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DEVELOPMENT OF A PHYSICIAN OFFICE VISIT DIABETES EDUCATION CURRICULUM FOR MEDICAL ASSISTANTS AND EVALUATION BY EXPERT REVIEW

BY

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M.P.H., Emory University, 2012
Enfermera, Universidad del Norte, 1985
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Thesis Committee Chair: Melissa Alperin, MPH

An abstract of
A Thesis submitted to the Faculty of the
Rollins School of Public Health of Emory University
In partial fulfillment of the requirements of the degree of
Master of Public Health in the Career MPH program
2012

Abstract

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Diabetes self-care is complex. Diabetes management requires the person with diabetes to assume responsibility for self-management of the condition; this includes obtaining knowledge, skills and changing current unhealthy behaviors for healthy diabetes care practices. Diabetes self-management training (DSMT) addresses the behaviors of healthy eating, being active, taking medications, problem solving, healthy coping and reducing risks. The practice guidelines for diabetes education and matching competencies have contributed to the field by clarifying different roles that contribute to the education of the individual with diabetes. The purpose of the guidelines is to delineate the roles of multiple levels of diabetes education providers. The American Association of Diabetes Educators (AADE) has identified 5 levels in the continuum of providing diabetes education from basic to a more complex process. They have also identified the competencies required by each level to deliver diabetes education. The purpose of this project is the Diabetes Self-Management Education (DSME) curriculum that a level 1 can deliver during their routine daily activities. Individuals with diabetes access the care for preventive, diagnostic and treatment of conditions through clinic or physician offices. This makes the Physician Office Visit (POV) an ideal setting to initiate DSMT. The curriculum development process was initiated with a brief needs assessment that included stakeholder groups of the medical assistant (MA) as the intended end user and the decision maker group; those with the power to implement this change into a delivery care model. This latter group included physicians, certified diabetes educators and clinic administrators. The questions addressed issues of when during the POV could the education take place and what topics could be included. The curriculum was developed following Ralph Tyler principles and the instructional objectives were created following Robert Mager's systematic derivation of instructional objectives method. The evaluation consisted of presenting the curriculum materials to a group of diabetes education experts who provided their opinions on the content and completeness of the materials and this constituted the formative evaluation of this thesis project. The findings from the brief needs assessment show that both stakeholder groups identified as the most appropriate routine task to perform diabetes education during the vital sign checks, while the patient is in the exam room and during the discharge process. The opinion of these two groups about the topics to be included differed in regards to healthy eating 100% of the MAs agreed that this topic had to be included, in the decision maker group 65% agreed that the healthy eating topic had to be included. The evaluation by expert review produced qualitative results this group recommended that the scope of practice for the MA in diabetes education had to be defined, that it had to be tied to competencies and to a capacity training program. Other salient points from the expert group were to make the curriculum glucose centric, with simple messages, and include trigger questions that would identify risky situations. The group was clear that this level of diabetes education provider was to transmit and not interpret information. The group also settled that the process was to create a conceptual model that would guide the curriculum constructs and content.

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ACKNOWLEDGEMENTS

My journey through graduate education has been filled with discovery, inquiry, excitement, learning and emotion. As I reach the culmination of this experience I think of my family, friends, colleagues and professors that supported me through these last three years.

Thanks to my husband Jose, and my children Jose, Laura and Leo, Pili and Jon and Marcela that respected my dedication and supported the effort I gave to this MPH. The love for the "ogre" I turned into as I learned how to be a student all over again. To my friends Candy and James for all the Friday debriefing sessions, for listening and providing me with personalized English grammar tutoring. Thanks to my Emory colleagues for the encouragement and support. Andrés Celedón, I am grateful to you for your unconditional technical, logistical and copy editing advice. Thanks so much Britt, for your support through this challenging process. To my dear friend and colleague Lana Vukovljak that insisted that the next step in my career was to obtain a graduate degree.

To my Rollins family and colleagues, Moose, Kathy, Melissa, The Julia's and Naomi and all my professors for an excellent learning experience. I am also grateful to Betsy and to Moose - my thesis committee. Betsy, muchas gracias! for your guidance and for the time that you invested in this project and in me. Thanks also to Kai Stewart that offered her expertise in evaluation and for her time in listening to my ideas. I appreciate the time and interest of the healthcare providers that contributed to the needs assessment and to my colleague diabetes educators that engaged with such passion in the review of this curriculum. To the cohort that started in the fall of 2009, the best group at Rollins School of Public Health. I also want to thank my new colleagues at the Johnson and Johnson Diabetes Institute for their support in my new role that allowed me the flexibility to complete this thesis.

To all of you I dedicate this degree.

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Chapter I- Introduction

Introduction

Diabetes self-care behaviors are complex and difficult to maintain through a lifetime. Successful self-care requires the individual with diabetes obtain knowledge and skills while changing current unhealthy behaviors. Diabetes self-care behaviors are defined by the American Association of Diabetes Educators (AADE) as the AADE 7 self-care behaviors and include, healthy eating, engaging in physical activity, using medications, monitoring health status, solving problems that result in hypoglycemia and hyperglycemia, and coping with the complexity of living with this chronic and progressive condition (Mulcahy et al., 2003). Traditionally, diabetes self-management has been provided by diabetes educators in settings such as inpatient and outpatient hospital services and, most recently, in community locations including physician offices and primary care clinics. Patients are seeking diabetes healthcare services at physician offices and clinics, which make it the ideal location for an interaction that includes diabetes self-management education (DSME). Physicians and other mid-level professionals are the principal providers of medical care for individuals with diabetes; physicians are supported in their work by clinical staff such as medical assistants (MA). Diabetes educators are appreciated and valued, but due to reimbursement issues, they are seen as a luxury and expensive addition to a healthcare team. The ideal combination is to add to the continuum of DSME, initiation and reinforcement of DSME during the physician office visit delivered by the MA.

The medical care encounter between a physician and a patient is called a physician office visit (POV) and depending on the setting, it may also be a clinic visit. These visits occur as

frequently as the individual's health requires it, and in diabetes care it provides an excellent opportunity to initiate and maintain diabetes self-care training activities. The MAs role offers great potential in diabetes self-management training (DSMT) because of the time they spend with the patient during the POV. This relationship presents as a good solution for the MA to assume the role of first line diabetes education provider. A curriculum to be delivered by MAs during the POV was built on current available resources and will contribute to increase access of individuals with diabetes to DSME throughout their lifetime.

Behavior Change Theory

Albert Bandura's social cognitive learning theory (SCT) proposes that people are driven by external factors. The model suggests that human functioning can be explained by the interaction of behavior, personal and environmental factors. The theory presents the following constructs that can be applied for the development of learning activities and includes behavioral capability, self-efficacy and outcomes expectations. Behavioral capability refers to the knowledge and skill needed to perform a given behavior; it promotes mastery learning through skills training. Self-efficacy is about the person's confidence in performing a specific behavior; it approaches behavior change in small steps to ensure success. Another construct of the SCT is outcomes expectation and it refers to the expected results of a behavior (Bandura, 2004). The philosophy that guides the content of this program is the MA providing transfer of information and skills such as blood glucose monitoring, insulin injection, foot exams, among others.

The process to create the curriculum included a brief needs assessment targeting two stakeholder groups: The intended end user who is the medical assistant and the decision makers responsible for the future implementation of the curriculum who are the physicians, the

clinic/practice administrators and the diabetes educators. The curriculum was created based on the social cognitive theory and it was evaluated by a review of an expert panel.

Understanding Diabetes

Diabetes is a chronic and progressive disease characterized by the presence of hyperglycemia. Comorbid conditions associated with diabetes include hypertension, dyslipidemia, inflammation, hypercoagulation and endothelial-cell dysfunction (Ismail-Beigi, 2012). The goal of diabetes management is the prevention of acute and long-term complications, which will contribute to the achievement of an optimal health status and quality of life (QOL).

Diabetes has reached epidemic proportions and it is considered a public health problem in the United States (US) and around the world. In 2011, the Centers for Disease Control and Prevention (CDC) estimates a total of 25.8 million people in the US to have diabetes. These include 18.8 million diagnosed individuals and 7 million of undiagnosed cases (Prevention, 2011). In 2007 the total estimated cost in the US of diabetes was $174 billion including direct and indirect costs ADA (Association, 2008). Significant disparities exist among minority populations who are affected by diabetes disproportionately; presenting with higher prevalence rates, poor diabetes control and higher rates of complication (Monica E. Peek, 2007; Peek, Cargill, & Huang, 2007). The CDC projects that if the current trend continues, one in three children born in the US after the year 2000 will develop diabetes; for ethnic minorities, including black and Latinos, one in two children will develop diabetes (Narayan K, 2003). These differences can be affected by determinants of health which include a range of personal, social, economic and environmental factors influencing the individual's heath status.

U.S. Health Policy Agenda

Healthy People is the national public health agenda released by the Department of Health and Human Services each decade. It is a set of goals and objectives with 10-year targets designed to guide national health promotion and disease prevention efforts to improve the health of all people in the US. In 2000, *Healthy People* presented measures aimed at reducing health disparities and in 2020 *Healthy People* introduced the concept of health equity and addresses the topic of diabetes care (Services, 2011).

People living with chronic conditions are of special concern for today's healthcare system. They are living longer, not achieving optimal control of their disease, which causes complications, resulting in higher costs to the system. Epidemiologic shift from infectious diseases to chronic diseases has prompted a change in how the U.S. healthcare system continuum of care addresses issues from the individual to the policy level (Care, 2006-2012). Diabetes is one of these conditions causing social concern because of its high prevalence and high cost.

Diabetes a Chronic Condition

Management of the chronically ill faces challenges related to treatment adherence. Effective self- management of non-communicable conditions requires technical skills to perform the self-care behaviors necessary to treat the condition and prevent complications. To minimize the frequency and severity of disease symptoms, healthy behaviors must be adopted to decrease dysfunction and increase participation of normal activities. In order to reach the diabetes treatment goal of reducing complications, individuals will have to master diabetes self-care behaviors, which will require the acquisition of knowledge, skills and behavior modification.

Diabetes Self-management Education

The process known as diabetes self-management education (DSME) or diabetes self-management training (DSMT) is the key element in the improvement of patient outcomes in diabetes care. It is a conscious effort, an ongoing process facilitating knowledge, skills and the abilities necessary for diabetes self-care. The process incorporates the individual's needs, goals, and life experiences and is guided by evidence-based standards. The objectives of DSME/T are to support informed decision making and problem solving, facilitate optimal self-care behaviors and promote active collaboration within the healthcare team to improve clinical outcomes, health status and quality of life (Duncan et al., 2011). DSME must be ongoing, to provide reinforcement of effective behaviors and to modify and update to new advancements in diabetes care.

The Physician Office Visit

The POV offers an ideal opportunity to integrate elements of DSME into routine care. Individuals seeking preventive medical care, diagnosis and treatment of acute and chronic conditions utilize the POV. Medical assistants are utilized as members of the heathcare team in clinics and physician offices; they perform a variety of duties including administrative and clinical tasks. Some of the clinical duties consist of walking the patient to the exam room, obtaining vital signs, completing tasks in the electronic medical record (EMR), preparing the patient for the medical exam, obtaining and performing diagnostic tests, and providing treatments and discharge instructions. In the current model, the MA has the patient's attention at the beginning and at the end of the POV. The role of the medical assistant can be expanded to be the entry-level provider of diabetes self-management training. This intervention will increase

access to basic diabetes self-care knowledge and skills for the patient and it will also provide referrals to diabetes educators if required.

After identifying the value of the clinical support staff in having access to the patient with diabetes, Emory University *Diabetes Education Training Academy* developed a course for MAs called *Diabetes Education for Clinical Support Staff* (DECSS). The curriculum that serves as the basis for the DECSS Program is the American Association of Diabetes Educators' (AADE) *Fundamentals of Diabetes Care Course*. *Fundamentals of Diabetes Care* is a self-paced, 6-module online program that focuses on training medical assistants, licensed practical nurses, and other healthcare technicians to deliver appropriate level diabetes care to patients within their practice setting (AADE, 2012). The goal of this program is that after completion, technicians will be better prepared to assist patients with diabetes and teach them DMSE. The online course includes a detailed multi-media lecture presentation, interactive exercises to reinforce learning, additional resources for continued learning, and printable job aids (AADE, 2012). The Emory Latino Diabetes Education Training Academy adopted this course as the curriculum and added a face-to-face component. A 5-hour, skill training session that included the completion of the online modules. Skills in how to train patients on the plate method, teach an exercise routine using elastic bands, how to teach self-monitoring of blood glucose and how to prepare and administer insulin.

During this experience a gap was identified between providing the MA with diabetes knowledge and skills and their ability to translate the acquired knowledge into diabetes education for the patients. Medical assistants are missing clear direction of when, what and how to provide diabetes education to their patients.

The Medical Assistant

Medical Assistants work in physician offices and other healthcare facilities performing different administrative and clinical tasks. In 2010 there were 527,600 medical assistant jobs (Bureau Labor Statistics, 2010). Their educational background is a high school diploma and on the job training. The American Association of Medical Assistants (AAMA) advocates and drives the profession to more formal training and a certification. The annual wage is $28,860 and employment is expected to grow 31% in the next 10 years (Bureau Labor Statistics, 2010).

U.S. Models of Care

New models of care are being implemented in primary care with the most common being Patient Centered Medical Home (PCMH) and Shared Medical Appointments (SMA). These models provide opportunities for the MA to get involved in self-care education and offer services that will engage the patient with chronic conditions in therapeutic relationships with primary care providers. New roles are being introduced in healthcare, the most common in diabetes management are community health workers (CHW) and peer leaders. These new members join the healthcare team to provide linkage between the health care system and the patient. The role of the MA, which is already a trusted member of the healthcare team, and has a defined role assisting the physician, offers an easier practice change than that of the CHW. These models have been explored and piloted by the Diabetes Initiative of the Robert Wood Johnson Foundation (RWJF, 2010).

Barriers to DSME

The current model of DSME is overflowing with barriers to access a long-term relationship with the diabetes educator. Some examples include: the requirement of an MD/provider referral for DSME for payment, limited hours of DSME are reimbursed, standard

amount of hours for every patient, limited location and a shortage of diabetes educators. Other barriers consist of patients having trouble navigating a complex health care system, diagnosis of diabetes does not automatically initiate self-management education, the time allotted to see a provider is limited, episodic versus comprehensive care, patient education is undervalued by healthcare system and payers, complexity of diabetes education, patient's low level of health literacy and numeracy, inadequate training of nurses and other providers in diabetes education, lack of evidence or knowledge of existing evidence to support DSME, lack of research skills among different levels of nursing, lack of coordination between researchers and clinicians. The Diabetes Educator or Certified Diabetes Educator (CDE) is responsible for delivering all DSME and this is a significant access barrier to diabetes education.

Diabetes Education Guidelines

Different members of the team provide diabetes education at different levels of complexity. The American Association of Diabetes Educators (AADE) authored Diabetes Education Guidelines, which identify five levels of providers in the diabetes education continuum. Level 1 is the non-healthcare professional and it includes community health workers, peers and the MA. Level 2 is the healthcare professional that cares for different types of patients including those with diabetes. Level 3 is the healthcare professional that concentrates on caring for patients with diabetes and has gone through training to increase his/her knowledge and skill in diabetes education; this person is now considered a diabetes educator. Level 4 is the certified diabetes educator, which reflects a mastery level in DSME. Level 5 is a provider with prescriptive authority which includes midlevel staff and Physicians (Educators, 2009).

This project offers an intervention designed for the Level 1; the designation that includes non-professional healthcare providers who have little expertise in diabetes education and/or

management, but provide and/or support healthcare services to individuals with diabetes. Level 1 educators include, but are not limited to: health promoters, health educators, and community health workers.

A key focus of the Level 1 educator is culturally appropriate practical problem solving, advocacy, and assistance with obtaining access to care, services, medications, etc. As part of a multi-level DSME/T team, these individuals provide non-clinical instruction and performance of activities should be under the direction of a qualified diabetes healthcare professional who has training and expertise in areas relative to the direct care and ongoing support services. Level 1 educator can be expected to perform the following:

- *Assessment:* Measure vital signs and anthropometrics, assess literacy, and follow protocols for patient intake. Assessment may include family and social support systems. Provide support, general information, and guidance regarding accessing care, available diabetes education offerings, and financial assistance.

- *Goal Setting:* May help patients by providing basic information and assisting in setting basic goals for healthy eating and physical activity.

- *Planning.* Follow the prescriber's orders and diabetes educator's guidance for planning.

- *Implementation:* Refer/support diabetes management skill training, and offer guidance on accessing care and financial resources. Level 1 educator may provide non-clinical instruction and lead support groups or organize a community physical activity (e.g., walking group). Individuals at this level refer to the prescriber or diabetes educator as needed.

- *Monitoring/Evaluation:* Monitor progress toward the plan and report findings to the prescriber and diabetes educator (AADE, 2009).

AADE has also identified diabetes education competencies for each level addressing them in 5 domains that include pathophysiology, epidemiology and clinical guidelines for diabetes; culturally competent supportive care across the lifespan; teaching and learning skills; self-management education and program and business management. The AADE in the Guidelines for Diabetes Education has identified the role of the MA and the competencies that this level of provider must meet in order to provide diabetes education (AADE, 2009). Diabetes educators can be accessed, as patients are ready to move to more complex issues in diabetes self-management.

This Level 1 diabetes education provider will be able to do the following regarding teaching: reinforce information provided by qualified diabetes professionals; convey educational materials to patients accurately; assists patients to acquire accurate diabetes educational materials; assists with skill development; coach patients in an effective and ongoing manner to address self-management of a chronic and progressive condition; refer and provide consult to appropriate team members; and follows the AADE7 Self-Care Behaviors™ framework when caring for diabetes patients.

DSME Curriculum

The curriculum that was developed as a result of this project provides the MA with very clear direction to educate patients with diabetes during the physician office visit. In order to design the intervention of a curriculum to be delivered by MAs during the POV, a brief needs assessment was designed to identify the times that present themselves as ideal teachable moments and the DSME topics that will be addressed and reinforced in this setting with the MA.

A theory-based intervention was created based on the Social Cognitive Theory using the constructs of behavioral capability, self-efficacy and outcomes expectation.

The learning needs of patients with diabetes and the system constrains for MAs to be able to deliver DSME during a tight and busy routine will be the challenge of this project. The delivery includes intervention methods that translate into practical learning activities.

The purpose of this thesis project is to create DSMT content appropriate for the MA to provide to the patient during the physician/clinic office visit. The needs assessment conducted at the beginning of the intervention provided insight into the *teachable moments* and the topics that will be appropriate following the AADE7 self-care behaviors framework. The setting offers access to the patient at diagnosis and through a lifetime. The MA can provide main diabetes related health messages, teach skills, follow up and when required refer to more complex diabetes education. An evaluation by an expert panel appraised the structure and content.

This project offers an answer to the issue of access to DSME, providing a cost effective and simple solution that enhances the patient experience and health outcomes. This model reaches different populations affected by diabetes including children and pregnant women. The skills and basic knowledge that MAs will acquire are transferable through different settings. It will also impact the profession of medical assisting, the American Association of Medical Assistants (AAMA), the professional association of MAs in their strategic plan that includes their vision for greater involvement in teaching and patient care.

The epidemic of chronic diseases, longevity and better treatments require that access to the management of non-communicable diseases including behavior modification is incorporated into the routine access of patients into the healthcare system.

Definitions of Terms

Medical Assistant (MA): Completes administrative and clinical tasks in the offices of physicians, podiatrists, chiropractors, and other health practitioners. Their duties vary with the location, specialty, and size of the practice.

http://www.bls.gov/ooh/Healthcare/Medical-assistants.htm

Physician Office visit (POV): A doctor's visit, also known as “visit" or "physician office visit", is a meeting between a patient with a physician to get health advice or treatment for a symptom or condition.

http://www.medscape.com/features/slideshow/compensation/2011

Clinic: An institution connected with a hospital or medical school where diagnosis and treatment are made available to outpatients.

www.merriam-webster.com/medlineplus/clinic

Diabetes self-management education (DSME): Is the ongoing process of facilitating the knowledge, skills, ability and attitude necessary for diabetes self-care.

www.diabeteseducator.org

Diabetes self-management training (DSMT): Term use by Centers for Medicare and Medicaid Services (CMS) in reference to the service of DSME reimbursed by Medicare.

http://www.CMS.gov

Needs assessment: A process for program planning used to determine opportunities and desired conditions.

WHO, http://whqlibdoc.who.int/hq/2000/WHO_MSD_MSB_00.2d.pdf

Curriculum: A plan that consist of learning opportunities for a specific time frame and place, a tool that aims to bring about behavior changes in students as a result of planned activities

and includes all learning experiences received by students with the guidance of the school. (Goodland and Su, 1992)

Expert evaluation: Appraisal of a product or service by someone who has the professional training or experience to make an informed judgment on the design.

http://www.tiresias.org/tools/expert_evaluation_toolkit.htm

AADE7 ™ Self-care behaviors: Is a framework essential for improved health status and greater quality of life in people with diabetes. They are healthy eating, being active, monitoring, taking medication, problem solving, healthy coping and reducing risks.

Healthy eating: Making healthy food choices, understanding portion sizes and learning the best times to eat are central to managing diabetes.

Being active: Addresses regular physical activity as important factor for overall fitness, weight management and blood glucose control.

Monitoring: Daily self-monitoring of blood glucose provides information needed to assess how food, physical activity and medications affect blood glucose levels.

Taking medication: The healthcare team will determine which medications should be taken and help understand how medications work.

Problem solving: High or low blood glucose episodes or a sick day management will require rapid and informed decisions about how to manage food, activity and medications.

Reducing risks: Effective risk reduction behaviors such as smoking cessation, regular eye, foot and dental examinations reduce diabetes complications and maximize health and quality of life.

Healthy coping: Health status and quality of life are affected by psychological and social factors.

http://www.diabeteseducator.org/ProfessionalResources/AADE7/

Determinants of health: There are health conditions with which people are born, grow, live, work and age including the health system. These circumstances are shaped by the distribution of money, power and resources at global, national and local levels. Social determinants of health are responsible for health inequities.

WHO, http://www.who.int/social_determinants/en/

Diabetes education: Also known as diabetes self-management training (DSMT), or diabetes self-management education (DSME), is defined as a collaborative process through which people with or at risk of diabetes gain the knowledge an skills needed to modify behavior and successfully self-manage diabetes and its related conditions.

www.diabeteseducator.org

Teachable moments: It is the time at which learning a particular topic, skill or idea becomes possible or easiest. A moment when a learner asks a question, identifies problems and needs, and learns problem solving skills to cope with the demands imposed by a chronic condition like diabetes onto the health outcomes and the quality of care, or becomes open to the opportunity of learning a specific piece of information.

http://www.lomalindahealth.org/medical-center

Social cognitive theory: Albert Bandura's social cognitive learning theory proposes that people are driven by external factors. The model suggests that human functioning can be explained by the interaction of behavior, personal and environmental factors. This is known as reciprocal determinism. Environmental factors represent situational influences and the environment in which the behavior is performed. Personal factors include instincts drives, traits

and other individual motivational forces. Variables that intervene in the process of behavior change include self-efficacy, outcomes expectation, self-control and reinforcements.

Self-efficacy: A judgment of one's ability to perform the behavior.

Outcomes expectations: A judgment of the likely consequences a behavior will produce.

Self-control: The ability of individuals to control their behaviors.

Reinforcement: Something that increases or decreases the likelihood a behavior will be maintained.

(The World Bank, 2012)

Patient Centered Medical Home (PCMH): Approach to providing comprehensive primary care. Team based model of care lead by a personal physician who provides continuous and coordinated care throughout a patient's lifetime to maximize heath outcomes.

http://www.ACPonline.org/running_practice/pcmh/

Shared Medical Appointments (SMA): Also known as group visits, are an efficient, effective and satisfying way to manage patients with similar health conditions. Multiple patients are attended as a group for follow-up or routine care.

http://www.AAFP.org

Chapter II- Literature Review

Background

The Institute of Medicine appointed the Committee on Quality of Health Care in America to identify strategies to improve the quality of care delivered to Americans. In 2001 the committee published the report titled *Crossing the Quality Chasm: A new health care system for the 21st century.* The recommendations are presented as a new perspective on the purpose and goal of the U.S. healthcare system, the patient-provider relationship and how care processes can be designed to optimize responsiveness to patient needs (IOM, 2001).

The epidemic of chronic diseases, longevity and better treatments require that access to the management of non-communicable diseases including behavior modification is incorporated into the routine access of patients into the healthcare system. During the past century healthcare has seen great improvements in the area of communicable diseases, which has increased life expectancy. This epidemiologic transition contributes to the explosion of chronic diseases. Other challenges in healthcare include health disparities and social determinants of health.

Diabetes is the prototype of chronic diseases; it is a complex condition to be managed by the healthcare provided, the patient, and their relatives. Diabetes Mellitus is a serious disease characterized by high blood glucose levels that result from defects in the body's ability to produce and/or use insulin. It affects 25.8 million people nationwide, or 8.3% of the US population. Among adults age 20 and older, diabetes affects 11.3% of all people in this age group; in the age group of 65 or older it affects 10.9 million people, or 26.9%. Worrisome, only 18.8 million cases are diagnosed with the remaining 7 million still undiagnosed (CDC, 2011).

The high prevalence of the disease combined with the large numbers of undiagnosed people raises much concern because of the frequent comorbidities that result from inadequate diabetes care. Diabetes is the leading cause of end stage renal disease, non-traumatic lower limb amputations, and new cases of blindness among adults in the U.S. (Ismail-Beigi, 2012). Additionally, diabetes is a major cause of stroke and other prevalent diseases impacting the nation, such as cardiovascular disease. As the 7th leading cause of death in the U.S., the overall risk of death for people with diabetes is two times higher than people of the same age without the disease (CDC, 2011).

In addition to the $58 billion of annual indirect costs resulting from disability, loss of work and productive years lost due to premature death; diabetes adds $116 billion of direct medical healthcare costs, resulting in a total burden to the nation of $174 billion each year. Average medical expenses among people diagnosed with diabetes are more than twice the cost than for those without the disease (ADA, 2007). Currently 10% of healthcare dollars are spent on overall direct diabetes costs, the CDC projects that the price tag for diabetes by 2020 will reach $192 billion. The human and economic burden of diabetes in the future is certain to be overwhelming to our nation.

The American Diabetes Association (ADA) mission is to prevent and cure diabetes and to improve the lives of all people affected by diabetes. The ADA is the national leader in diabetes care and sets the national standards for the care of diabetes. The ADA Guidelines for the Care of Diabetes published every January, set the criteria for diagnosis; parameters for blood glucose monitoring; for diabetes control targets for A1c and glycemic goals; therapy of type 2; recommendations for medical nutrition therapy; for DSME; physical activity; psychosocial care; hypoglycemia; immunizations; blood pressure control; lipid management; antiplatelet agents;

treatment with bariatric surgery; smoking cessation; cardiac screening and treatment; nephropathy screening and treatment; retinopathy screening and treatment; neuropathy screening and treatment; assessment of other common comorbid conditions for adults, older adults, children, and pregnant women (ADA, 2012).

Research shows that intensive therapy and a team approach are effective ways to reach the goal of diabetes management: lowering blood glucose to target levels and avoiding or delaying the serious complications caused by this progressive disease (AHRQ, 2001). Outcomes of clinical indicators of care show that less than 10% of patients are reaching treatment targets for Hgb A1c, blood pressure, and lipid levels (NHANES, 2009).

Health Disparities and Social Determinants

Significant health disparities exist among minority populations in both health outcomes and quality of care. Race, ethnicity, sex, sexual identity, age, disability, socioeconomic status and geographic location contribute to the individual's ability to achieve good health. Interventions to reduce disparities in diabetes outcomes can be categorized based on the intended target audience including patients, providers, and healthcare systems (Peek et al., 2007). Patients have the ability to affect their health and healthcare outcomes through self-care education, treatment adherence, and adopting health promoting behaviors. Providers, especially primary care physicians (PCPs), are essential determinants of diabetes healthcare and health outcomes because of their role in coordinating all aspects of care. Providers are inadequate in the intensification of therapy, known as clinical inertia, which has been identified to be present in patients with poor diabetes control (Ziemer DC, 2005). Healthcare systems have the potential of implementing significant changes in healthcare processes and health outcomes (Peek, 2007).

Diabetes Self-management Education

Diabetes self-management education is the ongoing process of facilitating the knowledge, skill and abilities necessary for diabetes self-care. This process incorporates the needs, goals and life experiences of the person with diabetes and is guided by evidence-based standards. The overall objectives of DSME are: to support informed decision making, self-care behaviors, problem solving and active collaboration with the healthcare team, and to improve clinical outcomes, health status and quality of life (Funnel, et al 2011). DSME is a critical element of care and necessary to achieve positive patient outcomes. The 2012 ADA standards of medical care recommend that people with diabetes should receive DSME at the time their diabetes is diagnosed and thereafter (ADA, 2012). The national standards for diabetes self-management education guiding principles include among others; that ongoing support is critical to sustain progress made by participants (Funnel, 2011).

These standards address the elements that DSME programs must have: They are organized in structure standards, process standards and outcome standards. Structure standards give direction on issues such as mission, vision, and the guidance of an advisory group. Process standards define who are the instructors and require that instructors have recent educational experience preparation in education and diabetes management. These standards also define that a curriculum reflects current evidence and criteria for the evaluation outcomes that will serve as framework of the program. The needs of the individual with diabetes will be assessed to determine the content to be included. The content listed in the standard includes: describing the diabetes disease process and treatment options, incorporating nutritional management and physical activity, using medications, monitoring blood glucose, preventing, detecting and treating acute and chronic complications, developing personal strategies to address psychosocial

issues and behavior change. A personalized follow-up plan will be created for each individual. The outcomes standards address the results that will be measured by attainment of patient defined goals and the intervals to evaluate the effectiveness of the educational intervention (Funnel, 2011).

To meet the demands of the epidemic, diabetes teams must be expanded. The role of the diabetes educators will change to serve as program managers, coordinator roles and care managers, performance and quality measure. The role of clinical support staff including Level 1 and Level 2 to deliver diabetes education and Level 3 to 5 will provide supervision, create curricula and deal with more complex patients (AADE, 2011).

The Level 1 staff includes community health workers and other non-professional healthcare providers who have little expertise in diabetes education and management, but provide or support healthcare services to individuals with diabetes. The diabetes educator competencies are presented in five domains. Domain I includes pathophysiology, epidemiology and clinical guidelines of diabetes including the identification of different types of diabetes, signs and symptoms of hypo and hyperglycemia and identifying risks of common complications. Domain II includes culturally competent supportive care across the lifespan, identifies the role in referring patients to other providers, and the use of family and support systems, and includes issues related to culture. Domain III includes teaching and learning skills, mentions reinforcing information provided by other qualified diabetes professionals using education materials. This domain also assists with skills development, coaching skills and using the AADE 7 framework. Behavior change strategies to assist the patient with goal setting and making changes in daily routine are in Domain III. Domain IV is about self-management education including healthy eating, being active, taking medications and reducing risk. Domain V focuses on program and

business management. The Level 1 staff explains the roles of the different team member to the patient and serves as a resource to patients assisting with access to healthcare system resources. This level of provider of diabetes education works under the direction of qualified health personnel (AADE, 2009).

AADE 7™ Self-care Behaviors

Diabetes education focuses on seven self-care behaviors that are essential for health and improved quality of life. The AADE 7™ self-care behaviors support a paradigm shift from a content driven to outcomes driven practice. The AADE 7 self-care behaviors are: healthy eating, being active, monitoring, taking medications, problem solving, risk reduction and healthy coping (Mulcahy et al., 2003).

Healthy eating refers to making healthy food choices, understanding portion sizes and learning what the best times to eat are, which is central to managing diabetes. By making appropriate food selections, children and teenagers grow and develop as they would if they did not have diabetes. By controlling their weight and achieving optimal blood glucose levels, many adults may be able to manage their condition for a time without medications. Diabetes education can assist people with diabetes in gaining knowledge about the effect of food on blood glucose, sources of carbohydrates and fat, appropriate meal planning and resources to assist in making food choices. Skills taught include reading nutritional labels, planning and preparing meals, measuring foods for portion control, fat control, and carbohydrate counting. Also addressed, are barriers such as environmental triggers and emotional, financial, and cultural factors, and most recently, issues about immigration status (Mulcahy et al., 2003).

Being active discusses that regular activity is important for overall fitness, weight management, and blood glucose control. With appropriate levels of exercise, those at risk for

type 2 diabetes can reduce that risk, and those with diabetes can improve glycemic control. Being active can also help improve body mass index, enhance weight loss, help control lipids and blood pressure, and reduce stress. Diabetes educators and their patients collaborate to address barriers, such as physical, environmental, psychological, and time limitations. They also work together to develop an appropriate activity plan that balances food and medication with the activity level (Mulcahy et al., 2003).

Monitoring addresses the daily self-monitoring of blood glucose and provides people with diabetes the information they need to assess how food, physical activity and medications affect their blood glucose levels. People with diabetes will regularly monitor many indicators of health such as their blood pressure and weight. Diabetes education will instruct patients about equipment choice and selection, timing and frequency of testing, target values, as well as interpretation and use of results (Mulcahy et al., 2003).

Taking medication, pharmacologic treatments are designed based on the type of diabetes and comorbidities. Diabetes is a progressive disease and treatment will change and advance over time. Effective drug therapy in combination with healthy lifestyle choices, can lower blood glucose levels, reduce the risk for diabetes complications and produce other clinical benefits. The goal for the patient is to be knowledgeable about each medication, including its action, side effects, efficacy, toxicity, prescribed dosage, appropriate timing, frequency of administration, effect of missed and delayed doses, and instructions for storage, travel and safety (Mulcahy et al., 2003).

A person with diabetes should be able to problem-solve adequately because they will experience a high or low blood glucose episode that will require them to make rapid, informed decisions about food, activity and medications. This is why problem solving is a needed skill for

people living with diabetes. This skill is continuously used because even after decades of living with the disease, stability is never fully attained; the disease is progressive, chronic complications emerge, and life situations change. Collaboratively, diabetes educators and patients address barriers, such as physical, emotional, cognitive, and financial obstacles and develop coping strategies to attain metabolic control, quality of life while improving health outcomes (Mulcahy et al., 2003).

Reducing risks refers to effective risk reduction behaviors such as smoking cessation, and regular eye, foot and dental examinations that help reduce diabetes complications and maximize health and quality of life. An important part of self-care is learning to understand, seek and regularly obtain an array of preventive services. Diabetes educators assist patients in gaining knowledge about standards of care, therapeutic goals, and preventive care services to decrease risks. Skills taught include smoking cessation, foot inspections, blood pressure monitoring, self-monitoring of blood glucose, aspirin use and maintenance of personal care records (Mulcahy et al., 2003).

Healthy coping, patient's health status and quality of life are affected by psychological and social factors. Psychological distress directly affects health and indirectly influences a person's motivation to keep their diabetes in control. When motivation is dampened, the commitments required for effective self-care are difficult to maintain. When barriers seem insurmountable, good intentions alone cannot sustain the behavior. Coping becomes difficult and a person's ability to self-manage their diabetes deteriorates. An important part of the diabetes educator's work is identifying the individual's readiness to change behavior, then helping set achievable behavioral goals and guiding the patient through multiple obstacles (Mulcahy et al., 2003).

Behavior change has been identified as the unique and measurable outcome of effective diabetes education. The continuum of outcomes includes knowledge and learning, behavior change, clinical improvements leading to optimal health status and quality of life. See Figure 1.

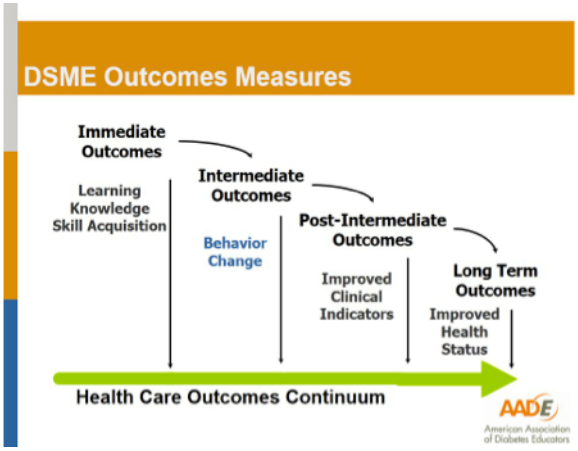

Figure 1 - DSME Outcomes Continuum

Mulcahy, et al 2003 DSME Core Outcome Measures

Access Barriers to DSME

The goal of diabetes education is to improve overall health status and quality of life by providing the individual with diabetes with knowledge transfer, acquisition of skills, and self-efficacy. Knowledge transfer refers to "*what to do,*" acquisition of skills refers to "*how to do it,"* self-efficacy refers to "*want to do it,"* outcomes refers to "*I can do it*" (Educators, 2003).

Identifying barriers and risk factors to the access of DSME is critical to designing effective interventions. Studies identified barriers to DSME, they identified the following affecting access to diabetes care and self-management education: health system, physician, and patient barriers (Gazmarian, 2009)

Health system barriers include the need and lack of services such as follow-up and refresher courses, support groups, nutrition and medication education, availability of different education modalities, and expanded clinic hours. Some challenges identified by patients that can

be addressed by the health care system include language, transportation, financial and time. Physician barriers include the challenges of the complexity of diabetes management, the multiple comorbidities associated with the condition, the lack of dissemination of ADA guidelines, short time to spend with patients, clinical inertia, the physician-perceived patient lack of seriousness of the condition, and being unaware of the value of DSME. The challenges that patients face and become barriers in their ability to access DSME, are the fear and denial to the reality of their condition. The asymptomatic character of diabetes impairs the ability to recognize the consequences, thus minimizing the "incentives" for self-care, daily self-care and behavior change to develop fears to hypoglycemia and the treatment of diabetes and its complications. Other important aspect in living with diabetes is the emotional toll that characterizes the individual with diabetes with diabetes distress, social isolation and interpersonal conflicts.

The underutilization of DSME is multi-factorial including those that pertain to the patient, physician and health system. Barriers and solutions need to address all these factors for the intervention to prove to be effective. An effective intervention, will addresses the barriers and challenges described, it will be delivered repetitively during the POV by a MA. It will also address the recommendations of the IOM for redesign processes that will meet the patient needs. Due to the burden of barriers and the challenges discussed, the intervention will address and impact the quality of care and the health outcome of people with diabetes. The purpose of this project is to develop a DSME curriculum to be delivered in short learning moments by a Level 1 diabetes education provider, in this case the MA. This proposed intervention is the solution to many of the barriers and challenges discussed interfering with access to diabetes education.

Medical Assistants

Medical Assistant duties include completing administrative and clinical tasks in the offices of physicians. The American Association of Medial Assistants (AAMA) is the national organization representing the medical assistant. They drive the profession; administer the certification of Certified Medical Assistant (CMA), and advocate for the role. The MA and CMA provide high quality care at a reasonable cost. The bureau of labor statistics reports that the median annual wage for a MA or CMA in 2010 was $28,860 (U.S. Department of Labor, 2012).

The job description of clinical medical assistants is based on the laws of each state. They prepare patients for examination, take medical histories, and assist the physician during the examination. They may also explain medical procedure to the patients, call pharmacies for prescriptions, collect laboratory specimens, and sterilize medical instruments. Other duties that the MA can perform and that are specific by state include drawing blood specimens, removing sutures, obtaining electro cardiograms and giving injections.

The target audience for the delivery of this DSME curriculum in the POV is the Level 1 clinical support staff. The MA is present in the majority of physician offices and clinics and is already recognized by patients and providers as member of the healthcare team. The MA has received little attention as a resource in the role of providing basic education in DSME.

Chronic Care Model

The chronic care model (CCM) presents six interrelated elements for the effective care of chronic diseases: 1. The health system, its culture, organizations, and mechanisms to promote safe and high-quality care; 2. Delivery systems designed for clinical care and self-management support; 3. Decision support that is based on evidence and considers patients' preferences; 4. Clinical information systems that allow the organization of patient and population data; 5. Self-

management support systems that enable patients to manage their health and health care; and 6. Community involvement that mobilizes patients' resources. See Figure 2.

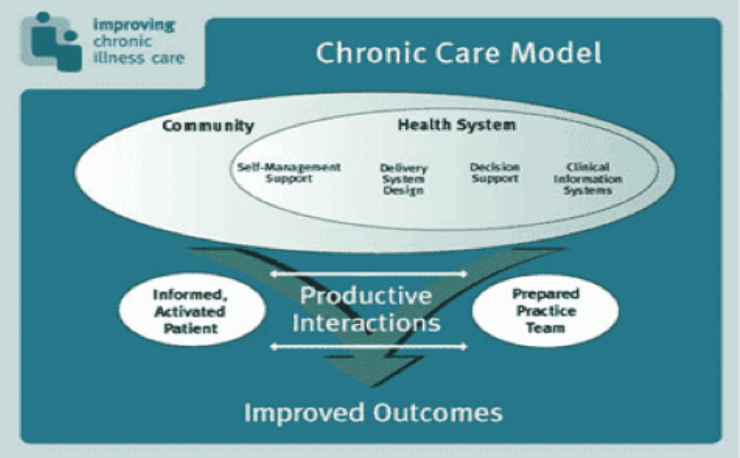

Figure 2 - Chronic Care Model

In 2002, a systematic review of CCM included diabetes care programs that featured at least one of four chronic care model elements: delivery system design, decision support, clinical information systems, and self-management support. This review found that 32 of 39 programs improved at least one process measure or one outcome measure for patients with diabetes by implementing at least one of the four chronic care model elements. Since the methodological quality of the studies was not uniformly high and the interventions differed among studies, the review authors cautioned about generalizing these results (NDEP, 2011).

The chronic care model improves the management of chronic diseases especially in primary care practice settings. CCM has the potential to improve care and reduce cost but faces several obstacles to its widespread adoption (Bodenheimer, Lorig, Holman, & Grumbach, 2002).

Some examples of the solutions addressing obstacles in delivery system design include: utilizing case managers, multidisciplinary teams, and scheduled of planned diabetes follow-up. Addressing these key elements in the provision of diabetes care in the physician office, will increase its effectiveness.

DSME in Primary Care

Physician or clinic visits are the basic encounter for the provision of healthcare services. In 2008, 82.2% of U.S. adults had contact with a healthcare professional. See Table 1 for visits recorded during the period of 2007-2008. The most frequent reason for a visit between a patient and a healthcare provider is a general medical examination and the most commonly diagnosed condition is essential hypertension. (National Ambulatory Medical Care Survey, 2008)

Number of ambulatory care visits in 2007 **(Physician offices, hospital outpatient and emergency departments)**	**1.2 billion**
Number of ambulatory care visits per 100 persons in 2007	**405.0**
Number of physician office visits in 2008	**956 million**
Number of visits per 100 persons in 2008	**320.1**
Percent of visits made to PCPs in 2008	**60.5%**

Table 1- Volume of Visits in Primary Care 2007-2008

Delivery Models in Healthcare

Innovations in healthcare delivery encourage pilot projects and the adoption of new models of care. Some of the most frequent models currently being implemented include the Patient Centered Medical Home (PCMH) and Shared Medical Appointments (SMA). The PCMH is emerging as a centerpiece of the efforts of healthcare reform. Tied to financial incentives it is being adopted by large number of healthcare settings. The PCMH is defined as a team of people embedded in the community who seek to improve the health and healing of the people in that community. They work to optimize the fundamental attributes of primary care combined with evolving new ideas about organizing and developing practice and changing the larger healthcare and reimbursement systems. The PCMH aims to personalize, prioritize, and integrate care to improve the health of whole people, families, communities and populations

(Stange et al., 2010).

The SMA, also known as group visits or cluster visits, are when a group of several patients meet together with a primary care provider and trans-disciplinary team. They have the potential to improve healthcare quality cost and access (Burke & O'Grady, 2012).

Current DSME Curricula

Many definitions of curriculum are available in the education literature. From the most simple that defines a curriculum as a course of study, to more complex definitions which describe a curriculum as a plan that consists of learning opportunities for a specific time frame and place, a tool that aims to bring about behavior changes in students as a result of planned activities and includes all learning experiences received by students with guidance of the school (Goodland & Su, 1992). A complete curriculum development plan should include: aim, rationale, goal and objectives, audience, description of the subject matter, instructional plan, materials and plan for assessment.

An environmental scan of curricula available in DSME was performed. The following sources were used for the assessment of curricula available. The AADE Diabetes Education Accreditation Program, an interview with Leslie Kolb, Director, identified the following the list of DSME current curricula. Life with Diabetes, The Stanford Patient Education Research Center, The American Association of Diabetes Educators, Ten Minute Consult – a curriculum for pharmacists, The International Diabetes Center, Conversation Maps, Joslin Diabetes Center, Diabetes Empowerment Education Program (DEEP), Robert Wood Johnson Foundation Diabetes Initiative, Project Dulce, Alliance for Hispanic Health, Amigos en Salud, and the Mayo Clinic.

Literature search of DSME curricula provided information about these curriculums. A

brief description of these curriculums includes:

Life with Diabetes

Life with Diabetes is a series of Teaching Outlines by the Michigan Diabetes Research and Training Center published and available for the American Diabetes Association. This manual describes the steps needed to develop and conduct community-based DSME. It describes how to collaborate with local agencies to gain sponsor support, recruit physicians and staff, and it also describes operational details of planning and implementing diabetes programs.

http://www.med.umich.edu/mdrtc/profs/index.htm

The Stanford Patient Education Research Center

The Stanford Patient Education curriculum is available in English and Spanish. It offers techniques to deal with the symptoms of diabetes, fatigue, pain, hyper/hypoglycemia, stress, and emotional problems such as depression, anger, fear and frustration; appropriate exercise for maintaining and improving strength and endurance; healthy eating appropriate use of medication; and working more effectively with health care providers. Participants will make weekly action plans, share experiences, and help each other solve problems they encounter in creating and carrying out their self-management program. Physicians and other health professionals both at Stanford and in the community have reviewed all materials in the course. Each participant in the workshop receives a copy of the companion book, *Living a Healthy Life with Chronic Conditions*, an audio relaxation tape, and an audio exercise tape. It is the process in which the program is taught that makes it effective. Classes are highly participative, where mutual support and success build the participants' confidence in their ability to manage their health and maintain active and fulfilling lives.

http://patienteducation.stanford.edu/programs/diabeteseng.html

American Association of Diabetes Educators

The AADE diabetes self-management education curriculum facilitates behavior change leading to improved clinical outcomes. It was made available by AADE in 2009 to the programs seeking Diabetes Education Program Accreditation (DEAP). This curriculum can be tailored based on practice setting. It follows the AADE 7 self-care behaviors, the diabetes education practice guidelines and is based on current evidence. The curriculum contains strategies that promote behavior change and provides criteria for evaluation of patient outcomes, both critical to the success of DSME.

http://www.diabeteseducator.org/ProfessionalResources_Program_Accreditation.html

International Diabetes Center Park Nicollet Basics of Diabetes

Improve patient outcomes and document your success with this four-session education program. It is designed for patients with type 2 diabetes or prediabetes who have little or no previous diabetes education. The curriculum guide gives you the "how" of program delivery synced with the "what" in the patient book. Patient book pages are embedded within the guide. Contains session timing guidelines, sample data collection tools, overhead masters and presentation CD, plus practical know-how about delivering group education. Includes the content areas required for ADA and AADE program recognition.

http://www.idcpublishing.com/Type-2-Diabetes-BASICS-Curriculum-Guide/productinfo/2058-CURR/

Conversation Maps- Healthy I

This curriculum consists of a series of five maps that use an innovative instructional technique intended to act as a conversation starter. These maps are:

- Overview of Diabetes, which includes:
  - The relationship with diabetes and food

        - Feelings about food and healthy eating
        - The effects of how and how much you eat with your blood glucose
        - Strategies for healthy eating
    - Healthy Eating, which includes:
        - The relationship between diabetes and food
        - Feelings about food and healthy eating
        - How what you eat, how much you eat and when you eat can affect your blood glucose
        - Meal planning and other strategies for healthy eating
    - Monitoring and Using Your Results, which includes:
        - What blood glucose and insulin are
        - Blood glucose targets and reactions to out of range levels
        - What can cause blood glucose to go up and down and preventing high and low blood glucose
        - Using your monitoring results to manage your diabetes
    - Natural Course of Diabetes, which includes:
        - The natural course of diabetes
        - The potential long-term complications of diabetes
        - How to delay or reduce the risk of long-term complications of diabetes
        - Knowing your ABC's
    - Gestational Diabetes, which includes:
        - What gestational diabetes is

- Feeling about being diagnosed with gestational diabetes and tying to manage it
- Caring for gestational diabetes
- What to expect after pregnancy and the risk of getting type 2 diabetes

http://www.healthyinteractions.com/conversation-map-programs/conversation-map-experience/current-programs/usdiabetes

Joslin Diabetes Center

This 90-minute class is the foundation for the other classes in the series and is facilitated by a nurse educator. The participant completes a self-assessment questionnaire that is used to develop a personal self-care education plan. Topics covered include: What diabetes is and how it affects the body, How to care for diabetes, Diabetes medications, Prevention and treatment of complications, How to handle high and low blood glucose, Target goals for blood glucose, and What to do on a sick day.

http://www.joslin.org/care/first_steps.html

Diabetes Empowerment Education Program

The Diabetes Empowerment Education Program (DEEP) was developed to provide community residents with the tools to better manage their diabetes in order to reduce complications and lead healthier, longer lives. Based on principles of empowerment and adult education, DEEP has two components.

The Training of Trainers Program is a twenty-hour workshop to train community health workers (promotoras, lay health educators, lay health promoters) on providing diabetes education to members of their community. The training stresses the development of skills and knowledge

related to diabetes by using interactive group activities and adult education methods. Once they complete the training, health workers are prepared to deliver diabetes education and self-management classes in their communities.

The second DEEP component, The Diabetes Patient Education Program is designed as an 8-10 week curriculum for diabetes self-management education. The curriculum is divided into eight modules covering topics that include diabetes risk factors, complications, nutrition, physical activity, use of the glucose meter and medications, building partnerships with a diabetes health care team, psychosocial effects of illness, problem-solving strategies, and how to access community diabetes resources.

The curriculum is based on national medical care and diabetes self-education guidelines and recommendations. It is revised every two years (or as needed) to reflect the most current knowledge and information.

http://mlhrc.csw.uic.edu/index.php?option=com_content&view=article&id=3&Itemid=7

Project Dulce

The Project Dulce's core approach to patient care is a "Chronic Care Model." A nurse-led team consisting of an RN/CDE, medical assistant, and dietitian provides clinical care in collaboration with the patient's primary care provider. The program's other features include: Training peer educators to provide diabetes self-management education and support to their peers; Clinical standards and algorithms used to guide treatment; An electronic diabetes registry, used to track patient care, monitor compliance with standards and report clinical outcomes; Extensive socio-cultural research to adapt its group education curriculum and approach to address the needs of African-American, Filipino, and Vietnamese communities.

Multi-language patient handouts are used to enable health providers and community

organizations to better serve diverse populations with diabetes. Project Dulce has developed a series of graphic and simple-to-read educational handouts on over 20 topics related to diabetes care in 8 languages common to populations throughout California.

http://www.scripps.org/services/diabetes/patient-education__multi-language-handouts

http://www.scripps.org/services/diabetes/project-dulce

Alliance for Hispanic Health

Project activities include creating community diabetes coalitions with multi-sectorial partners to jointly address diabetes-related disparities and improve community systems of care for Hispanic adults; conducting community needs assessments resulting in strategic, action, and evaluation plans; and, selecting and implementing the most appropriate evidence-based diabetes-related interventions in each community. Based on needs assessment results, interventions focus on health systems, communications, social, environmental, or policy-related areas. The MCRD Project is funded through a five-year cooperative agreement with the Centers for Disease Control and Prevention (CDC). Primary partner agencies on this initiative are Concilio Latino de Salud, in Phoenix, AZ; Salud Para la Gente, in Watsonville, CA; and Youth Development Inc. in Rio Rancho, NM.

http://www.hispanichealth.org/programs/diabetes.aspx

Amigos en Salud

The goal of Amigos en Salud is to provide culturally relevant education, outreach, access, and self-management tools to help Latino patients manage diabetes, diabetes-related complications and comorbid depression through reducing modifiable risk factors such as high blood pressure, high cholesterol, obesity, physical inactivity, and poor nutrition. The program targets Latino communities with high rates of these conditions. It supports community-based

peer health educators specifically trained in behavior change strategies and in disease states. Some of its successes showed participants improved their blood sugar levels, lowered cholesterol, triglycerides, and body mass index as a result of their increased knowledge of their conditions as well as their increased desire and ability to achieve their health goals and behavior changes.

http://www.pfizer.com/responsibility/community_programs/local_citizenships.jsp

Designing the Curriculum

In 1991 Bartholomew described the process of how to develop a health education program to promote self-management of cystic fibrosis. She describes the process of designing the intervention beginning with the assessment of the educational needs for self-management, followed by the validation of these particular self-management behaviors. It is also important to base the curriculum in theory, consider the learning needs of the target population and the challenges of the healthcare system. Bartholomew describes this process in great detail and the authors add that this process will serve as a template for the development of a self–management curriculum for other conditions that require intense self-management (Bartholomew,1991).

The CDC has summarized in a document the characteristics of an effective health education curriculum:

1. Focus on clear health goal and related behavioral outcomes
2. Is research based and theory driven
3. Address individual values, attitudes and beliefs
4. Address individual and group norms that support health-enhancing behaviors
5. Focus on reinforcing protective factors and increasing perceptions of personal risk and harmfulness of engaging in specific unhealthy practices and behaviors

6. Address social pressures and influences
7. Build personal competence, social competence ad self-efficacy by addressing skills
8. Provide functional health knowledge that is basic, accurate and directly contributes to health-promoting decisions and behaviors
9. Use strategies designed to personalize information and engage students
10. Provide age-appropriate and developmentally-appropriate information, learning strategies, teaching methods and materials
11. Incorporate learning strategies, teaching methods and materials that are culturally inclusive
12. Provide adequate time for instruction and learning
13. Provides opportunities to reinforce skills and positive heath behaviors
14. Provide opportunities to make positive connections with influential others
15. Include teacher information and plans for professional development and trainings that enhance effectiveness of instruction and student learning. (CDC, 2011)

In a conversation with Kate Lorig, DrPH, Director of the Stanford Patient Education Research Center, she identifies the following as key elements for a effective heath education curriculum:

1. Built on detailed patient needs assessment
2. Carefully crafted and limited messages to patients but built on priorities set by CDEs
3. Encourages participants to self-tailor the content given the structure for self-

exploration and experiment

4. Weekly non-directed specific action planning and feedback
5. Instructors are peers
6. Both instructor and participants model for each other in systematic ways
7. Systematically built to enhance self-efficacy
8. Offered in community settings that are comfortable for the participants
9. Fidelity check at every level

Social Cognitive Theory

Bandura's social cognitive theory will be used to develop this curriculum. "The quality of health is influenced by lifestyle habits." The theory identifies a core set of determinants, how they work and how to translate this knowledge into practice. The core determinants include: knowledge of risks and benefits of lifestyle practices, perceived self-efficacy the individual has control over self-care behaviors, and outcome expectations of the costs and benefits for the self-care habits. Individuals set health goals and action plans to accomplish them, they consider facilitator and impediments they will face in reaching their goals. Health behaviors are also affected by the results the individual expects from the actions they have initiated. Individuals need to belief that they can achieve change in their behavior to initiate these changes (Bandura, 2004).

Curriculum Development

The curriculum development process will be initiated with a brief needs assessment, an activity utilized to plan effectively, identify priorities, make decisions and solve problems. Its utilization affects every aspect of training, planning, delivering and evaluation. The stakeholder answer to the guiding questions will provide the data necessary to develop a curriculum that

meets the needs of both stakeholder groups: the end user medical assistant and the decision makers responsible for the implementation of the curriculum in the POV. The Broward County, Florida School system recommends the following process for a needs assessment, first identify the purpose of the needs assessment, identify the population that will be included, identify the sources, and identify or develop strategies and instruments (Broward County Florida, 2001) Approaches to data collection include focus groups, surveys and questionnaires, phone interviews, and shadowing or observation. Data gathered from the different sources of the needs assessment will guide the design of the curriculum.

A formative evaluation is a method of judging the worth of a program while the program activities are still forming. The strategy for evaluating this curriculum is a review by an expert panel. The expert panel review consists of subject matter experts reviewing the material for accuracy and completeness. The goal of the expert evaluation is to identify exclusions and suggest improvements to decrease omissions. When the evaluation is done in the early development stages of the product or service it will contribute to improvement in the design. To avoid bias, evaluators should not be involved in the design (Tiresias, 2010).

Chapter III- Methodology

Introduction

This chapter explains the methods to develop and evaluate the diabetes education curriculum for medical assistants. The goal is for this curriculum to be delivered by a Level 1 diabetes education provider during the routine physician office/clinic visit. The process was initiated with a brief needs assessment, followed by the development of the curriculum and a formative evaluation done by a review of a panel of experts.

IRB Clearance

The Institutional Review Board at Emory University was consulted via correspondence with Rebecca Rouselle about IRB requirement for this thesis project. Ms. Rouselle confirmed that the nature of this thesis project did not require an IRB approval.

Research Design

The research design used was a descriptive study that provided information about the curriculum development at each phase and recommended changes. The evaluation by review of a group of experts in diabetes education served as the guide for the development of the development of this curriculum. This initial phase of the curriculum development included creating instructional objectives using a system derivation method.

Procedure and Data Collection

To develop a curriculum, it is important to understand the needs of those involved, in this case, the intended user and the decision makers. The process was initiated with a brief needs

assessment, followed by the skill derivation and formulation of instructional objectives and a formative evaluation by a panel of experts.

Quantitative data were collected from the needs assessment through a survey and qualitative data were gathered during the evaluation by expert review.

Needs Assessment

A brief needs assessment was performed to obtain the information that would guide the road map leading to the development of the curriculum. The primary element considered in the needs assessment included defining the stakeholders involved in the development and implementation of a curriculum to be delivered by medical assistants during a routine physician office clinic visit. Two groups were identified. The first are those with the decision-making power to implement such curriculum. This group includes physicians and other midlevel providers, administrative staff and diabetes educators. The other group is the end users of the curriculum and materials, in this case, the medical assistant. The next step was to define what information these two groups could contribute to this project that would result in the creation of content and materials to fill in the gaps in diabetes education in a clinic/physician office visit.

A questionnaire was created and piloted. The outcome of the pilot allowed project staff to fine tune the questions and confirm the need for two different surveys asking the same questions but created specifically for each stakeholder group. The two main topic questions identified were: 1. When during this routine, short and busy visit, could the medical assistant provide a brief education? This question identified the tasks included during the POV as ideal teachable moments. These tasks include: a. walking from the waiting room to the exam room, b. while checking vital signs (weight, blood pressure, blood glucose and labs), c. getting the patient situated in the exam room, d. in the exam room, e. during discharge instructions, and f. other.

The second topic refers to which topics can be addressed by the MA in this short transfer of information format. The topics included in the survey were: healthy eating, physical activity, medication use, checking A1c, checking blood pressure, checking cholesterol, checking weight, smoking cessation, vaccines, foot care, eye exam, hypoglycemia, sick day management, skill in self-monitoring of blood glucose, skills in insulin self-administration and other. Question one and two ask about tasks performed by the MA during the POV and sought to determine during which of the tasks the two stakeholders groups thought a brief patient teaching could be done. Question two asked about how realistic it is to do patient teaching during these tasks. Questions three and four ask about DSME topics that can be delivered in short amounts of time during the POV. Question four asks the respondent to rank these topics from most to least important. Question five and six ask about practice setting and discipline.

The survey was created in SurveyMonkey and delivered by email. The survey participants were selected from a variety of practice settings to include, primary care, multispecialty clinic, urban academic specialty clinic, and obstetric prenatal care. The medical assistants working in these settings were invited and the MAs that completed or are in process of completing the Diabetes Education for Clinical Support Staff (DECSS) course were also invited to participate in this survey. The information was collected during a period of three weeks, then analyzed and presented to the expert panel for their review during the evaluation of the curriculum.

Another source for the needs assessment was observation of MAs performing their duties during the daily work routine. The appropriate permissions to follow the MAs in both clinics was requested and granted. One MA was followed at a primary care (PCP) clinic and at a specialty urban academic clinic. At the primary care clinic, the observation revealed the following routine

for the MA work routine. The MA calls the patient from the waiting room and proceeds to obtain vital signs starting with height and weight in a scale located in the entry hallway. After this is completed, the patient is then escorted into the exam room were the MA follows an intake form that is accessed in the electronic medical record (EMR). The intake questions address issues about the chief complaint and the patient's health since last visit. The MA continues by ordering lab work and doing a reconciliation of medications being used against the medication list available in the EMR. More vital signs are measured including blood pressure, temperature, pulse and respirations. The MA encounter with the patient is now complete and the patient is ready for the visit with the physician. In this clinic, Licensed Practical Nurses (LPN) or Registered Nurses (RN) provide the treatments and discharge instructions.

At the academic diabetes specialty urban clinic, the MA work routine starts by calling the patient from the waiting room into an assessment room. The MA proceeds to do vital signs including height, weight, and finger stick blood glucose. Lab work is ordered and the patient is ready to be seen by a RN followed by a visit with the endocrinologist. Note that in this clinic, the RN measures blood pressure because the clinic protocol requires 3 blood pressure measures after 5 minutes of rest after the patient walks from the waiting room to the exam room.

Curriculum Development

Following Ralph Tyler Principles of Curriculum and Instruction (1949), he defines an objective as an end that is desired. Tyler includes in his curriculum principles, educational purposes addressed by goals and objectives, followed by educational experiences, organizing learning experiences and evaluation. In the development of the diabetes education curriculum for medical assistants, the initial step was to define the educational purpose followed by setting goals and objectives. The objectives were drafted based on the work of Robert F. Mager,

presented in his book *Preparing Instructional Objectives* where he offers a guide for this process. Mager states that instructional objectives are drafted, tested and then revised. He also adds that objectives are prepared before the instruction is designed, objectives describe the intended outcome, they must be specific and measurable and concerned about the student and not the teacher. Mager refers to successful instruction when it succeeds in changing the student in desired ways. His method to create objectives is called a system derivation procedure. This procedure starts with the creation of a task list, which includes all the tasks required to complete a job. It is followed by a task analysis that includes all the steps and key decisions that made up the task. Next, a skill derivation is completed, which identifies the knowledge and skill required to complete the task. After all of these elements are completed, the objectives are drafted.

Formative Evaluation by Expert Review

Conducting an evaluation during every stage of the development of a curriculum provides information that is key in the creation of the materials. For this formative evaluation, project staff used subject matter experts to provide their opinions on the completeness and accuracy of the materials created. Experts were identified, selected and invited to participate in this project. Special attention was given in order to have two different groups of participants -one for the needs assessment and another group as the curriculum experts. The criteria used to identify these diabetes education experts included: years of training as a health care professional, years of experience in diabetes, credentials maintained, degree and discipline, publications and presentations, experience in reviewing curriculums, involvement in direct patient education. Curriculum experts invited to participate in the review of the diabetes curriculum for MAs included:

- Charlotte Hayes, MMSc, MS, RD, CDE
- Janine Freeman, RD, LD, CDE

- Kathy Berkowitz, RN, FNP, CDE
- Maureen McGrath, PNP-BC, CDE
- Elizabeth Ivie, RD, CDE
- Rita Panayioto, RD, LD, CDE
- Allison Leppke, RN, ANP, MPH
- Sarah Piper, MPH, CDE
- Catherine Maxwell, PharmD, CDE
- Daniela Salas, MPH
- Jessica Macinkravage, MPH
- Betsy Rodriguez, MSN, CDE
- Britt Rotberg, MS, RD, LD

The expert panel meeting was scheduled for one and a half hours starting at 5:30 PM at the Emory University School of Medicine Faculty Office Building on May 30, 2012. Betsy Rodriguez facilitated the review panel. Amparo Gonzalez presented the materials and the background on the evaluation process. The presentation included the following: expectations for the meeting, thesis title, research question, thesis purpose, invited experts, state of the problem, background information, development of the curriculum, principles of curriculum development by Ralph Tyler. Also, the needs assessment questions and results, logic model for the development and implementation of the DSME curriculum, DSME outcomes continuum, instructional objectives, behavior change theory, formative evaluation theory, evaluation goal, (CIPP) evaluation model, curriculum materials (preventive care, healthy eating, medication use, being active), instructional objectives, analysis assessment and evaluation, evaluation of content questions, evaluation of input questions, evaluation of instructional characteristics, research question, suggestions for implementation and conclusions.

Experts in attendance included Kathy Berkowitz RN, FFNP, CDE; Rita Panayioto, RD, LD, CDE; Maureen McGrath, PNP-BC, CDE; Daniela Salas, MPH; Catherine Maxwell,

PharmD, CDE; Sarah Piper, MPH, CDE; Elizabeth Ivie, RD, LD, CDE, Betsy Rodriguez, MSN, CDE, Britt Rotberg, MS, RD, LD and Charlote Hayes, MMSc, MS, RD, CDE.

Amparo Gonzalez explained the curriculum materials and Betsy Rodriguez asked the evaluation questions that had been created for this purpose.

Questions related to the evaluation of content included:

1. Does the project purpose respond to the needs assessed?
2. Does the curriculum support the goals of the healthcare team?
3. Are the aims stated clearly?
4. Is the goal stated clearly?
5. Is the target audience defined?
6. Is the material intended to inform, motivate, instruct, evaluate or advocate?

Questions related to evaluation of instructional characteristics included:

1. Is the material clear and easy to follow?
2. Does the material actively engage the learner?
3. Does the material use learning principles?
4. Does the material use learning principles effectively?
5. Does the material include evaluation procedures?
6. Does the material encourage learners to act on the information presented?

Plan for Data Analysis

Quantitative and qualitative data were collected for the needs assessment survey and for the review by the expert panel. The plan for analysis included excel and SurveyMonkey results, to obtain means and percentages. Graphs were created to display results and topics and routine tasks were ranked from most to least desirable, to summarize the findings.

Limitations and Delimitations

This curriculum development presented many limitations due to the paradigm shift that this opportunity offers. In performing the needs assessment, both MAs and the decision makers, were being introduced to the new concept of having the MAs involved in DSME. The instruments utilized for both the needs assessment and the evaluation, were created and used for the first time during this project. These instruments had not been validated. The evaluation is based on the opinion of a group of expert and that itself is a limitation.

Chapter IV- Results and Findings

Introduction

The curriculum development process started with a brief needs assessment. The needs assessment targeted two stakeholder groups, the group with the power to make the decision to implement the type of change in the delivery of diabetes care in a practice setting. This group included physicians, certified diabetes educators and clinic administrators. The other stakeholder group that was targeted was the intended end user of this curriculum, the medical assistant.

Needs Assessment Results

The results obtained from the survey administered to the decision maker group revealed that this group had a total of 20 respondents out of 31 email invitations sent. This group included 11 physicians, 2 certified diabetes educators (CDE), 3 clinic administrators, 2 clinical nurse specialists and the other participants identified themselves as a certified nurse midwife and another as a health educator. The settings in which these individuals practice diabetes care are: a safety net hospital community clinic, a large private multispecialty clinic, a pharmacy wellness program, an urban safety net hospital, and a large prenatal care clinic serving Latinas.

The results obtained from the survey administered to the medical assistants revealed that this group had 9 responses out of 19 invitations sent. The group included 5 medical assistants, 2 clinical assistants and 2 Licensed Practical Nurses (LPN). The settings where they provide care include a safety net hospital community clinic, a large private multispecialty clinic, a pharmacy wellness program, an urban safety net hospital, a large prenatal care clinic serving Latinas and a federally qualified health center (FQHC).

Results from the Survey to Decision Makers

Regarding *when* the education can be provided, the question identified different tasks performed routinely during the POV. The responses identified as the top opportunity for providing education during the measurement of vital signs (85%), followed by the opportunity offered when the patient is brought to the exam room (70%) and during the encounter of the MA with the patient in the exam room (80%), the third choice is during discharge instructions (65%); see Figure 3 below.

The *other* answer alternative that provided a free text option included the following responses: If the patient asks a question, during phone calls to remind patient of their follow-up visit – if patient is diabetic, watch out for HIPAA violations teaching in the hallways, while assisting a provider or nurse with certain procedures, phone or email if given the time to do this—this whole idea will be determined by the time medical assistants have and the support of their organizations.

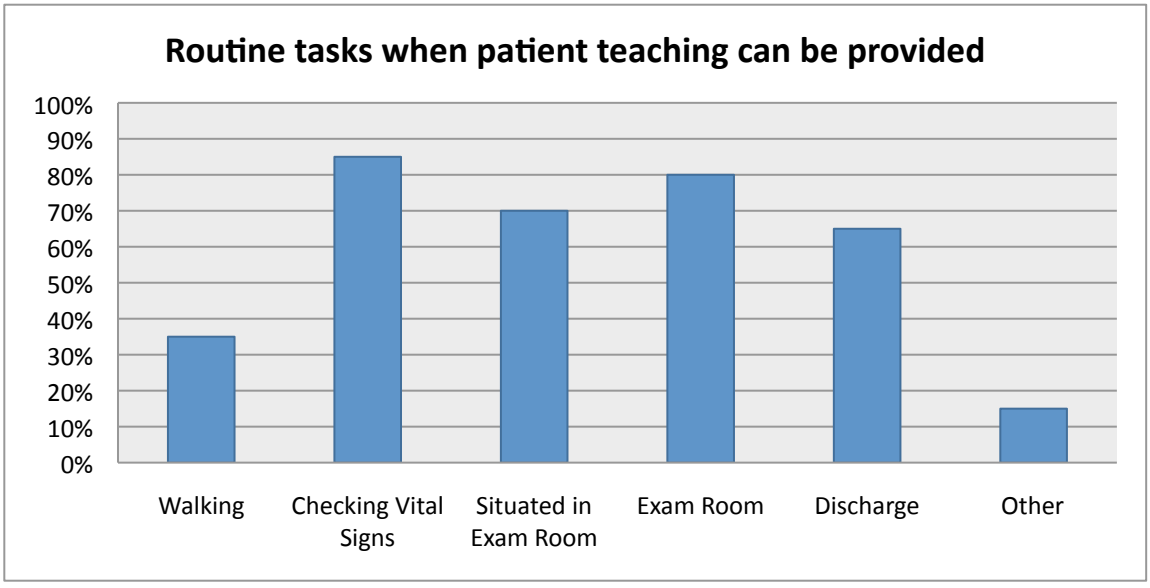

Figure 3 - Results from Decision Makers for teachable moments

Findings regarding how realistic it is to perform DSME during the routine tasks performed by the MA during the POV revealed a rating in order of best to worst opportunity to provide DSME; see Figure 4.

The *other* answer alternative that provided a free text option included the following responses: If very brief, At GHS LPN/RNs are the ones who discharge our patients, E-mail, text messaging, or regular mail follow-up.

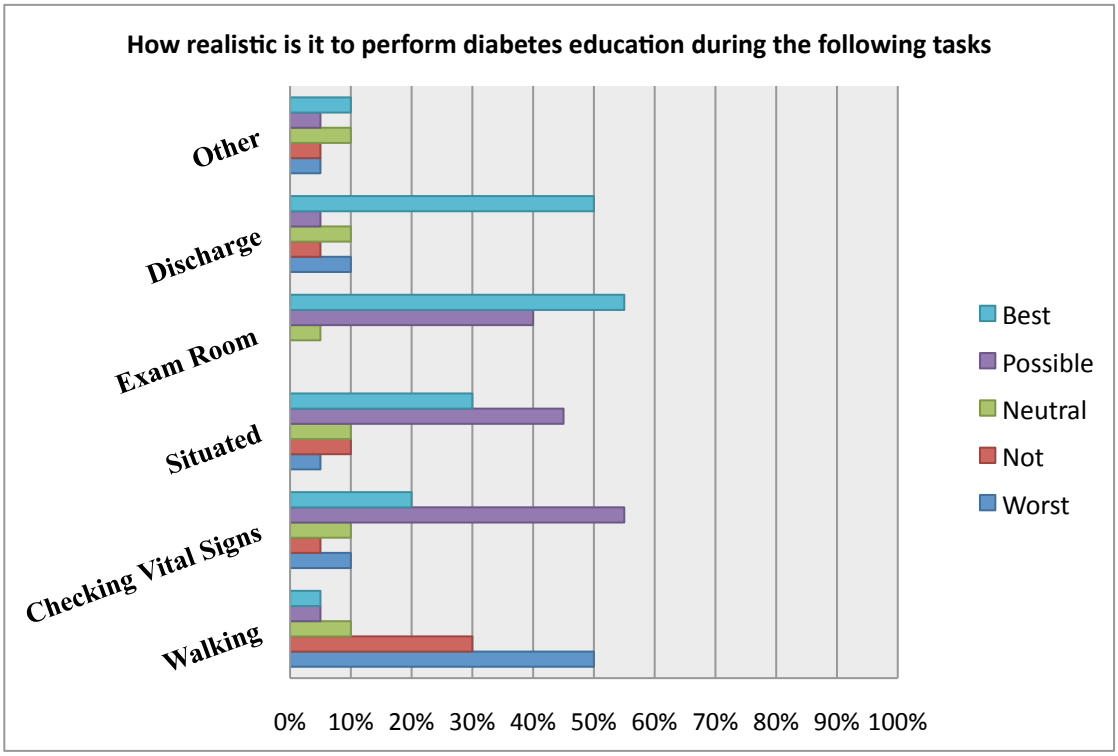

Figure 4 - Results from Decision Makers about the best and worst teachable moment

In regard to *what,* topics would be appropriate to cover in this setting and by this level of provider, the decision makers revealed that the number one topic is foot care (75%), followed by physical activity, checking blood pressure and checking weight (70%); eating healthy and smoking cessation (65%), skills in self monitoring of blood sugar, use of medications, checking A1c and hypoglycemia (50%), checking cholesterol, eye exam and skills in insulin administration (35%), see Figure 5.

The *other* answer alternative that provided a free text option included the following responses: They can place orders for eye exam and labs as per protocol and send them for providers to assign them, Short amount of time is not specific enough, Supporting, keeping

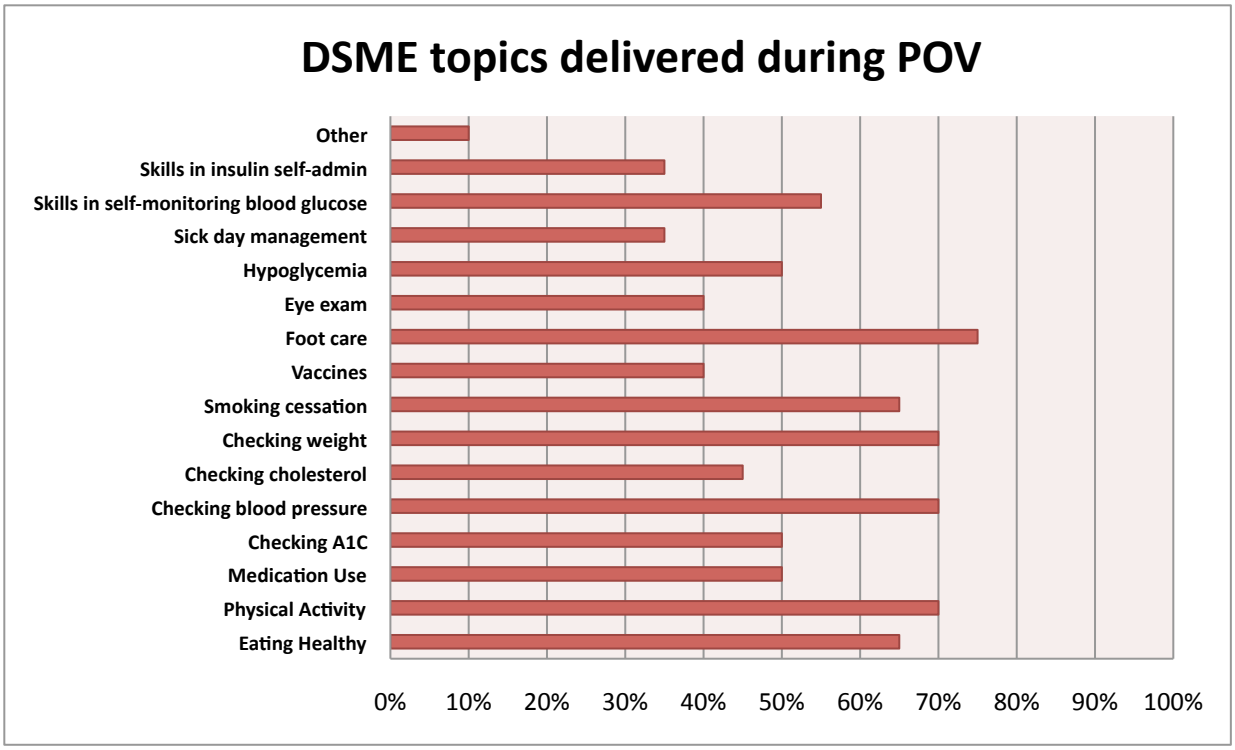

Figure 5 - DSME Topics during POV

follow-up diabetic appointments/referrals, and I would train them in motivational interviewing and then let the topic be negotiated—depending on training time and protocol and of the above would be OK.

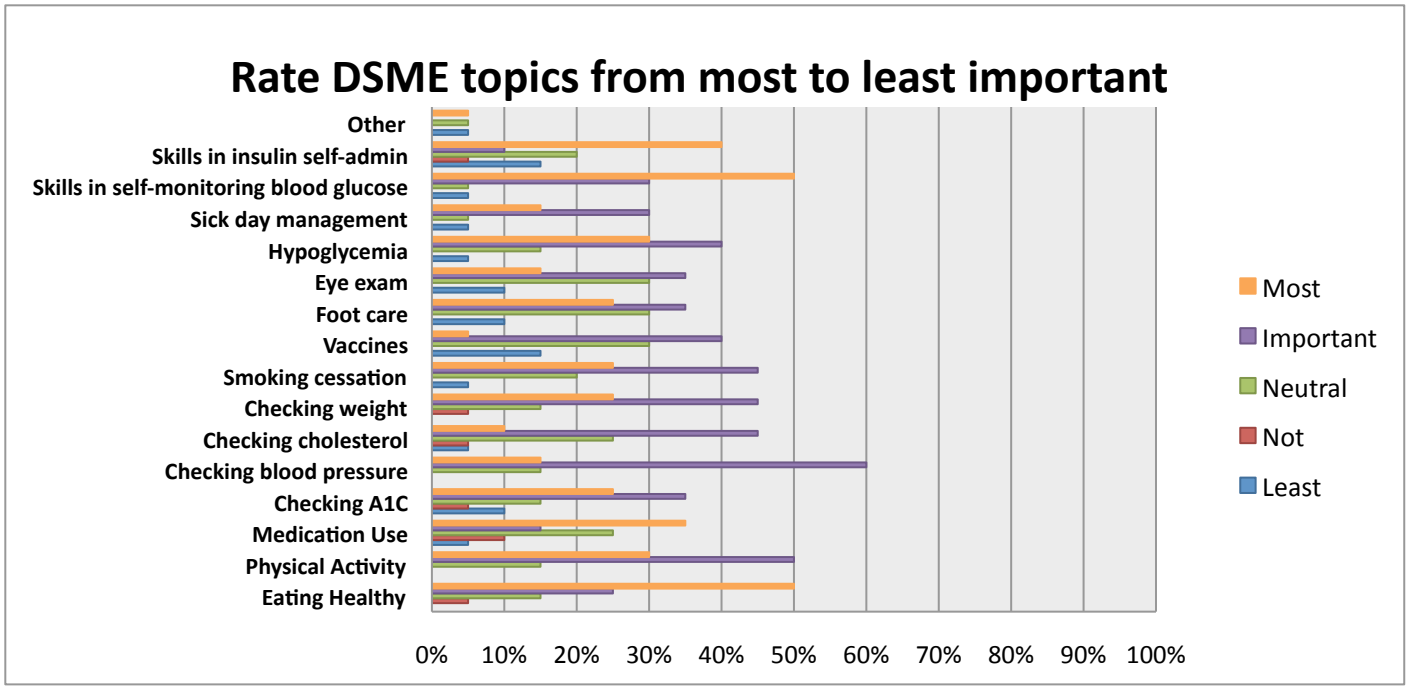

Figure 6 - Decision Makers Group, Question DSME topics

The responses of the decision making group about what DSME topics are most or least important was also asked. The responses rated the topics from most important to least important. To narrow the focus, the two options of most and important were combined; the two options on the scale of least and not important were combined. The results indicate the importance of the topics, from most to least important were: physical activity (80%) and skills in self-monitoring of blood glucose (80%), eating healthy and checking blood pressure (75%), checking weight, smoking cessation and hypoglycemia (70%), checking A1c and foot care (60%), checking cholesterol, eye exam, skills in insulin self-administration (55%), medication use and sick day management (45%) and vaccines (45%). See Figure 6.

The *other* answer alternative that provided a free text option included the following responses: recording blood glucose results, bringing logs to clinic, handouts and resources.

Results from the survey to the End User (MA)

In the end user group, the results regarding *when* during the routine tasks of the POV can diabetes education be included were slightly different from the decision maker group. According to the MA group, the best opportunity during the routine visit to include diabetes education is while the vital signs are being checked (89%), followed by when the patient is in the exam room (66%), the time during discharge instructions (33%), while the patient is situated in the exam room (22%); see Figure 7.

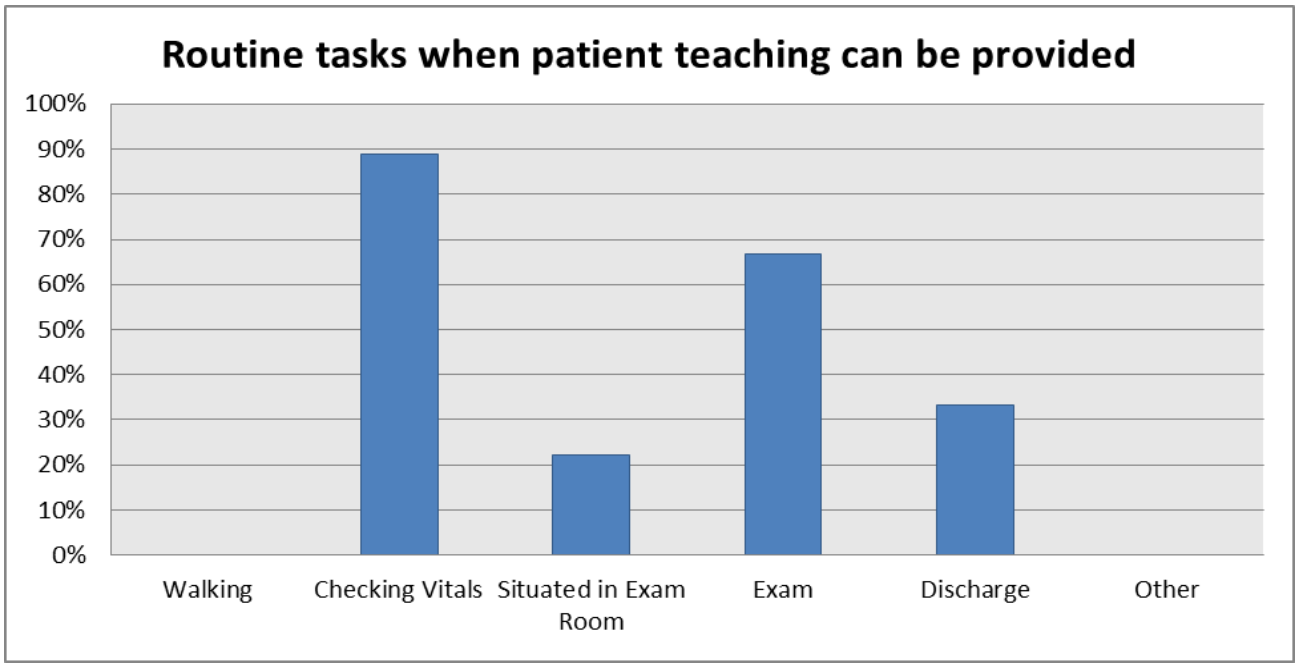

Figure 7 - End Users, Teachable moments

The *other* answer alternative that provided a free text option included the following response: waiting on the patient to check out with the doctor.

About when and how realistic are the opportunities for teaching during the routine POV, this group of end users rated the routine tasks, form very realistic to least realistic, in the following order: first, during discharge (78%), next, during vital signs check (78%), third, during the exam (67%). Walking the patient from the waiting room to the exam room received a very strong least (56%), and 22.2% rated as not/least realistic, the time during vital sign check. See Figure 8.

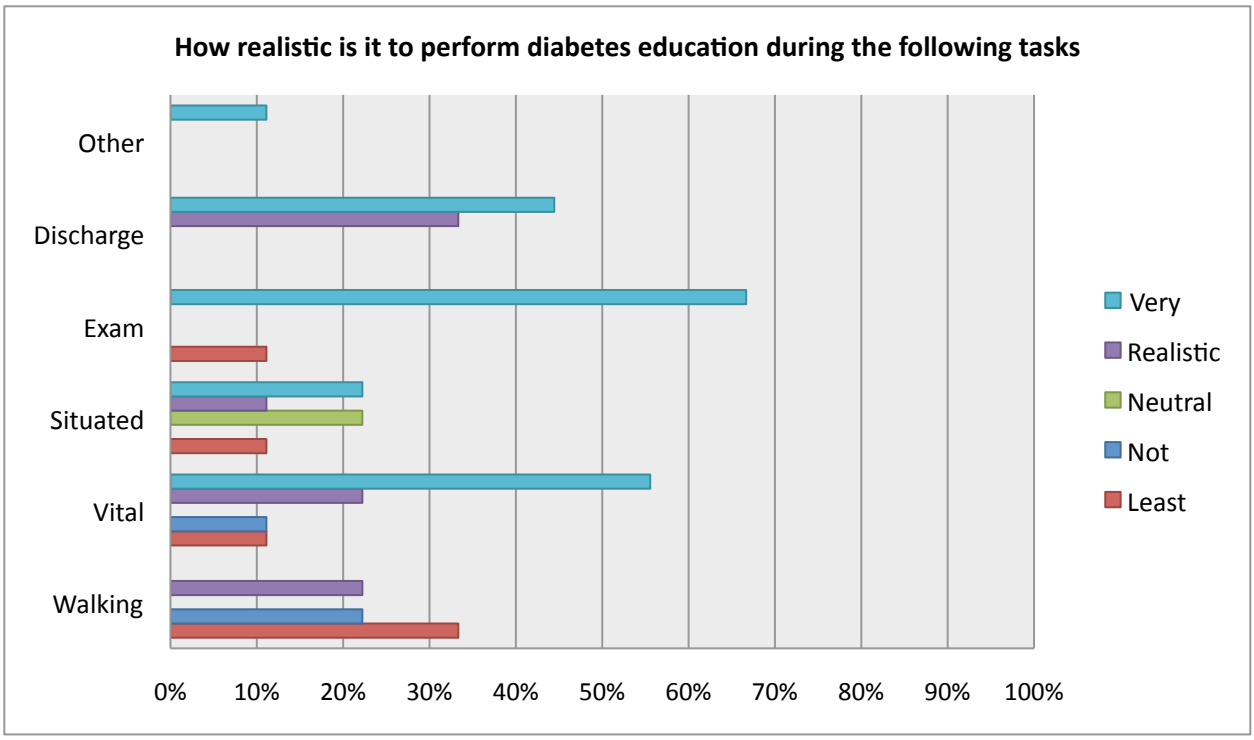

Figure 8 - Results from MAs for the Best and Worst Teachable Moments

The results addressing the issue of which are the topics that can be addressed during this type of encounter, showed eating healthy as the unanimous number one choice of the intended user group, followed by physical activity (89%), checking weight (78%), and medication use and checking A1c (77%). Other responses are checking blood pressure, eye exam, hypoglycemia, sick day management, skills in self-monitoring of blood glucose and self-administration of insulin and checking cholesterol (33%). See Figure 9.

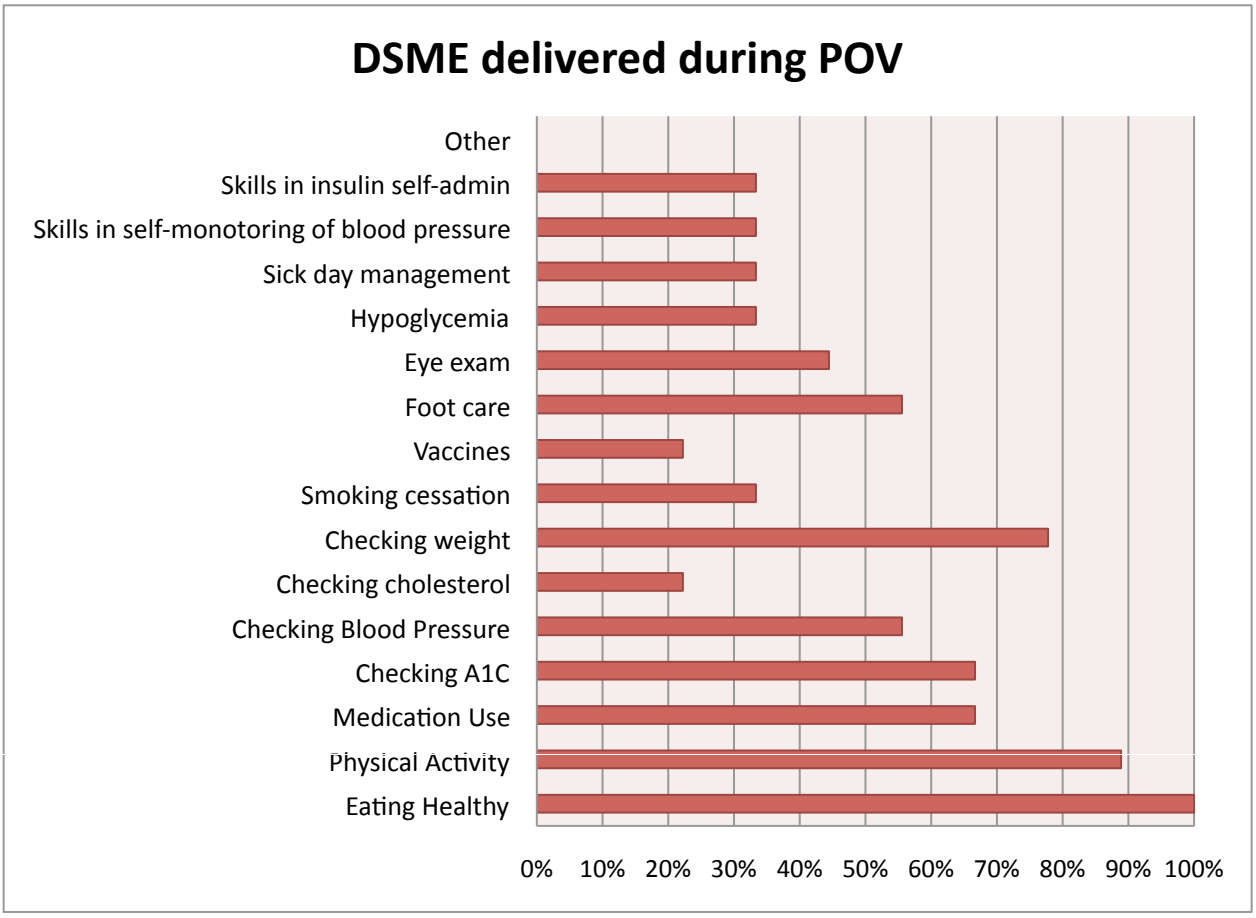

Figure 9 - Results from MAs for DSMEs to be delivered during POV

MAs were also asked to rate how important it was to deliver certain content. From most to least important, were: eating healthy (89%), physical activity (89%), medication use (89%), checking A1c (89%), checking weight (89%), hypoglycemia (89%), skills in self-monitoring of blood pressure (89%) and skills in insulin administration (89%). The following topics were rated at 78%: checking blood pressure, checking cholesterol, smoking cessation, vaccines, foot care, eye exam, and sick day management.

It can be noted that the following education topics had no responses on the not or least realistic: medication use, checking A1c, hypoglycemia, sick day management, and both skills in self-monitoring of blood pressure and in insulin self-administration. See Figure 10.

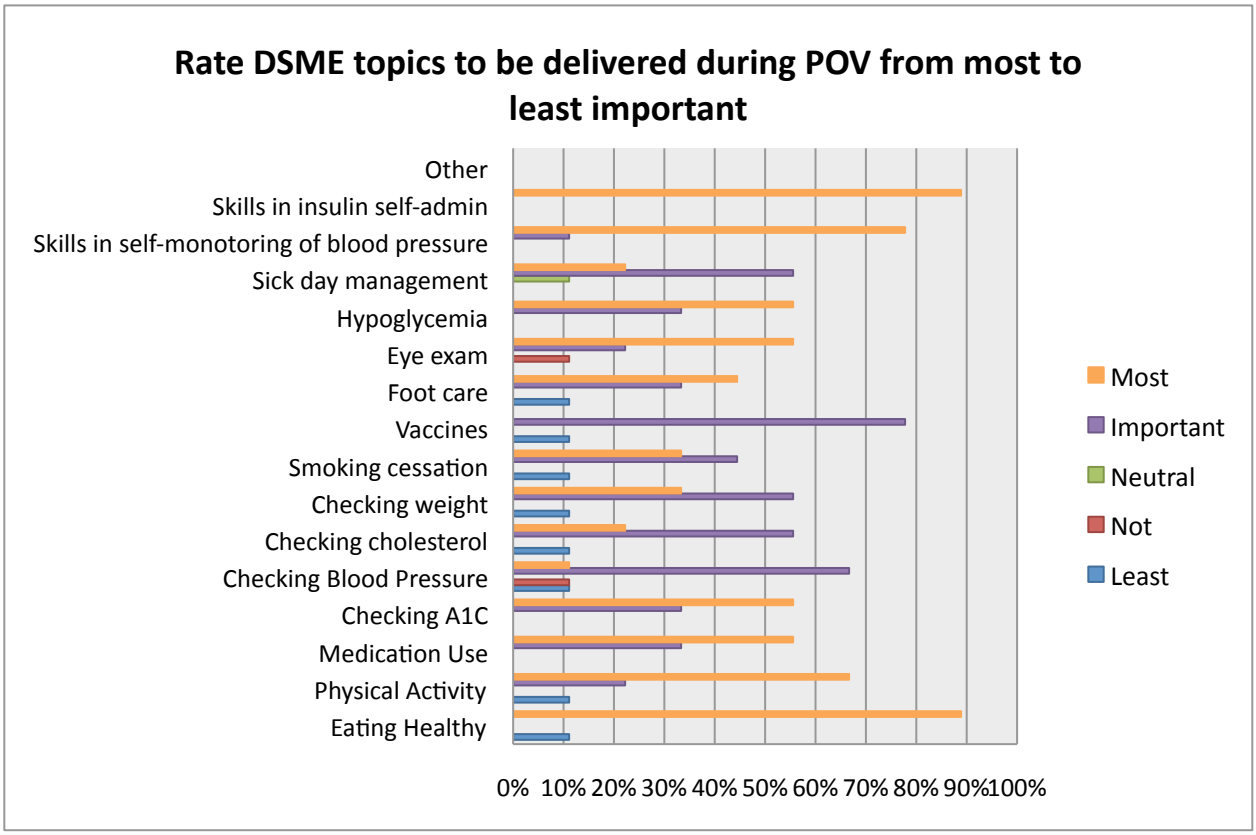

Figure 10 - DSME Topics to be delivered during POV

Findings

The findings about the *when* and *what* of the DSME curriculum obtained from these two groups show differences in view points for each group. When the curriculum is adopted, the implementation will require that these two groups of stakeholders be active in the process of implementation. For this reason it is important to consider their opinions when developing the curriculum. The success in the adoption of this paradigm shift is the inclusion of these two groups' main ideas. The knowledge about this issue obtained though the brief assessment can also be incorporated in the training for the MA course Diabetes Education for Clinical Support (DECSS). From the recommendations of the expert panel the starting point of the curriculum development process is to define the scope of practice for the MA in the diabetes education process. The definition of the MAs scope of practice will require the involvement of the AAMA and AADE, one group represents the MAs and the other diabetes education

Comparing Decision Maker and MA Responses

The results of question 1 reflect findings that indicate that both the MA group and the decision maker group view the vital sign check as a most appropriate time during the POV to provide DSME. Following the vital sign both groups agree that while the patient is in the exam room followed by when the patient is given discharge instructions; see Figure 11.

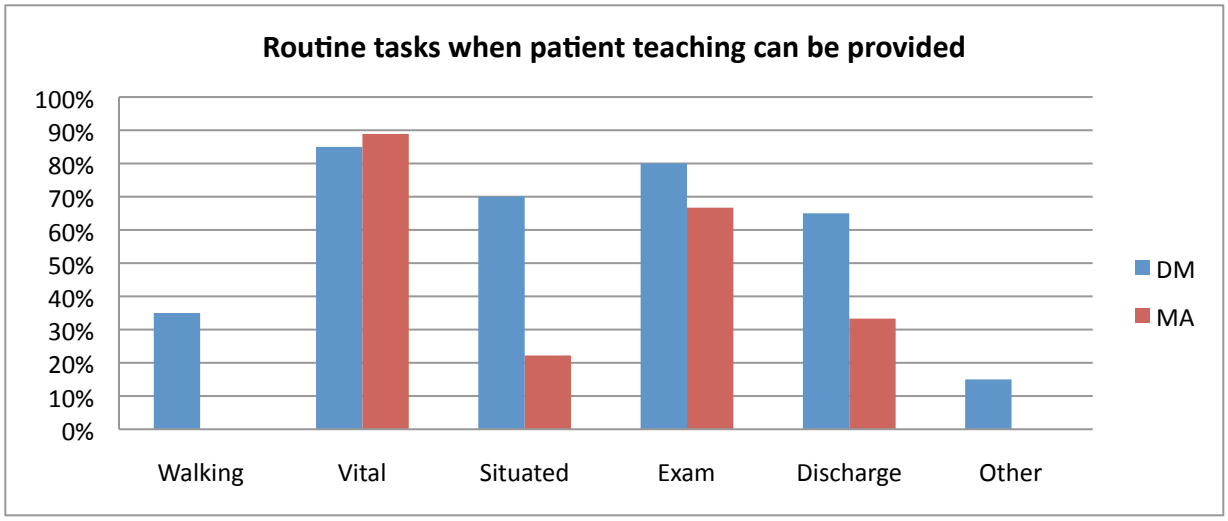

Figure 11 - Combined Results for Teachable Moments

Both stakeholder groups agree that providing education while checking vital signs and during discharge instructions is very realistic; see Figure 12.

