find it challenging to give information? Why is this?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

10. How do you assess patient understanding? What do you do to overcome lack of understanding?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

11. Of your patient interaction, who is receiving and giving the information?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

12. What format do you use when providing patient information?
13. How would you describe the proportion of the following in your clinical setting:

a. Those with low literacy.

b. Children and adolescents.

c. Those whose first language is not English.

How do these patient populations affect your ability to provide patient education?

14. How are the materials in your clinic assessed for sound, up-to-date, and subject-specific knowledge?

15. Some examples of models of health education include:

* Behavior change--the purpose of giving information is to change behavior and enhance concordance with treatment regimens.

* Educational--the purpose of giving information is to inform individuals and allow them
to make choices regarding health.

* Client-directed--giving information focuses on a patient-led agenda.

Think about the different health education models described above. Which of these do you usually adopt in your patient education? How might this affect the nature of your relationships with patients?
Appendix B: Follow-up Focus Group/Interview Questions

Focus Group Questions:

1. Are you an expert in the field?
2. What would you say are the barriers to providing patient education?
3. What are the methods you use for providing education?
4. What method do you use to assess patient understanding?
5. What are the barriers for patients being compliant?
6. When and how often do you give education?
7. What suggestions do you have for improving your clinical setting with regards to providing education?
8. Additional comments: