Implementation Guide for Public Health Practitioners

The Shands Jacksonville Patient-Centered Medical Home Diabetes and Hypertension Self-Management Education Model

December 2015

National Center for Chronic Disease Prevention and Health Promotion
Division for Heart Disease and Stroke Prevention

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Commonly Used Acronyms

CDC	Centers for Disease Control and Prevention
DDT	Division of Diabetes Translation
DHDSP	Division for Heart Disease and Stroke Prevention
D-RAP	Diabetes Rapid Access Program
DPC	Designated Provider Clinic
DHSME	Diabetes and Hypertension Self-Management Education
DSME	Disease Self-Management Education
EHR	Electronic Health Record
MA	Medical Assistant
NCQA	National Committee for Quality Assurance
NP	Nurse Practitioner
PCMH	Patient-Centered Medical Home
PCP	Primary Care Provider
PQRS	Physician Quality Reporting System
REACH	Review Evaluate and Control Hypertension
SEAT	Site Evaluation Assessment and Treatment
UF Health	University of Florida Health System

I. Introduction

The purpose of this implementation guide is to describe key lessons learned from the evaluation of the Diabetes and Hypertension Self-Management Education (DHSME) model implemented within the Shands Jacksonville Patient-Centered Medical Home (PCMH) (referred to as Shands Jacksonville in this report). This guide is intended for public health practitioners who are interested in implementing chronic disease self-management education models that reduce or remove barriers to healthcare while also strengthening community-clinical linkages. If you are a health system or PCMH administrator or state health department program manager, you may wish to use this document as you consider a DHSME model and think about its core elements. Its core elements are infrastructure and capacity, care coordination processes, strategic partnerships, and health information exchange (HIE).

The lessons learned from Shands Jacksonville's DHSME can apply in different community settings or with different patient populations, including those who are disproportionately burdened by chronic disease. When using this guide, consider the unique needs and assets of your patient population, as well as the unique characteristics of your community setting to enhance your ability to tailor the DHSME model's core elements.

References are included at the end of the guide. A glossary of key terms is provided in **Appendix A**.

The guide is organized into five sections:

1. Introduction

2. Getting a DHSME Model Started in Your Community

3. Core Elements of Shands Jacksonville's DHSME Model

4. Program Monitoring and Evaluation

5. Conclusions

Background

Chronic diseases such as heart disease, stroke, and diabetes cause significant morbidity and mortality and negatively impact the lives of more than 45% (133 million) of the U.S. population.[1] Hypertension, also known as high blood pressure, is a major risk factor for heart disease and stroke. Approximately one in every three adults (29% or 70 million) in the United States has high blood pressure and only 52% have their condition under control.[2,3] Hypertension can go undiagnosed and show no signs or symptoms for several years. During this time an individual could experience major damage to his or her heart, blood vessels, kidneys, and other parts of the body.

Diabetes affects about 29 million people in the United States, of which 8 million are reportedly undiagnosed.[4] A person with diabetes has a shorter life expectancy compared to a person of similar age without diabetes. Further, being diagnosed with diabetes more than doubles the risk of developing heart disease and stroke.[5]

The prevalence of hypertension and diabetes for minority populations exceeds that of whites. The prevalence of hypertension for blacks is 40%, compared to 27% for whites and 26% for Hispanic/Latinos.[6] In 2011, the prevalence of diabetes was 13% for black adults but 7% for white adults.[7] Blacks are also nearly twice as likely as whites to suffer from co-existence of hypertension and diabetes.[8]

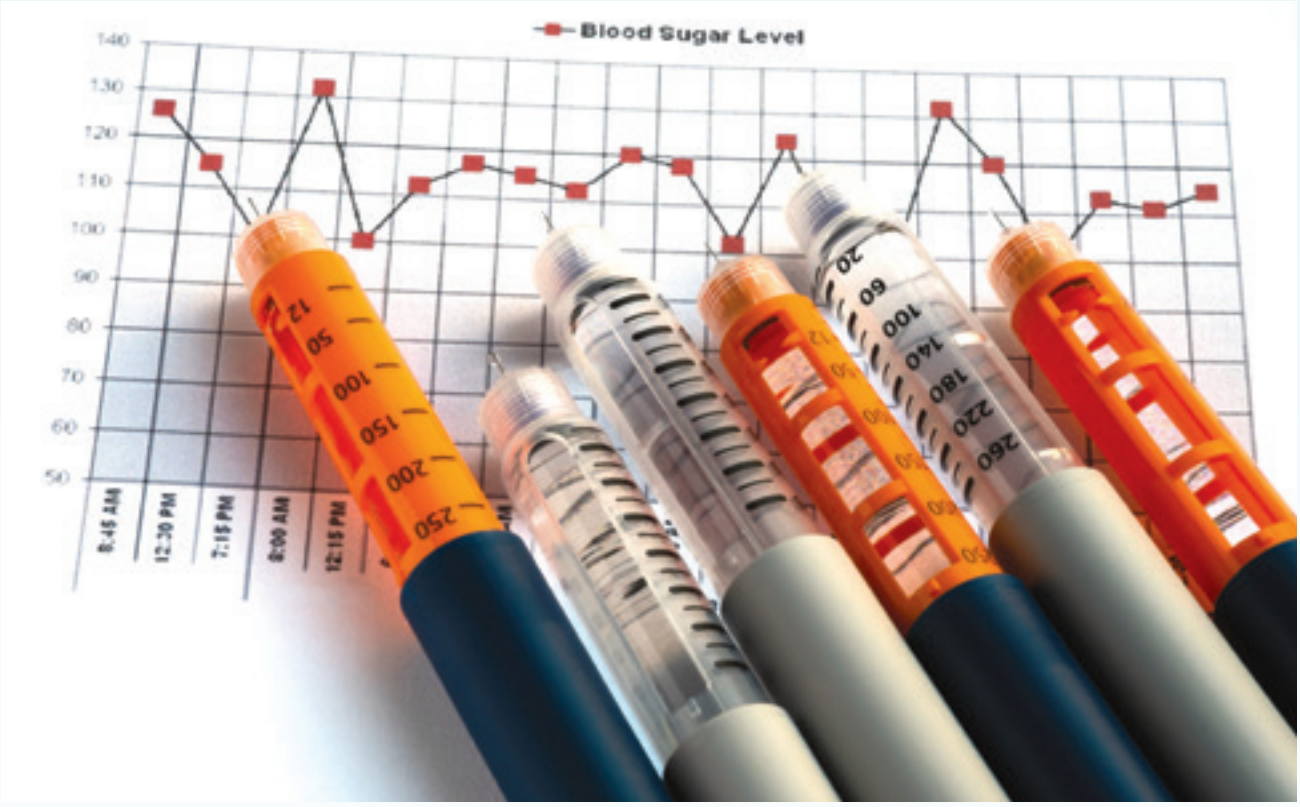
The underlying risk factors for both diabetes and hypertension (e.g., familial history, dyslipidemia, and lifestyle determinants) contribute to challenges in effectively managing and controlling the conditions.[8] Early access to good quality healthcare can significantly help reduce and prevent hospitalization for these types of chronic conditions. Yet, for many, a lack of proper health education, poor self-management practices, poverty, certain behaviors and beliefs about healthcare, and little to no access to services are major challenges.[9]

National recognition and growing evidence shows that self-management education can improve chronic disease management and reduce healthcare costs. In light of recent findings, Healthy People 2020 recommends a combined approach that includes case management and disease self-management.[10] Case management involves planning, coordinating, and providing access to healthcare in order to enhance the effectiveness of self-management education strategies and increase the proportion of persons who have a specific source of ongoing care.[11]

With this in mind, the Centers for Disease Control and Prevention (CDC) Division for Heart Disease and Stroke Prevention (DHDSP) and Division of Diabetes Translation (DDT) collaborated to promote promising practices and strategies that reduce the preventable burdens related to hypertension and diabetes, and to highlight the merit of those promising practices and strategies for replication. The Shands Jacksonville PCMH brings a distinctive approach to addressing health disparities and barriers to care by integrating a disease-focused self-management education model into its PCMH and providing treatment to improve clinical outcomes. A panel of experts commissioned by CDC selected Shands Jacksonville for a pre-evaluation assessment in 2012 because of this promising approach. The effectiveness evaluation was conducted in 2013. ICF International (ICF), CDC's DHDSP and DDT, and Shands Jacksonville partnered to develop this guide based on findings from an evaluation of Shands Jacksonville's DHSME model to provide recommendations for replicating similar models in other communities.

What Is a PCMH?

- **Comprehensive Care.** A team of providers are accountable for treating the patient's physical and mental health care needs, including prevention and wellness, and acute and chronic care
- **Patient-Centered.** Patients and families are core members of the care team and fully engaged and informed partners at every level of care.
- **Coordinated Care.** Care is coordinated across all elements of the health care system, including specialty care, hospitals, home health care, and community services and supports.
- **Accessible Services.** Care is delivered with short waiting times, 24/7 access and extended in-person hours.
- **Quality and Safety.** Maximizes use of health IT, evidence-based medicine and clinical decision-support tools to guide shared decision making, program monitoring and evaluation, and population health management to ensure high-quality care.

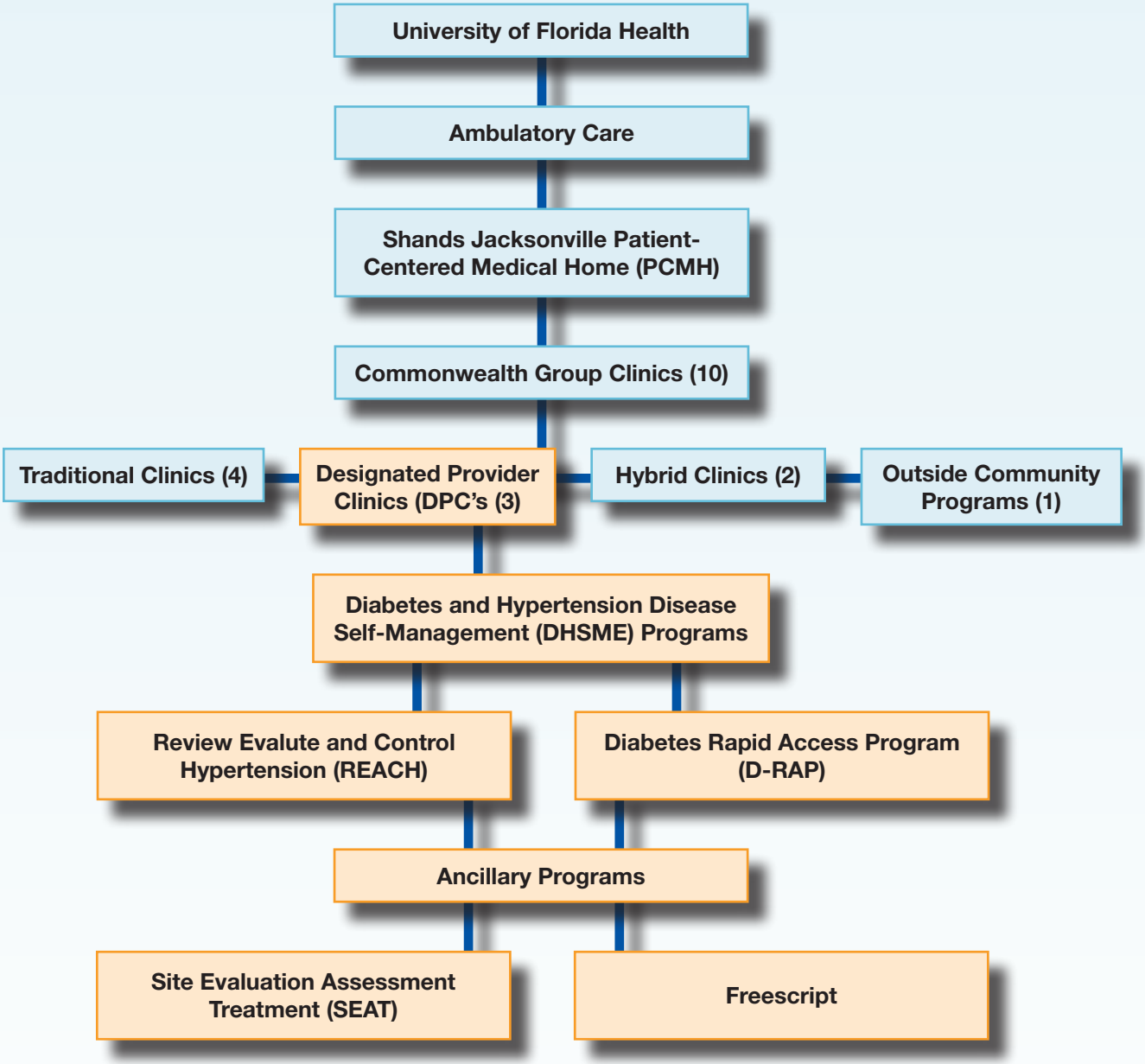


Program Overview

The Shands Jacksonville PCMH1 is housed within the ambulatory care services of the University of Florida Health system (UF Health) in Jacksonville, Florida. As shown in **Exhibit 1**, the PCMH includes 10 clinics that treat insured, uninsured, and Medicaid-eligible patients. During the evaluation time frame of March 2010-July 2014, Shands Jacksonville PCMH served approximately 27,340 patients.

Among the PCMH clinics, as highlighted below, three designated provider clinics (DPCs) primarily provide the DHSME services through the Diabetes Rapid Access Program (D-RAP), the Review Evaluate and Control Hypertension (REACH) program, and the ancillary programs that help to reduce barriers to care.

Exhibit 1. Shands Jacksonville PCMH Organizational Structure



In 2010, Shands Jacksonville was recognized as a National Committee for Quality Assurance (NCQA) Level 1 PCMH and recertified in 2013 as a Level 3 PCMH. Receiving NCQA PCMH recognition is a prestigious and widely recognized approach to transforming primary care practices into medical homes.

Shands Jacksonville PCMH is the only group within UF Health to use DPCs. DPCs were introduced in 2000 to address the unmet needs of patients who are particularly burdened with uncontrolled and poorly managed chronic health conditions such as diabetes and hypertension by providing intensive low-cost or free care. Based in an urban community setting, providing DHSME within DPCs has been an efficient way for Shands Jacksonville PCMH to

- Divert patients from higher cost care such as emergency room visits
- Provide resources to address barriers to care
- Educate patients to better manage diabetes and hypertension

The Shands Jacksonville program logic model can be found in Appendix B.

Between April 2011–July 2014, the DPCs provided DHSME services to almost 2,000 patients with hypertension or diabetes or both.

Why Consider This Model?

Self-management education models equip patients with knowledge of risk-reducing activities as well as support to successfully modify and manage health and chronic disease conditions such as diabetes and hypertension.[12-17] These models:

- Assume a collaborative relationship that enables patients to understand their health conditions and know what is expected of them.[12,16]
- Allow patients to have an active and participatory role throughout the treatment process and teach them ways to practice risk-reducing behaviors that promote a healthier lifestyle.[12,18]
- Are designed to be culturally appropriate and most effective when patients work closely with clinicians to develop a plan that factors in the clinician's expertise and the concerns and priorities of the patient.[19,20]

Guided by the American Association of Diabetes Educator's (AADE) self-management education framework,[12] the Shands Jacksonville DHSME model focuses on patients in urban community settings who are diagnosed with diabetes and hypertension. This model shows promise in helping patients manage their health-related behaviors and lifestyle, thus improving clinical outcomes over time and preventing these patients from having to seek emergency room care or other high-cost care.

Through an evaluation that compared a sample of patients in the DHSME model to a sample of patients who received usual care from the Shands Jacksonville PCMH, CDC found an improvement in clinical and self-management outcomes. A large majority of patients who participate in the DHSME model identified as being black (90%) and more than 97 percent were enrolled in Medicaid. Some of the key findings of the evaluation were:

- Newly diagnosed DHSME patients reached control status faster than patients who received usual care for diabetes and hypertension.
- Once a DHSME patient reached control, they maintained their control status over time for both hypertension and diabetes.
- Black patients who participated in the DHSME model were more likely to get under control faster and maintain over time, compared to black patients who were not in the DHSME model.
- When examining a subsample of more than 80% of the DHSME population, findings revealed that during DPC visits, patients worked with staff on self-management goals related to diet, sodium intake, blood sugar levels, exercise, and medication compliance.

Based on these and other evaluation findings, this DHSME model shows promise in helping patients to better manage their conditions and to maintain their control status. These findings highlight the types of self-management goals set and underscore the value of replicating the DHSME model for treating black patients and for treating patients enrolled in Medicaid.

II. Getting a DHSME Model Started in Your Community

When developing a DHSME model—especially one that is aimed at reducing barriers and addressing the needs of patients in an urban community setting—it is important to consider which aspects of the model are feasible and relevant to implement within your community. Prior to the implementation of a DHSME model like the one implemented by Shands Jacksonville, the following tasks should be addressed:

- Understand the key needs, assets, and barriers that are specific to your community.
- Develop an implementation strategy that is evidence-based and takes into account these unique needs, assets, and barriers to care in your community.
- Identify the appropriate resources that are aligned with your implementation strategy.

Tips for Starting a DHSME Model in Your Community

Understand Needs, Assets, and Barriers

- Conduct a systematic assessment of your community's needs, assets, and barriers.
- Prioritize what needs to be addressed by your DHSME model.
- Consider sociocultural aspects unique to the target population within your community.

Develop an Implementation Strategy

- Involve providers early and often to facilitate collaboration and promote shared ownership of the model.
- Develop evidence-based disease management protocols.
- Train team members and clearly define their roles and responsibilities.
- Improve accessibility to services by reducing or removing barriers.
- Develop data collection systems with population health management registries to monitor and track patients.

Identify Appropriate Resources

- Determine potential funding mechanisms for the DHSME, understand how much the program may cost, and plan for sustainability.
- Build support for the program with stakeholders by demonstrating the value and benefit, such as a decrease in healthcare utilization.
- Consider partnerships that will improve healthcare access, increase funding, and bring quality providers into the program. For example, you may consider partnerships with academic institutions to bring in pharmacy fellowships and medical residents.
- Recruit highly motivated staff with a passion to improve the health of the community.

[b] This guide is helpful in understanding the step-by-step process needed for receiving Medicare reimbursement when providing diabetes education:
http://www.ihs.gov/MedicalPrograms/Diabetes/HomeDocs/Resources/InstantDownloads/DSMT_Guidebook_508c.pdf

Understand Needs, Assets, and Barriers

Identifying the needs, assets, and barriers of its community and patient population has been key to informing how Shands Jacksonville has implemented the DHSME model within its PCMH. Starting with this step has helped Shands Jacksonville develop programs that meet the specific needs of the patients that they serve. Such programs facilitate partnerships and buy-in from various stakeholders. At the same time, these programs address challenges related to transportation, access to affordable treatment and medication, patient knowledge about hypertension and/or diabetes, and symptom management.