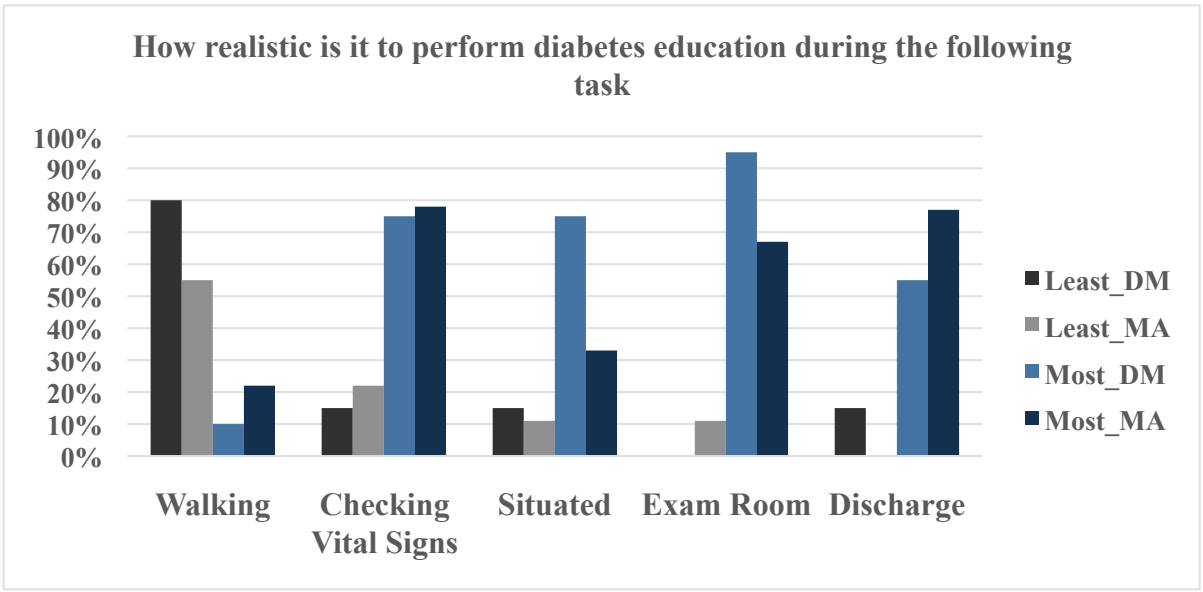

Figure 12 - Combined Results for Best and Worst Teachable Moments

The two groups that are key in the development and implementation of a DSME curriculum for MAs to deliver during the POV have different opinions in regards to the topics to be included. Healthy eating received 100% by the MA group and 65% by the decision maker group. See Figure 13. The decision maker group found the following topics to be appropriate in higher percentages that the intended user group – smoking cessation, checking cholesterol and self-monitoring of blood glucose, checking blood pressure, foot care, hypoglycemia and sick day; see Figures 14 and 15.

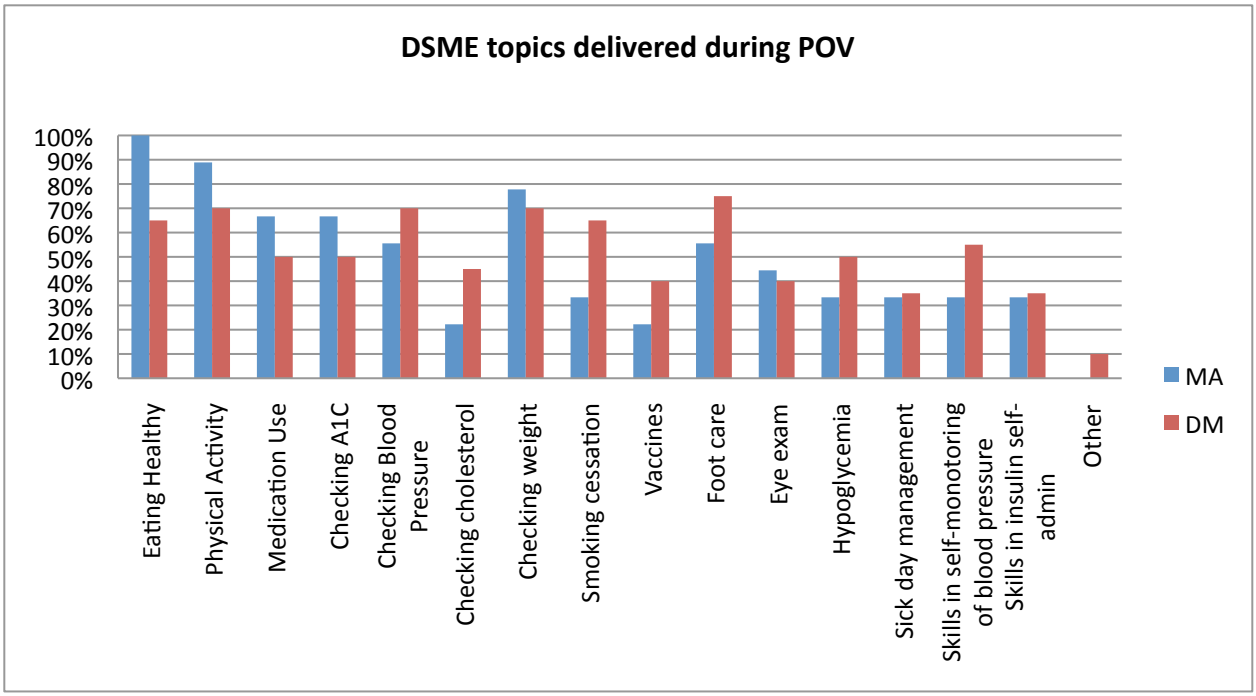

Figure 13 - Combined Results for DSME Topics Delivered during POV

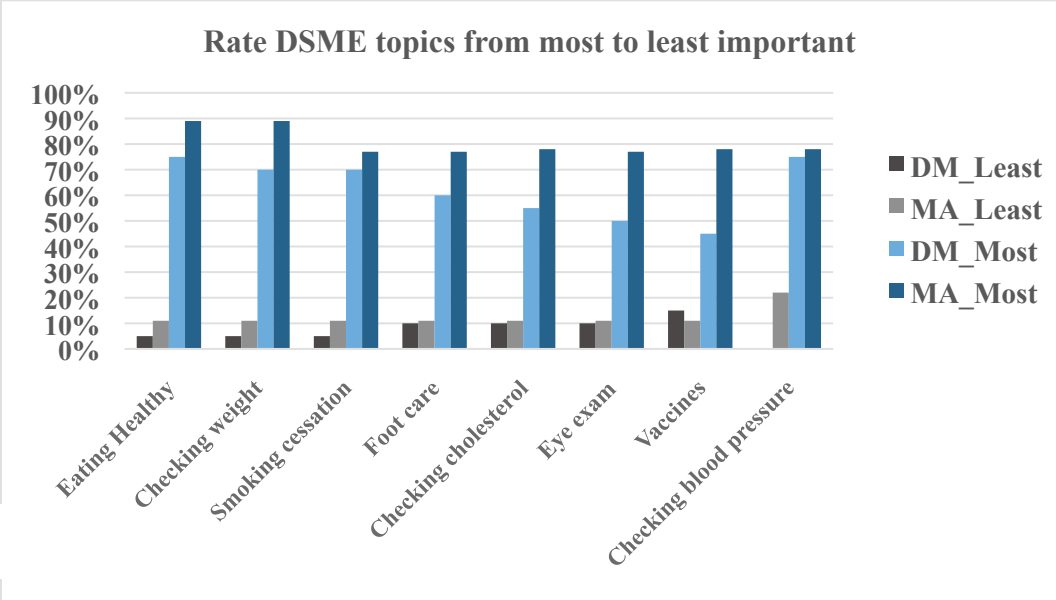

Figure 14 - Comparison of Least and Most Desirable Topics by DMs and MAs, 1 of 2

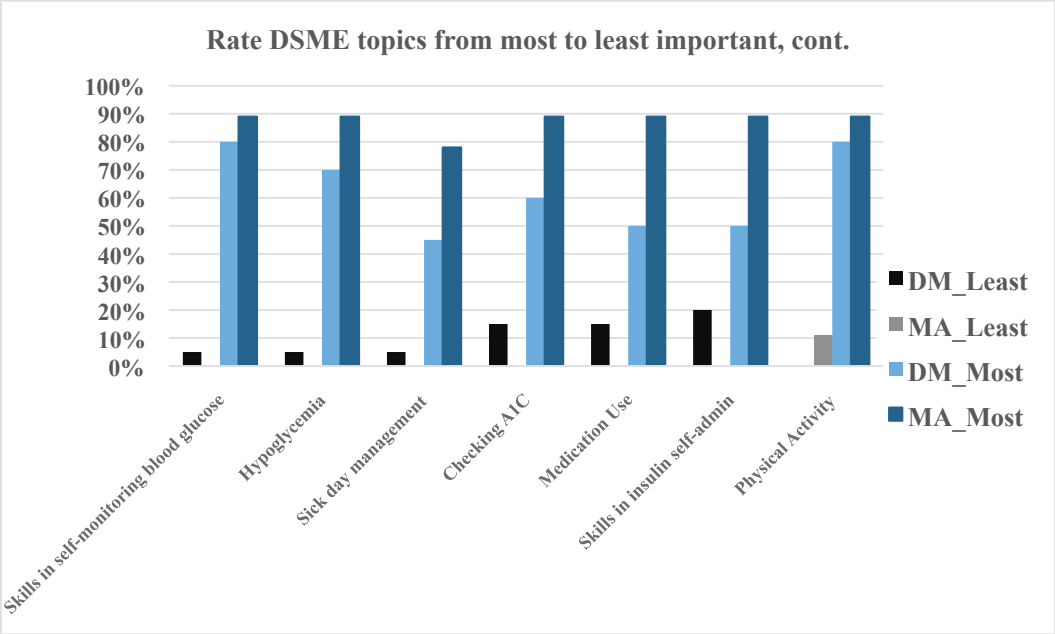

Figure 15 - Comparison of Least and Most Desirable Topics by DMs and MAs, 2 of 2

Expert Review Panelists

A total of 9 experts in diabetes education and health education with experience in curriculum development attended the review panel disciplines included, nurses, nurse practitioners, and dietitians. 57% have 4-10 years of experience in healthcare; all have a master degree; 29% have been in diabetes education 21+ years; 42% have less that 3 years of experience; 43% have experience in curriculum review; and 57% are CDE.

Expert Review Panel

A panel of experts in diabetes education met to evaluate the materials for the DSME curriculum for MAs on May 30, 2012 from 5:30 pm to 7:00 pm at the Emory University Faculty Office Building room 108. The experts in attendance were Charlotte Hayes, Janine Freeman, Kathy Berkowitz, Maureen McGrath Elizabeth Ivie, Rita Panayioto, Sarah Piper, Catherine Maxwell, Daniela Salas, Jessica Macinkravage, Britt Rotberg and Betsy Rodriguez. Amparo Gonzalez presented background information and the curriculum materials and Betsy Rodriguez facilitated the evaluation process.

Experts received packets with information that included a brief description of the expert review panel evaluation plan, copy of a power point presentation, a demographic questionnaire, curriculum materials which consist of the systematic derivation of objectives for four self-care behaviors – Goal of Diabetes Control/ Preventive Care, Use of Medications, Healthy Eating and Being Active.

The meeting with the expert panel to review the material and respond to the evaluations questions was video and audio recorded, the links to access them can be found in appendix N.

Refer to Appendix K for the PowerPoint that was presented by Amparo Gonzalez. The following is a summary of the conversations and comments during the review by the expert panel.

During the presentation of the Goal of Diabetes Control / Preventive Care curriculum materials the panelist provided the following comments and recommendations:

Question: Will patients that are seeing the MA eventually see a CDE?

Answer: Patients will be seeing the MA in the POV if the patient requires a higher complexity in their DSME. Then the MA will refer them to the CDE or to a diabetes educator.

This program should target private practice MAs

This program is filling the gaps with the role of the community health worker/*promotoras* in communities with no CDEs or endocrinologists.

Question: What is the learner profile? What is someone expected to know or to do after completing this course?

Answer: The intention of this curriculum is education for the individual with diabetes. The intended user of this curriculum is the MA that will use these materials to teach the patient with diabetes during the routine POV. The training course where the MA will learn about diabetes and how to transmit this knowledge to the patient with diabetes is the Diabetes Education for Clinical Support Staff.

Question: What is the scope of practice of an MA doing diabetes education? If an MA has attended this course (DECSS) what is she expected to know and be able to perform regarding diabetes education?

Answer: The person who completes the DECSS meets the criteria of AADE diabetes education practice guidelines Level 1. AADE has established the scope of practice for this level and the competencies that go with the ability to perform at a Level 1.

It is important that Level 1 practitioners transmit information and not get involved in interpreting information. The information they are transmitting to the patients must be accurate and based on guidelines.

- Comments from the experts included : They could perform foot exams
- Message need to be simplified, have them simply ask the patient if they know what their goals are? (blood glucose, blood pressure.)
- Needs assessment – establish priorities for the patient and provider
- Evaluation can be done with a checklist of trigger questions- questions should be open ended.
- Alarm values should be established by each practice and incorporated in routine practice
- Include problems associated with smoking and diabetes
- Connect to NCQA standards
- Use rulers to measure readiness to change
- Messages should be scripted saying enough but not too much
- Key messages with the “must know” after the intervention
- Create the messages so that the MA doesn’t have to think
- Include environmental challenges

- Consider the diversity of patients
- Create “sticky messages” – what do they definitely need to know
- A very clear message – you will not become a CDE
- Simplify the message to the MA

Question: What is the goal of the healthcare team? Does the curriculum support the goal of promoting healthy behavior? Aim?

Answer: Provide the MA with the knowledge, skills and competencies necessary to deliver diabetes education at the level one, to the patient during the medical visit

Comments and question from the experts:

- What is the goal? Diabetes education at a Level 1
- You must define the target further - who is the MA? As mandated by law
- Create a conceptual model that includes curriculum constructs and content
- Hypertension and lipids can be dismissed. Focus on diabetes specific self-management. Be glucose centric
- Medication adherence is an important topic

After presenting the curriculum material for Goal of Diabetes Control/Preventive Care, the facilitator proceeded to ask the following questions:

1. Does the project purpose respond to the needs assessed?
2. Does the curriculum support the goals of the healthcare team?
3. Are the aims stated clearly?

4. Is the goal stated clearly?
5. Is the target audience defined?
6. Is the material intended to inform, motivate, instruct, evaluate or advocate?
7. Is the material clear and easy to follow?
8. Does the material actively engage the learner?
9. Does the material use learning principles?
10. Does the material use learning principles effectively?
11. Does the material include evaluation procedures?
12. Does the material encourage learners to act on the information presented?

The expert panelist recommendation about the evaluation is that the curriculum is not ready to be evaluated for content. The expert opinion is that the scope of practice and competencies for the MA in providing DSME, has to be addressed before the content can be selected.

Summary of general recommendations

A summary of the general recommendations includes:

- Define the scope of practice of the medical assistant functioning as a AADE diabetes education guideline Level 1
- Construct a learner profile
- Create trigger questions to evaluate patient need
- Simplify the messages
- Make the curriculum glucose centric
- Follow NCQA guidelines
- Form a conceptual model that includes curriculum construct and content

Chapter V- Summary of Findings

Introduction

Major Findings

The findings that will guide the development of the curriculum are that the most appropriate routine task when DSME can be included while the MA is checking the patient's vital signs, when the patient is in the exam room and during the discharge instruction process.

The topics that are appropriate and realistic according to the MA group include: eating healthy, checking weight, smoking cessation, foot care, checking cholesterol, eye exam, vaccines, checking blood pressure, skills in self-monitoring of blood glucose, hypoglycemia, sick day management, checking A1c, medication use, skills in insulin self-administration and physical activity. The MA group agreed in including all the topics included in the needs assessment. While the group of decision makers did not recommend the following topics as appropriate: sick day management, checking A1c, medication use or skills in insulin administration.

Implications

The implications of these findings are that the MA group is ready for this paradigm change and to adopt this new role and that they are excited about learning and being recognized in this role. The decision maker group will need information about the scope of practice and delineation of the role of the MA in being the initial contact with diabetes education for information exchange and basic skill training.

Another important group to include is the Department of Labor and its Bureau of Labor Statistics to include in the MA job description the DSME and what their role is in the process.

Recommendations for the DSME Curriculum for Medical Assistants

To proceed with the development of the DSME curriculum for MAs to be delivered during the routine POV, a step back is required to be clear on the scope. The medical assistants have a professional organization that would be the entry to make this type of decision. When the conceptual framework is created the next step is to proceed with the MA scope of work; then the DSME curriculum can be developed. The DECSS curriculum will need to contemplate a structure to provide capacity to train the MA and provide them with the competencies necessary to perform their duties in DSME.

Implementation

The DECSS has been piloted and it is implemented by the Emory Latino Diabetes Education Training Academy, under the direction of Dr. Guillermo Umpierrez and Britt Rotberg, MS, RD, LD at the Emory Latino Diabetes Education Program. Once the initial conceptual and key decisions are made, the theoretical development and evaluation process suggested in this thesis should be followed so the process can continue until the completion of the curriculum and a pilot can be conducted and the implementation of the curriculum is adopted successfully.

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APPENDICES

Appendix A

Needs Assessment Pilot

1) Which activities performed by the Medical Assistant during the physician/clinic office visit can be used as diabetes patient learning moments? (check all that apply)

- Check-in
- Greeting in the waiting room
- Checking vital signs (wt, bp, bg, labs)
- Getting patient situated in exam room
- In the exam room
- Discharge
- Other (please specify)

2) How possible do you think it is for the Medical Assistant to perform diabetes education activities during the following events?

- Check-in
- Greeting in the waiting room
- Checking vital signs (wt, bp, bg, labs)
- Getting patient situated in exam room
- In the exam room
- Discharge
- Other (please specify)

3) What diabetes self-management education topics could be addressed by the Medical Assitant during the physician/clinic office visit? (check all that apply)

- Eating healthy
- Physical activity
- Medication use
- A1C
- Blood pressure
- Weight
- Smoking Cessation
- Vaccines
- Foot Care
- Eye exam
- Hypoglycemia
- Sick day management
- Skills in self-monitoring of blood glucose
- Skills in insulin self-management
- Other (please specify)

4) Please rank these diabetes self-management topics from most important to least important to be included by the Medical Assistant in the physician office visit?

- Eating healthy
- Physical activity
- Medication use
- A1C
- Blood pressure
- Weight
- Smoking Cessation
- Vaccines
- Foot Care
- Eye exam
- Hypoglycemia
- Sick day management
- Skills in self-monitoring of blood glucose
- Skills in insulin self-management
- Other (please specify)

5) Please identify your clinic/office

- Grady Diabetes Clinic
- Grady North DeKalb
- Grady International Clinic
- Grady North Fulton Center
- Northeast GA Physician Group Medical Park
- Summit Medical Group of Clinton
- Other (please specify)

6) What is your profession or role?

- MD
- MA
- Diabetes educator
- LPN
- RN
- RN manager
- Administrator
- Person with diabetes
- Other (please specify)

Appendix B

Needs Assessment Decision Makers (MD, CDE, Clinic Administrator)

1) The following list of activities are tasks performed by clinical/medical assistants during the physician/clinic office visit. During which of these tasks could a clinical/medical assistant provide patient teaching? (check all that apply)

- Walking from the waiting room to the exam room
- Checking vital signs (wt, bp, bg, labs)
- Getting the patient situated in the exam room
- In the exam room
- During discharge instructions
- Other

2) How realistic do you think it is for the Clinical/Medical Assistant to perform Diabetes Education activities during the following tasks?

- Walking from the waiting room to the exam room
- Checking vital signs (wt, bp, bg, labs)
- Getting the patient situated in the exam room
- In the exam room
- During discharge instructions
- Other

3) Assuming that the Clinical/Medical Assistant has the proper training in Diabetes Education, what diabetes self-management education topics could be delivered by them in short amounts of time during the physician/clinic office visit? (check all that apply)

- Eating healthy
- Physical activity
- Medication use
- A1C
- Blood pressure
- Weight
- Smoking Cessation
- Vaccines
- Foot Care
- Eye exam
- Hypoglycemia
- Sick day management
- Skills in self-monitoring of blood glucose
- Skills in insulin self-management
- Other (please specify)

4) - Please rank these diabetes self-management topics from most important to least important to be delivered by Clinical/Medical Assistant during the physician/clinic office visit?

- Eating healthy
- Physical activity
- Medication use
- A1C
- Blood pressure
- Weight
- Smoking Cessation
- Vaccines
- Foot Care
- Eye exam
- Hypoglycemia
- Sick day management
- Skills in self-monitoring of blood glucose
- Skills in insulin self-management
- Other (please specify)

5) Please identify your clinic/office

- Grady Diabetes Clinic
- Grady North Dekalb Center
- Grady International Clinic
- Grady North Fulton Center
- Northeast GA Physician Group Medical Park
- Summit Medical Group
- Other

6) What is your profession or role?

- MD
- Medical Assistant/Clinical assistant/Nursing assistant/Medical Technologists
- Diabetes educator
- Nurse Practitioner/CNS
- Physician Assistant
- LP
- RN
- Administrator/RN Manager
- Person with diabetes
- Other

Appendix C

Needs Assessment Intended End User (MA)

1) The following list of activities includes tasks performed during the patient's visit. During which of these tasks could you provide very short patient teaching? (check all that apply)

- Walking from the waiting room to the exam room
- Checking vital signs (wt, bp, bg, labs)
- Getting the patient situated in the exam room
- In the exam room
- During discharge instructions
- Other

2) How realistic do you think it is for you to perform very short diabetes education activities during the following tasks?

- Walking from the waiting room to the exam room
- Checking vital signs (wt, bp, bg, labs)
- Getting the patient situated in the exam room
- In the exam room
- During discharge instructions
- Other

3) Assuming that you have been properly trained in Diabetes Education, what diabetes self-management education topics could you deliver in short amounts of time during the office visit?

- Eating healthy
- Physical activity
- Medication use
- A1C
- Blood pressure
- Weight
- Smoking Cessation
- Vaccines
- Foot Care
- Eye exam
- Hypoglycemia
- Sick day management
- Skills in self-monitoring of blood glucose
- Skills in insulin self-management
- Other (please specify)

4) Please rank these diabetes self-management topics from most important to least important to be delivered by you during the office visit?

- Eating healthy
- Physical activity
- Medication use
- A1C
- Blood pressure
- Weight
- Smoking Cessation
- Vaccines
- Foot Care
- Eye exam
- Hypoglycemia
- Sick day management
- Skills in self-monitoring of blood glucose
- Skills in insulin self-management
- Other (please specify)

5) Please identify your clinic/office

- Grady Diabetes Clinic
- Grady North DeKalb Center
- Grady International Clinic
- Grady North Fulton Center
- Northeast GA Physician Group Medical Park
- Summit Medical Group
- Other

6) What is your profession or role?

- Medical Assistant
- Clinical Assistant
- Nursing Assistant
- Medical Technologist
- LPN
- Are you certified?
- Other

Appendix D

Survey Results from Decision Makers (n=20)

Question 1 - Routine Tasks during POV when DSME can be provided	
n=20	**%**
Walking	35%
Checking Vital Signs	85%
Situated in Exam Room	70%
Exam Room	80%
Discharge	65%
Other	15%

Table 2 – Decision Makers Group, Question 1

Question 2 - How realistic is to perform DSME during POV routine tasks					
n=20	Worst	Not	Neutral	Possible	Best
Walking	50.0%	30.0%	10.0%	5.0%	5.0%
Checking Vital Signs	10.0%	5.0%	10.0%	55.0%	20.0%
Situated	5.0%	10.0%	10.0%	45.0%	30.0%
Exam Room	0.0%	0.0%	5.0%	40.0%	55.0%
Discharge	10.0%	5.0%	10.0%	5.0%	50.0%
Other	5.0%	5.0%	10.0%	5.0%	10.0%

Table 3 – Decision Makers Group, Question 2

Question 3 - DSME Topics to be delivered during POV	
n=20	**%**
Eating Healthy	65%
Physical Activity	70%
Medication Use	50%
Checking A1C	50%
Checking blood pressure	70%
Checking cholesterol	45%
Checking weight	70%
Smoking cessation	65%
Vaccines	40%
Foot care	75%
Eye exam	40%
Hypoglycemia	50%
Sick day management	35%
Skills in self-monitoring blood glucose	55%
Skills in insulin self-admin	35%
Other	10%

Table 4 – Decision Makers Group, Question 3

Question 4 - Rank DSME topics to be delivered during POV					
n=20	**Least**	**Not**	**Neutral**	**Important**	**Most**
Eating Healthy	0.0%	5.0%	15.0%	25.0%	50.0%
Physical Activity	0.0%	0.0%	15.0%	50.0%	30.0%
Medication Use	5.0%	10.0%	25.0%	15.0%	35.0%
Checking A1C	10.0%	5.0%	15.0%	35.0%	25.0%
Checking blood pressure	0.0%	0.0%	15.0%	60.0%	15.0%
Checking cholesterol	5.0%	5.0%	25.0%	45.0%	10.0%
Checking weight	0.0%	5.0%	15.0%	45.0%	25.0%
Smoking cessation	5.0%	0.0%	20.0%	45.0%	25.0%
Vaccines	15.0%	0.0%	30.0%	40.0%	5.0%
Foot care	10.0%	0.0%	30.0%	35.0%	25.0%
Eye exam	10.0%	0.0%	30.0%	35.0%	15.0%
Hypoglycemia	5.0%	0.0%	15.0%	40.0%	30.0%
Sick day management	5.0%	0.0%	5.0%	30.0%	15.0%
Skills in self-monitoring blood glucose	5.0%	0.0%	5.0%	30.0%	50.0%
Skills in insulin self-admin	15.0%	5.0%	20.0%	10.0%	40.0%
Other	5.0%	0.0%	5.0%	0.0%	5.0%

Table 5 – Decision Makers Group, Question 4

Question 5 - Please identify your clinic/office	
Grady Diabetes Clinic	4
Grady North DeKalb Center	1
Grady Int'l Clinic	1
Grady North Fulton Center	3
Summit Medical Group of Clinton	2
Other	9

Table 6 – Decision Makers Group, Question 5

Question 6 - What is your profession or role?	
MD	11
MA	0
Diabetes educator	2
LPN	0
RN	0
RN Manager/Administrator	3
Nurse Practitioner/ CNS	1
Person with diabetes	0
Other	3

Table 7 – Decision Makers Group, Question 6

Appendix E

Survey results from Medical Assistants (n=9)

Question 1 -	
Checking Vitals	88.9%
Situated in Exam Room	22.2%
Exam	66.7%
Discharge	33.3%
Other	0.0%

Table 8 - End Users Group, Question 1

Question 2 -					
	Least	**Not**	**Neutral**	**Realistic**	**Very**
Walking	33.3%	22.2%	0.0%	22.2%	0.0%
Vital	11.1%	11.1%	0.0%	22.2%	55.6%
Situated	11.1%	0.0%	22.2%	11.1%	22.2%
Exam	11.1%	0.0%	0.0%	0.0%	66.7%
Discharge	0.0%	0.0%	0.0%	33.3%	44.4%
Other	0.0%	0.0%	0.0%	0.0%	11.1%

Table 9 - End Users Group, Question 2

Question 3 -	
Eating Healthy	100.0%
Physical Activity	88.9%
Medication Use	66.7%
Checking A1C	66.7%
Checking Blood Pressure	55.6%
Checking cholesterol	22.2%
Checking weight	77.8%
Smoking cessation	33.3%
Vaccines	22.2%
Foot care	55.6%
Eye exam	44.4%
Hypoglycemia	33.3%
Sick day management	33.3%
Skills in self-monitoring of blood pressure	33.3%
Skills in insulin self-admin	33.3%
Other	0.0%

Table 10 - End Users Group, Question 3

Question 4 -					
	Least	**Not**	**Neutral**	**Important**	**Most**
Eating Healthy	11.1%	0.0%	0.0%	0.0%	88.9%
Physical Activity	11.1%	0.0%	0.0%	22.2%	66.7%
Medication Use	0.0%	0.0%	0.0%	33.3%	55.6%
Checking A1C	0.0%	0.0%	0.0%	33.3%	55.6%
Checking Blood Pressure	11.1%	11.1%	0.0%	66.7%	11.1%
Checking cholesterol	11.1%	0.0%	0.0%	55.6%	22.2%
Checking weight	11.1%	0.0%	0.0%	55.6%	33.3%
Smoking cessation	11.1%	0.0%	0.0%	44.4%	33.3%
Vaccines	11.1%	0.0%	0.0%	77.8%	0.0%
Foot care	11.1%	0.0%	0.0%	33.3%	44.4%
Eye exam	0.0%	11.1%	0.0%	22.2%	55.6%
Hypoglycemia	0.0%	0.0%	0.0%	33.3%	55.6%
Sick day management	0.0%	0.0%	11.1%	55.6%	22.2%
Skills in self-monitoring of blood pressure	0.0%	0.0%	0.0%	11.1%	77.8%
Skills in insulin self-admin	0.0%	0.0%	0.0%	0.0%	88.9%
Other	0.0%	0.0%	0.0%	0.0%	0.0%

Table 11 - End Users Group, Question 4

Question 5 - Please identify your clinic/office	
Grady Diabetes Clinic	2
Grady North DeKalb Center	0
Grady International Clinic	1
Grady North Fulton Center	3
Northeast GA Physician Group Medical Park	0
Summit Medical Group of Clinton	0
Other	3

Table 12 – End Users Group, Question 5

Question 6 - What is your profession or role?	
MA	5
Clinical Assistant	2
Nursing Assistant	0
Medical Technologist	0
LPN	2
Certified?	0
Other	0

Table 13 – End Users Group, Question 6

Appendix F

Expert Review Evaluation Demographic Survey

1) What is your discipline?

    - RN
    - NP
    - RD
    - Phar
    - Other

2) How many years of training as a health professional do you have?

    - 0-3
    - 4-10
    - 11-20
    - 21+

3) What is the highest degree you have received?

    - Associate's
    - Bachelor's
    - Master's
    - Doctorate

4) How many years of experience do you have as a diabetes educator?

    - 0-3
    - 4-10
    - 11-20
    - 21+

5) Which diabetes credentials do you maintain?

    - CDE
    - BC-ADM
    - No credentials

6) Have you published articles of given presentations about diabetes on a professional level? If yes, please describe the topic of publication/presentation.

    - Free response

7) Do you have experience on curriculum review?

    - Yes
    - No

8) Please describe your experience in Curriculum review.

    - Free response

Appendix G

Expert Review Evaluation- demographic information responses

1) What is your discipline?

RN	14.29%
NP	14.29%
RD	28.57%
Phar	0.00%
CDE	14.29%
MPH	42.86%

2) How many years of training as a health professional do you have?

0-3	14.29%
4-10	57.14%
11-20	0.00%
21+	28.57%

3) What is the highest degree you have received?

Associate's	0.00%
Bachelor's	0.00%
Master's	100.00%
Doctorate	0.00%

4) How many years of experience do you have as a diabetes educator?

0-3	42.86%
4-10	14.29%
11-20	14.29%
21+	28.57%

5) Which diabetes credentials do you maintain?

CDE	57.14%
BC-ADM	0.00%

No credential	42.86%

6) Have you published articles of given presentations about diabetes on a professional level? If yes, please describe the topic of publication/presentation.

health literacy and diabetes
Nutrition, physical activity and lifestyle change in diabetes. Also, pattern management
diabetes and minorities
CHWs and diabetes, primary prevention AADE obesity and cultural diversity position statement, diabetes in frontier states, book chapters
Poster presentation on the improvement of diabetes in the Latino population of GA
diabetes in women of childbearing age
Author/co-author on approximately 12 diabetes related articles published in peer reviewed journals or as a CME. Professional Diabetes Course Coordinator/Faculty for Emory Course X13 years; invited speaker to local, regional & national events to address diabetes.

7) Do you have experience on curriculum review?

Yes	42.86%
No	57.14%

8) Please describe your experience in Curriculum review

No formal experience, but have written curriculums and programs
Reviewed curriculum for previous employer, Diabetes Treatment Centers of America.
part of my master was in this area, I have review curriculums at the local, national and international level
Assisted with development of Diabetes Education Program curriculum for Regional Diabetes Center 1986; facilitated development of curriculum for Grady Diabetes Unit Patient Education Program for ADA Recognition 1992. Developed professional & patient education curriculum for 1 week camp for children w/ diabetes 1987-1990. Served as advisor for Patient Education Program for the Diabetes Association of Atlanta 1994-2011 & SE Endocrine Patient Education Program 2009-11.

Appendix H

Curriculum- Diabetes Control/Preventive Care/Monitoring

Diabetes Control/Preventive Care/Monitoring

Task list *A series of steps leading to a useful outcome*	**Task analysis** *Steps followed and decisions that make up the task*	**Skill derivation** *What needs to be done/known before ready to complete the task*
BG control	Fasting target range Post prandial target range A1c target Skill Testing bg Purpose Recording bg Schedule times for testing Alarm values requiring to call the provider Cost issues	Use a bg meter, how to record bg and testing bg times. Economic aspects of bg monitoring cost meter, insurance payment, affordable options. Testing times. Different meter options Targets for pre meal bg, post meal, A1c, Main goal of bg monitoring. Pattern identification Alarm values Symptoms hypo and hyper Evaluation question Do you test your bg, t what times , what are your meal times and if on insulin when is insulin administered Community resources
Blood pressure control	BP target Measuring bp Recording bp Costs associated Patterns Alarm values – req reporting to the provider	Measure Bp, teaching pt self-monitoring of BP, recording results , BP target in diabetes, alarm values
Lipid control	Total cholesterol target HDL target LDL target Triglyceride target Frequency of testing	Reading a lab report, target levels for cholesterol total, HDL &LDL. Target Triglyceride. Dietary sources of cholesterol and triglyceride

		Guidelines for lab testing

Prevention of flu and pneumonia	Schedule for vax	Importance of vax Guideline for vax flu and pneumonia
Smoking cessation	Assess readiness to change Resources available	Assessing pt for readiness Resources available
Foot care	Take shoes and socks off Instruct on self-foot care Alarm sign req the attention of the provider	Foot inspection, foot self-care Who to call
Sick Day Management	What is a sick day Emergency kit Eating on a sick day Alarm signs and symptoms requiring the intervention of provider	Assessing sick day requirements Preparing emergency kit Who to call
Weight loss or maintenance	Use BMI to assess risk Use a scale	Use BMI

Appendix I

Curriculum- Use of Medications

Use of Medications

Task list *A series of steps leading to a useful outcome*	**Task analysis** *Steps followed and decisions that make up the task*	**Skill derivation** *What needs to be done/known before ready to complete the task*
List of meds	Update list of meds on EMR Delete what pt is not taking Add meds pt is taking	EMR , how to obtain information form patient, update EMR
Time of the day	Best time to take medications Optimal situation for each medication administration	Schedule times for Metformin, sulfonylureas, DPP 4 , BP, Lipid,
Dose of meds	Standard dose for: • Metformin • Glipizide • Glyburide • amaryl tzd • DPP4, Side effects Other injectable BP meds Statins	Doses
Barriers to adherence	Action Cost Obtaining supplies Side effects Forgetting dose Choosing not to take dose	Medication action secretagogue, sensitizer, DPP4 Side effects secretagogues, sensitizers and DPP4 Cost of medicines , which are available generic, Med obtaining options Community resources Problem solving to adherence barriers

Use Insulin	preparation injection disposal rotation Titration dose Different types	Preparing insulin, sc injection, site selection, disposal options Basal and prandial concepts Titration of insulin to individual dose Types of insulin
Hypoglycemia	symptoms Causes of hypo Treatment Treatment correction Reporting to provider glucagon	Identify signs and symptoms of hypo Rule of 15 Treatment options Need to adjust medication Preparation and instruction of glucagon
Medications contraindication and interactions	Precaution of metformin Meds to take fasting Meds to take with food	
OTC meds	High sugar content in OTC	List of meds to avoid List of recommended options

Appendix J

Curriculum- Healthy Eating

Healthy eating

Task list *A series of steps leading to a useful outcome*	**Task analysis** *Steps followed and decisions that make up the task*	**Skill derivation** *What needs to be done/known before ready to complete the task*
Read a nutrition label	Layout of nutrition label What is a portion What is a serving size What is a calorie What is fat What is sodium What is a carbohydrate What is fiber	Familiarize with the elements in the nutrition label Know the components in the label Know macronutrients that raise bg
Use the plate method	What foods are vegetables What foods are starchy vegetables What foods are fruits-(carbs) What foods are meats What foods are starches and milk (carbs) What foods are starches (carbs) Purpose of using the plate method	Arrange in the plate 3-4 carbohydrate portions, half plate of veggies and 3 oz. portion of meat Assess if pt comprehends what is a carb(foods that raise bg) Purpose of plate method variety and portions
Create a grocery list	List of vegetables List of starchy vegetables List of fruits List of meats List of starches List of milk products	List 5 items in each category that pt's enjoys and is willing to try for vegetables, fruits , milk and meats
Use portion control	Learn how to measure ½ cup Measuring tbsp. tsp	Half a cup dry measure with cup and with fist
Timing of meals	Schedule meal 4- 6 hours Identify barriers to eating q 4-6	Create a personalized schedule Identify barriers and solutions

	hours	
Eating out	Dangers of eating out fast food and restaurants	Tips do's and don't of healthy eating out

Appendix K

Curriculum- Be Active

Be active

Task list *A series of steps leading to a useful outcome*	**Task analysis** *Steps followed and decisions that make up the task*	**Skill derivation** *What needs to be done/known before ready to complete the task*
Start activity plan	Type of activity /exercise Best time of the day Duration of activity Frequency of activity Equipment	Aerobic, strengthening exercises Questions to identify time of day Goal 150 min 5 days Community resources
Exercise format	Warm up activity Cool down Do's and don'ts	Benefits of following format, length of each phase Precautions Risk of hypo
Safety precautions	Is there a need for MD clearance hypoglycemia retinopathy	Screening for safety in exercise Risk factor for hypo Precautions when retinopathy is present

Appendix L

Curriculum- Instructional Objectives

Instructional Learner Objectives

Performance - do	Conditions - be able to	Criterion- time, quality, speed
Healthy eating		
Do	Prepare plate	
Be able to	Use nutritional label, hand half cup equivalent Identifying vegetable, starches, fruits, milks and meats	
Quality, time, accuracy	With 4 portions of CHO for men and 3 for women and half of plate of vegetables	
Being active		
Do	Start , increase or maintain exercise plan	
Be able to	Include the format of warm up and cool down and be cleared by provider if necessary	
Quality, time , accuracy	Within 2-4 weeks	
Monitoring		
Do	Obtain a value	
Be able to	Reach targets for blood sugar, A1c, blood pressure, lipids, BMI	
Quality, time, accuracy	As individualized by provider	
Do	Treat hypoglycemia	
Be able to	Recognize signs and symptoms and select appropriate treatment	
Quality, time, accuracy	Or when bg is < 70	
Do	Obtain preventive care interventions	
Be able to	Have eye exam, foot exam, vaccines	
Quality, time , accuracy	As recommended by the ADA practice recommendations	
Use of medications		
Do	Self-administer	
Be able to	Medications as prescribed by providers	
Quality , time, accuracy	Without missing more that 1-3 doses per medication a week	

Appendix M

Curriculum- Background and Evaluation Framework

Expert Review Evaluation

Amparo Gonzalez
Emory University Rollins School of Public Health
Thesis requirement for MPH degree May 30, 2012

- 5:30 PM Welcome
- 5:35 PM Dinner
- 5:45 PM Introductions
- 6:00 PM Presentation
- 6:20 PM Group discussion
- 7:00 PM Adjournment

Agenda

- At the end of today's meeting :
  - I will present to you a project to develop the content of a DSME curriculum for medical assistants
  - The project is in progress and your opinions are very important to guide the material to the next step
  - Your suggestions will be analyzed and included in the curriculum
  - We will have a group discussion on how to implement this curriculum

Expectations for today's meeting

- Development of a Physician Office Visit Diabetes Education Curriculum for Medical Assistants and Evaluation by Expert Review

Thesis title

- Does the curriculum include the elements necessary to educate the individual with diabetes in diabetes self-management strategies, knowledge and skills?