Consider the following questions, tools, and sources as you develop a model for your community.

Potential Questions for Assessing Needs, Assets, and Barriers

- What are the health, social, and economic needs of your community?
- What health, social, and economic resources are currently available to the members of your community?
- What are the main gaps or barriers that affect your community's ability to access health, social, and economic resources?
- What resources are needed to overcome the gaps or barriers and ensure that your community's health, social, and economic needs are met?

Potential Tools for Assessing Needs, Assets, and Barriers

- Community survey to assess barriers to accessing resources and health, social, and economic needs.
- Environmental scan to assess available health, social, and economic resources.
- Interviews with partners and community stakeholders to assess their perceptions of community needs and gaps in health, social, and economic resources.

Potential Data Sources for Assessing Needs, Assets, and Barriers

- Community health needs assessments from your local hospitals
- Behavioral Risk Factor Surveillance Survey data (http://www.cdc.gov/brfss/)
- U.S. Census data (http://www.census.gov/data/data-tools.html)
- Healthy People 2020 (http://www.healthypeople.gov/2020/LHI/default.aspx)
- Input from partners and community stakeholders from surveys, interviews, or focus groups
- EHR queries or reports such as primary care hospital and specialty care records)
- County health rankings (http://www.countyhealthrankings.org/)
- Health Indicators Warehouse (HIW) data (http://www.healthindicators.gov/)
- Uniform Data System (UDS) (http://www.udsmapper.org/)
- CDC's Morbidity and Mortality Weekly Report (MMWR) on Health Disparities and Inequalities (http://www.cdc.gov/mmwr/pdf/other/su6001.pdf)

Develop an Implementation Strategy

After assessing the needs, assets, and barriers in your community, review the DHSME model's core elements to determine which would work best to help you meet the needs of your community. Core elements are infrastructure and capacity, care coordination processes, strategic partnerships, and health information exchange; refer to Section III for more detail. Involve the providers early and often in planning your implementation strategy and protocols. Shands Jacksonville has developed several evidence-based disease management protocols that promote a patient-centered, team-based approach to treating and managing diabetes and hypertension. Diabetes care is provided through D-RAP and patients diagnosed with hypertension are treated in the REACH program. Ancillary programs help to address additional barriers related to access and affordability of care. These ancillary programs are Freescript and Site Evaluation Assessment and Treatment (SEAT). Freescript provides a low-cost or free option to patients to improve medication management. SEAT provides transportation for patients to clinic sites or for nurses to meet the patients at their primary care provider's (PCP) office and/or at home. As an example, your implementation strategy might involve offering clinics in neighborhoods where access to treatment and transportation are major barriers to care. You might also consider including a shuttle service or in-home care to help patients receive treatment as prescribed.

Clearly defining the roles and responsibilities and providing training for your staff also will help to ensure that your program is implemented as intended. Finally, develop data systems to track and monitor data and clinical progress.

Identify Appropriate Resources

To ensure effective implementation and sustainability of your DHSME model, it is important to identify resources, including funding, partnerships, and staffing. Determining what is appropriate will depend on which members of your community have the greatest needs. The following gives you an idea of some resources that might be appropriate for your community.

Funding and Sustainability[2]

Regardless of the specific funding streams available to support your DHSME model, it is important that your leadership plan for sustainability from the model's inception. Shands Jacksonville continues to evolve to meet the needs of the patient population. Historically, they have been mostly funded through grants and support from UF Health. Recently, they have started seeking reimbursement from Medicaid and other types of insurance for the DHSME-related care and services. Below are three steps to consider when developing your funding and sustainability plan:

> As of 2011, the Centers for Medicare and Medicaid Services (CMS) reimburse diabetes education services within accredited practices.[b] Similar to Shands Jacksonville, becoming an accredited practice under the American Diabetes Association (ADA) or AADE could help to support your diabetes prevention and control strategies.

1. Create a sustainability plan as part of your program planning.
2. Obtain leadership support by demonstrating the value of the DHSME model in reducing healthcare utilization and expenditures.
3. Institute formal partnerships with appropriate clinical and community entities.

Partnerships

Identifying key partners to work on implementing your DHSME model can enhance delivery, promote community-clinical linkages, and ensure sustainability. Shands Jacksonville partners with a local pharmacy to provide free to low-cost medication to eligible patients enrolled in the DHSME model. Shands Jacksonville also has strong ties to the UF medical school and pharmacy program. With the additional assistance from residents and fellows, Shands Jacksonville delivers care to more patients. These programs provide a steady stream of health professionals focused on patient-centered care into an area of high need. Also, partnerships with academic centers can encourage relevant research and further develop the evidence base related to DHSME models.