Question

- To develop a self-management curriculum for diabetes education to be delivered by medical assistants (MA) during the physician/clinic visit
- Development of an evaluation process to be reviewed by an expert review panel

Thesis purpose

- Charlotte Hayes
- Janine Freeman
- Kathy Berkowitz
- Maureen McGrath
- Elizabeth Ivie
- Rita Panayioto
- Alison Leppke
- Sarah Piper
- Catherine Maxwell
- Daniela Salas
- Jessica Macinkravage
- Britt Rotberg
- Betsy Rodriguez- Facilitator and thesis advisor

Experts

- Diabetes self-management is complex
- Requires that the individual obtains knowledge, skills and attitudes
- Change current unhealthy behaviors
- DSME a continuum owned by diabetes educators
- Missing key moments such as the moment of diagnosis and frequent follow-up
- Lack of team care approach and using teachable moments identified in the encounter of the MA and the patient during the POV

Problem

- Physician/provider/clinic visit the basic unit in the provision of health care services
- Opportunity to initiate and maintain diabetes self-management activities
- Medical assistant role offers great potential in DSMT
- A curriculum to be delivered by the MA during the physician office visit (POV) is built on available resources and will increase access of individuals with diabetes to DSME through their lifetime

Background

- *Audience*: MA, LPN, nursing assistant, clinical support staff
- *Prerequisite*: successful completion of the Diabetes Education for Clinical Support Staff (DECSS) course
- *Definition of education* – is the process of changing behavior patterns of people (Tyler, 1949)
- *Definition of behavior*- broad sense includes thinking, feeling and overt action (Tyler, 1949)
- *Definition of curriculum* – a plan that consists of learning opportunities for a specific time frame and place. A tool that aims to bring about behavior change as a result of planned activities (Goodland & Su,1992)

Curriculum development

- *Aim*: To provide the MA with the material necessary to deliver diabetes education to the patient during the medical visit
- *Goal*: to develop a DSME curriculum to be delivered by the MA during the POV and evaluate by an expert panel review
- *Channel of delivery*: during the routine tasks that make up the clinical visit
- *Philosophy of DSME*- continuum from dx to death. Elements of the healthcare system, community and healthcare personnel. Healthcare personnel in each different types of settings may contribute to DSME

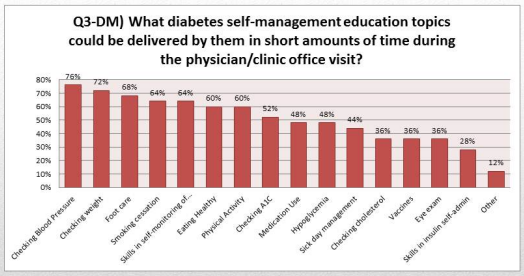
Curriculum development

- Basic Principles of Curriculum and Instruction (1949)
- Ralph W. Tyler
  - 1. Diagnosis of need
  - 2. Formulation of objectives
  - 3. Selection of content
  - 4. Organization of content
  - 5. Selection of learning experiences
  - 6. Organization of learning experiences
  - 7. Determination of what to evaluate and the ways and means of doing it

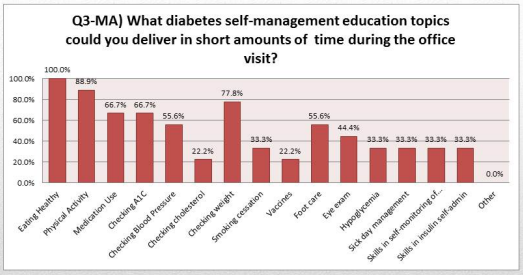
Ralph Tyler

- Stakeholders: medical assistants as the intermediate users and MD's. CDE's and clinic administrators as the decision makers
- Questions
  1. During which of these tasks could one provide very sort patient teaching? (Check all that apply)
     - *Walking with patient, checking vitals, situated in exam room, during exam, discharge, other*
  2. How realistic do you think it is for one to perform very short diabetes education activities during the following tasks?
     - *Not Likely, Least Likely, Neutral, Realistic, Very Realistic*
  3. What diabetes self- management education topics could one deliver in short amounts of time during the office visit? (Check all that apply)
     - *Eating healthy, Physical Activity, Medication Use, Checking A1C, Checking Blood Pressure, Checking cholesterol, Checking weight, Smoking Cessation, Vaccines, Foot Care, Eye Exam, Hypoglycemia, Sick day management, Skills in self-monitoring of blood pressure, Skills in insulin self-administration, Other*
  4. Please rank these diabetes self-management topics from most important to least important to be delivered by you during the office visit?
     - *Same as question 3, with a scale of: Not Likely, Least Likely, Neutral, Realistic, Very Realistic*

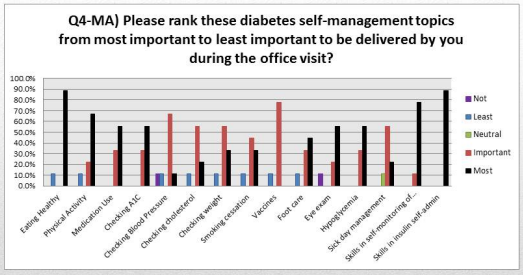
Needs assessment



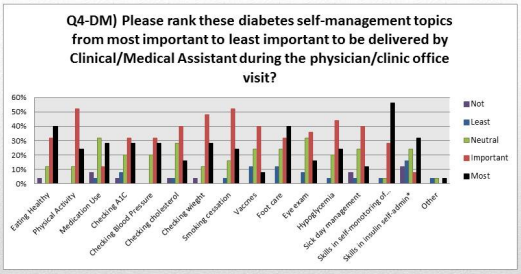
Results- teachable moments decision makers



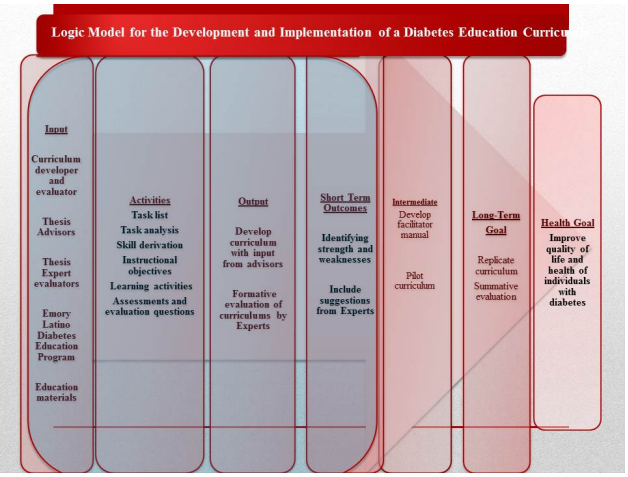
Results- teachable moments MA's

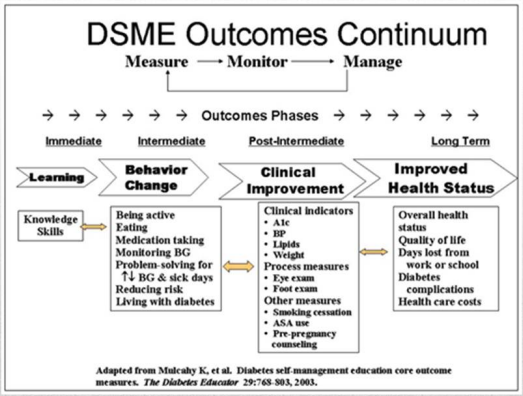


Results- DSME topics MA's



Results- DSME topics decision makers





- There is a need for instruction when students:
  - Don't know what we intend to teach
  - Instruction is the best means for obtaining the desired change
- A collection of words, pictures or diagrams intended to let others know what you intend your students to achieve
- Rational , systematic, useful
- Objectives are related to intended outcomes, be specific and measurable and concerned with the student (pt) not the educator
- Systematic derivation: task listing, task analysis, skill derivation
- Instructional objectives and skill hierarchy
- Curriculum derivation compare objective with what student can already do
  - Robert F. Mager (1997)

Instructional objectives

Behavior change theory

- Social Cognitive Theory
- Albert Bandura (2004)
- "Quality of health is influenced by lifestyle habits"
- Core set of determinants
  - Capabilities
  - Self-efficacy
  - Expectations

Evaluation

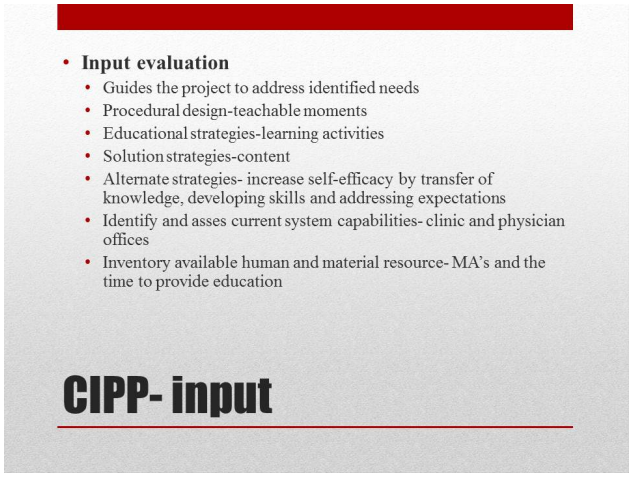
- Formative evaluation
  - During the program planning phase
- Method: Expert panel
  - To assess the appropriateness of the DSME curriculum for medical assistants
- Evaluation Model
  - CIPP (Context, Input, Process and Product)
  - A systematic method of assessing different aspects of the curriculum process
  - Stufflebeam, 1983

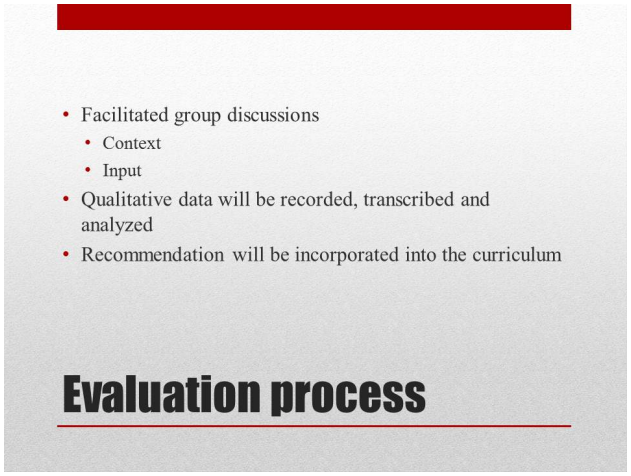
Evaluation goal

- The goal of the expert evaluation is to identify exclusions and suggest improvements to decrease exclusion, to increase user satisfaction and to identify effectiveness of the product or service. When the evaluation is done in the early development stages of the product or service it will contribute to improvement in the design
  - Thesiras, 2012

CIPP model- context

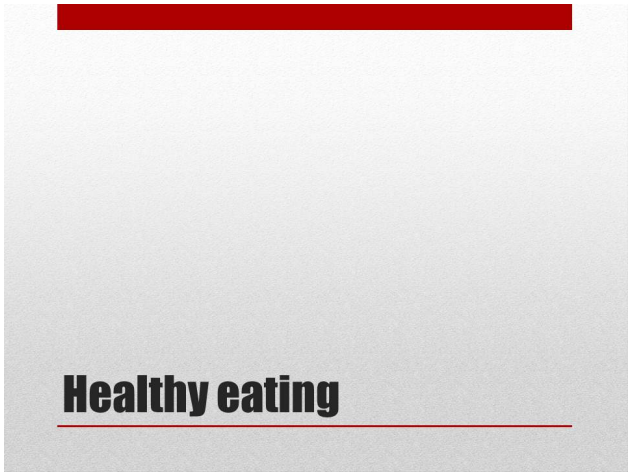
- **Context evaluation**
  - Refers to the needs assessment
  - Assess the problem
  - Assess the assets
  - Assess the opportunities within a defined community
  - Identify target population
  - Asses its needs
  - Identifies opportunities for addressing needs
  - Diagnoses problems underlying the needs


Input evaluation
Guides the project to address identified needs
Procedural design-teachable moments
Educational strategies-learning activities
Solution strategies-content
Alternate strategies- increase self-efficacy by transfer of knowledge, developing skills and addressing expectations
Identify and asses current system capabilities- clinic and physician offices
Inventory available human and material resource- MA's and the time to provide education
CIPP- input

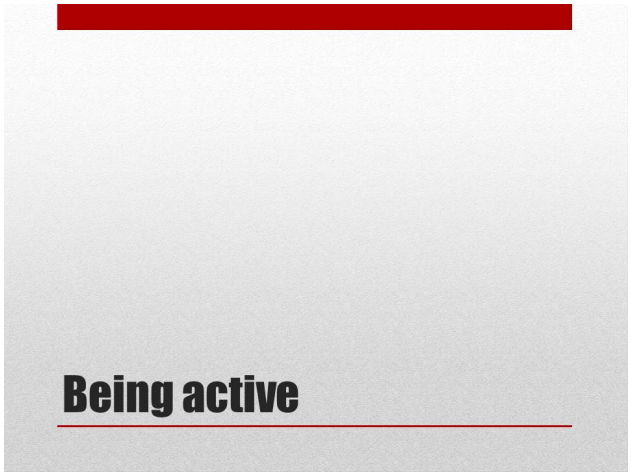

Facilitated group discussions
Context
Input
Qualitative data will be recorded, transcribed and analyzed
Recommendation will be incorporated into the curriculum
Evaluation process


Curriculum materials


Preventive care


Healthy eating


Medication use


Being active


Instructional objectives

Learning activities

Analysis, assessment , evaluation

- Questions
  1. Is the material clear and easy to follow?
  2. Does the material actively engage the learner?
  3. Does the material use learning principles?
  4. Does the material use learning styles effectively?
  5. Does the material include evaluation procedures?
  6. Does the material encourage learners to act on the information presented?

Evaluation of instructional characteristics

- Does the curriculum include the elements necessary to educate the individual with diabetes in diabetes self-management strategies, knowledge and skills?

Question

- Questions
  1. Does the project goal respond to the needs assessed?
  2. Does the curriculum support the goals of the healthcare team?
  3. Are the aim stated clearly?
  4. Is the goal stated clearly?
  5. Is the target audience defined?
  6. Is the material intended to inform, motivate, instruct, evaluate or advocate?

Evaluation of content

- Questions
  1. Was the material developed based on theory or evidence based practice?
  2. How would you rate the quality of the material?
  3. Does the curriculum have enough information to meet the goal of the program?
  4. How is the curriculum relevant to the learner interest and needs?
  5. What are the strengths of the curriculum design?
  6. What are the weaknesses of the curriculum design?
  7. In what way is the curriculum design appropriate for the intended channel of delivery?

Evaluation of input

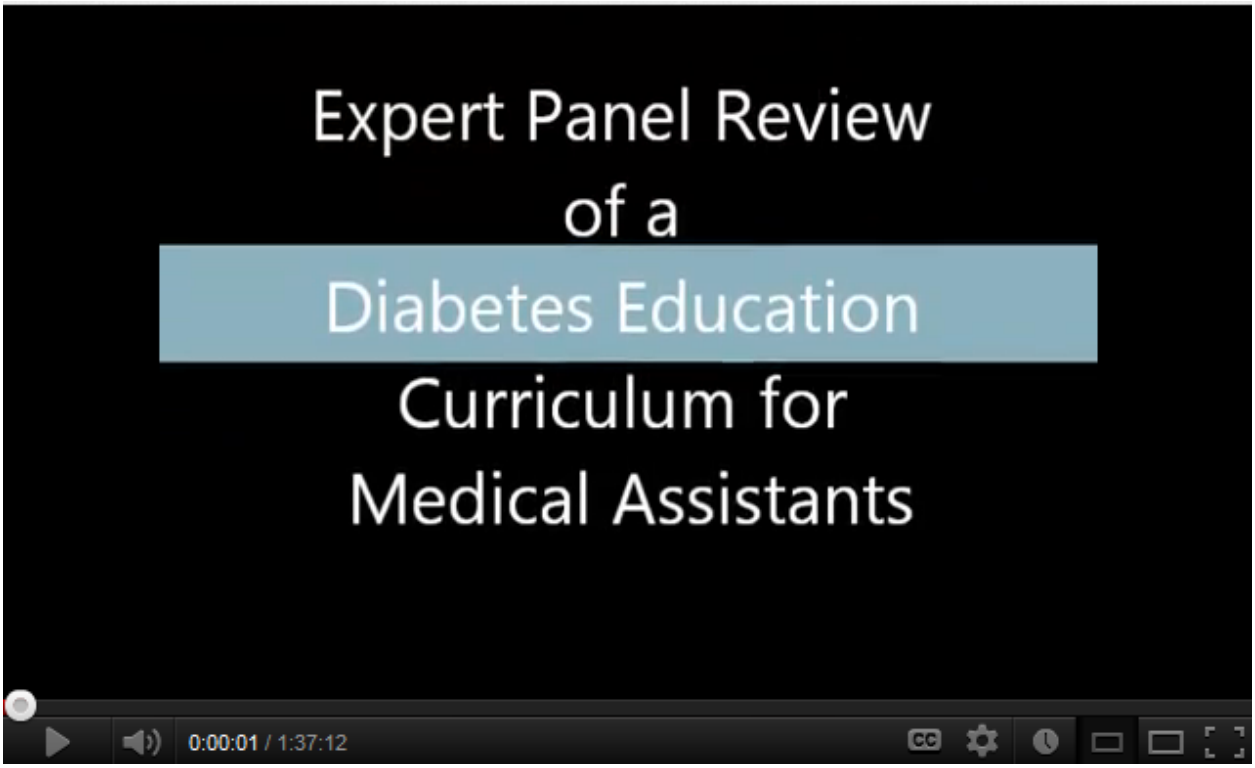
- Discussion

Suggestions for implementation

Conclusions and closing

Appendix N

Video of Expert Panel Review



To watch the video please click on the picture above or go to:
http://www.youtube.com/watch?v=PlW9aQQGnFI

Audio of Expert Panel Review

If you prefer simply the audio of the Expert Review Panel, please go to:
https://www.dropbox.com/s/4nod5v24vjsut30/AGonzalezExpertReviewPanel.mp3