Staffing

Staffing is one of the most essential functions of any program. A good staffing structure will help to ensure that your DHSME model runs efficiently, and that the right people are in the right position to appropriately treat patients.

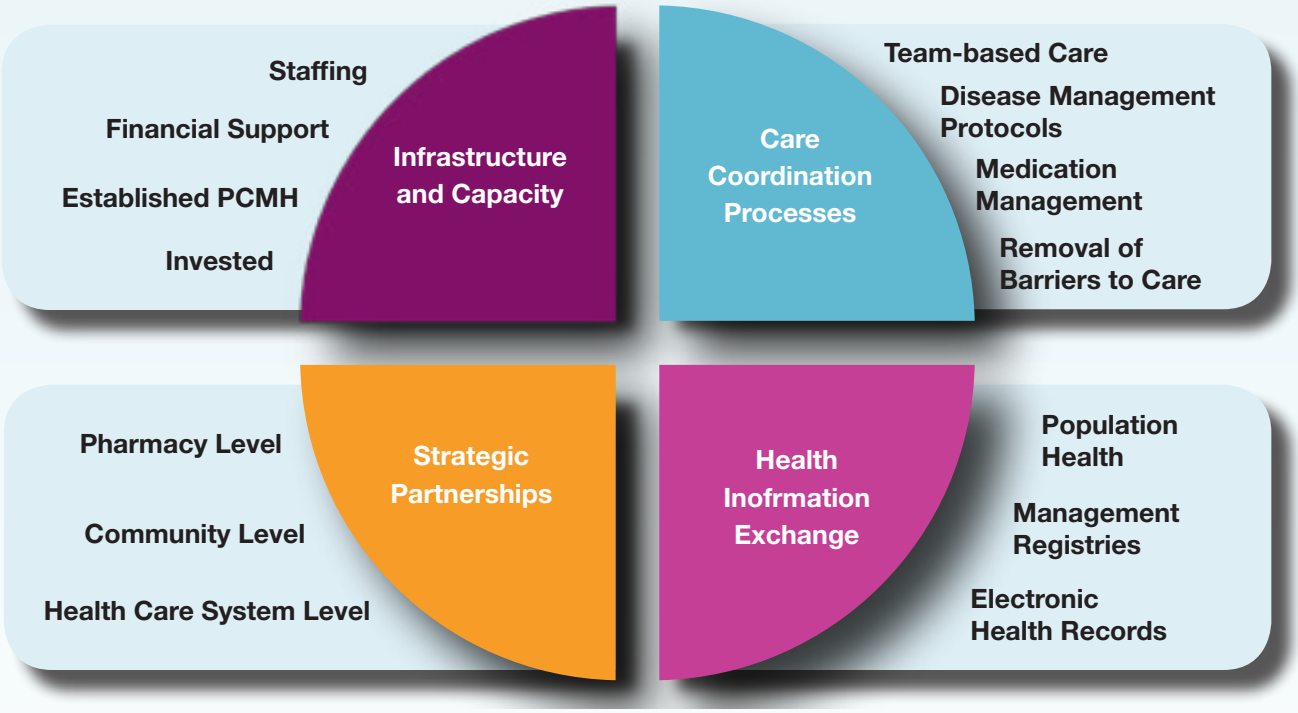
At Shands Jacksonville, the majority of DHSME services are implemented within the three DPCs, which are staffed by nurse practitioners, registered nurses, and medical assistants. A clinical pharmacist also is accessible when needed. The PCMH, of which the DPC is a part, is staffed with administrators and a team of clinical providers that includes primary care physicians and specialists. Collectively, this team is responsible for the ongoing and day-to-day care of patients. Other resources for implementation include registry specialists and information technology (IT) personnel who maintain the EHRs and patient registries and make them easily available to PCMH and DPC staff.

III. Core Elements Of the Shands Jacksonville Diabetes and Hypertension Self-Management Education Model

The DHSME model (D-RAP and REACH) and ancillary programs (Freescript and SEAT) implemented within the Shands Jacksonville PCMH share a common objective: to improve the clinical outcomes of patients with diabetes and hypertension by increasing healthy behaviors and removing barriers to care. As illustrated in **Exhibit 2**, the Shands Jacksonville DHSME model includes four core elements: infrastructure and capacity, care coordination processes, strategic partnerships, and health information exchange.

Infrastructure and capacity includes having a strong staffing structure, obtaining financial support, being an established PCMH, and leveraging the support of an invested leadership. Care coordination processes include promoting team-based care, providing medication management treatment and support, focusing on removing barriers to care, and utilizing evidence-based disease management protocols. Strategic partnerships established at the community, pharmacy, and healthcare system levels help with obtaining support and sustaining the model over time. Health information exchange such as collecting, tracking, and monitoring patient treatment and clinical outcome data are managed through population health disease management registries and electronic health records.

Exhibit 2. Core Elements of the Shands Jacksonville DHSME Model



A discussion of each of the core element follows. Each discussion is organized into three areas:

- A general description of each core element.
- An overview of how Shands Jacksonville implemented these elements.
- Factors to consider when implementing these elements in your community.

Core Element 1: Infrastructure and Capacity

Description of the Infrastructure and Capacity Element

For the DHSME model, infrastructure and capacity refers to four areas: staffing, financial support, established PCMH, and invested leadership.

Staffing is driven by the needs of the program and how to best utilize the strengths and expertise of each person.

- Financial support in the form of grant money and reimbursement for services provided is another resource needed to replicate this model and ensure its sustainability in your community.
- Establishing a PCMH that is recognized by NCQA can help to transform care delivery at practices and enable practices to benefit from payment and performance initiatives made available by public and private insurers. Shands Jacksonville's DHSME model aligns with the core principles of a PCMH through delivery of care that is patient-centered, coordinated, and accessible.
- Invested leadership who advocate and provide support for sustaining the model over time is vital for successful implementation. In addition, having a physician champion who provides day-to-day leadership of the DHSME model is important to ensure that chronic disease management remains a priority.

Shands Jacksonville's Implementation of the Infrastructure and Capacity Element

Staffing

The staffing structure for the Shands Jacksonville DHSME model includes physicians, nurse practitioners, registered nurses, medical assistants, and office managers. Patients can get primary care services such as annual wellness checks at Shands Jacksonville clinics. For more intensive disease management, patients are referred to DPCs by their PCP. When they use DPCs, they can have more frequent monitoring because DPCs have extended clinic hours.

Exhibit 3 breaks down the Shands Jacksonville DHSME model by the core staff in the DPCs and by the additional support that is received from other PCMH staff members.

Exhibit 3. Shands Jacksonville DPC Staffing Structure and Responsibilities

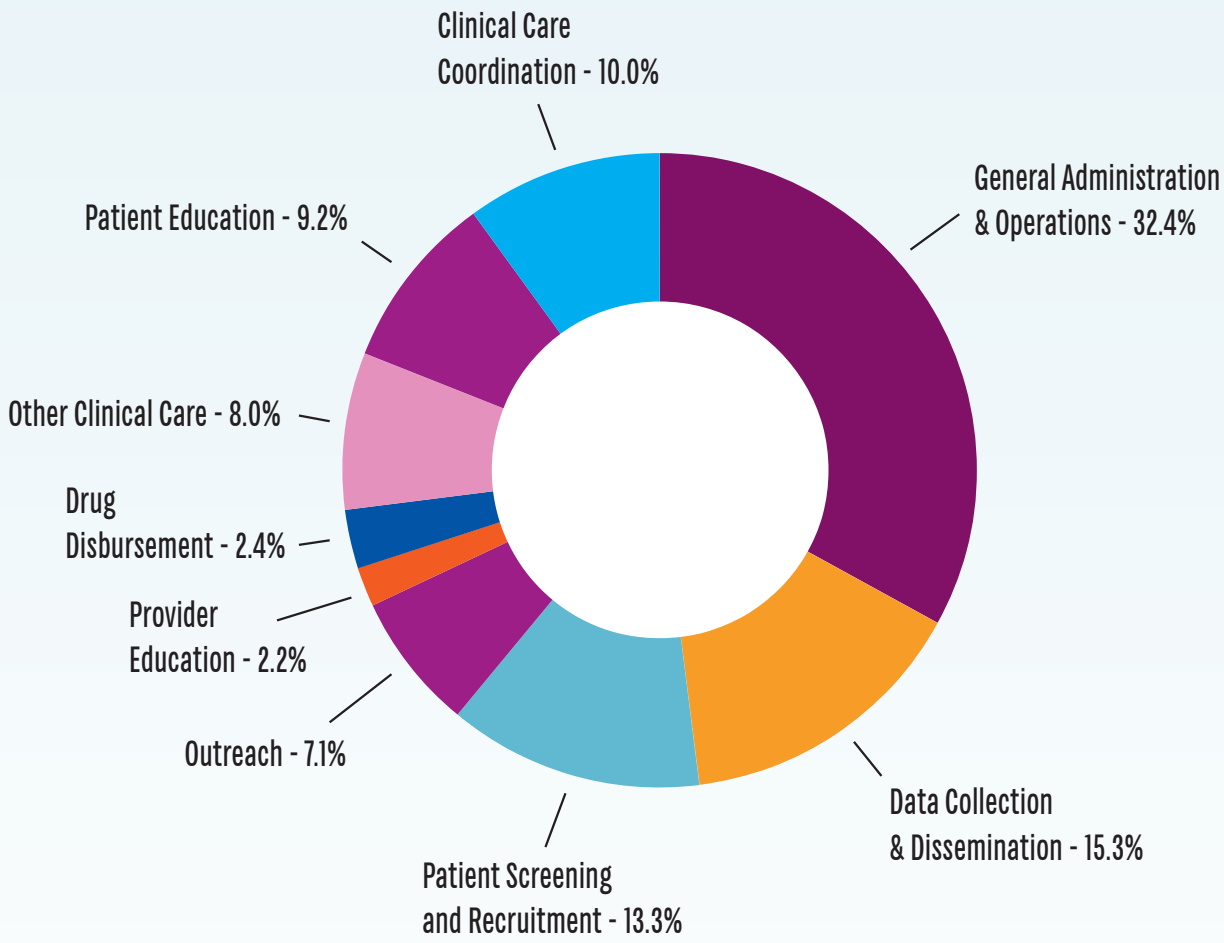
Position	Responsibilities
DPC Core Staff	
Nurse Practitioner and/or Registered Nurse	• Administers REACH and D-RAP education modules. • Works closely with the primary care physician (PCPs) and other members of the care team to implement the programs, review performance data, and modify programs as needed. • Works with PCP and clinical pharmacist to titrate medications according to disease management protocols, as necessary. (Nurse practitioners only) • Refers patients to social workers and helps connect patients to community resources, as necessary and appropriate. • Works with patients to develop and monitor self-management goals.
Medical Assistant	• Verifies insurance during registration. • Measures and monitors blood pressure, cholesterol, and blood sugar levels. • Completes a Physician Quality Reporting System (PQRS) form which includes information about each patient and tracks health outcomes. • Delivers care to patients who are unable to come into DPCs.
Physician	• Refers patients to the DPCs for additional support and self-management education (D-RAP and REACH services). • Oversees treatment plans, prescribes medicine. • Oversees the implementation of the DHSME care delivery model and works with nurse practitioner and other DPC staff to revise DHSME protocols, as necessary. • Leads all administrative, financial, and operational aspects of the PCMH and communicates directly with UF Health leadership. • Reviews program implementation data and clinical outcomes so the team can improve processes.
Clinical Pharmacist	• Treats patients in pharmacotherapy and anticoagulation clinics. • Assists in the development of medication formularies and secures affordable medication options. • Works in collaboration with nurse practitioner and PCP to titrate patient medications. • Provides input on the development and revisions to the medication management section of the DHSME protocols.
Nutritionist/ Dietician	• Helps patients achieve and/or maintain their healthy eating and health behavior modification goals. • Educates patients about eating well and preparing healthy meals and snacks and gives general health education as needed.
General Operations and Administrative Staff	
Data Analyst	• Monitors patient registries and provides ongoing clinical updates to leadership and clinical staff. • Identifies patients meeting certain defined criteria and prepares outreach letters. An example of a defined criteria that the data analyst might watch for is a patient who has not been seen in 12 months.
Registry Specialist	• Enters PQRS data electronically into the program's Access database.

Financial Support

Shands Jacksonville receives financial support from grants, UF Health, and reimbursements from public and private insurance companies. UF Health supports the DHSME model financially because it helps to divert patients with chronic disease from high cost care such as emergency room visits and extended hospitalizations.

It costs Shands Jacksonville about $450,000 annually (about $37,000 on average per month) to operate the DHSME model in one DPC. (Note that the $450,000 annual cost does not account for start-up costs.) **Exhibit 4** shows the costs by different DHSME model activities.

This amount does not take into account the savings related to decreased healthcare utilization and emergency room visits. The savings related to a decrease in healthcare utilization and emergency room visits directly due to the DHSME model has not been calculated. Those savings are therefore not reflected in the annual cost of $450,000.



Established PCMH

In 2010, the Commonwealth Group of the Shands Jacksonville PCMH became the first physician group to receive Level 1 NCQA recognition within the UF Health system. Three years later, in 2013, the PCMH was re-certified as a Level 3 NCQA PCMH. The NCQA PCMH program is divided into six standards and "must pass" elements that align with core components of primary care.[20] Shands Jacksonville implements its DHSME model with a focus on the principles of PCMH. For instance, one principle of PCMH is to enhance patient access to care. Shands Jacksonville accomplishes this by strategically placing its DPCs in locations most accessible to their target population, not charging copayments for visits to the DPCs, and implementing the SEAT program to address barriers related to transportation. Care delivery for the DHSME model is grounded by evidence-based disease management protocols and the DPC staff members meet regularly with the clinical pharmacist to review and align the protocols with the most recent evidence. Because the Shands Jacksonville PCMH is recognized as a Level 3 NCQA PCMH, it participates in performance and payment initiatives offered by insurers, employers, and state and federal programs.

PCMH Levels of Recognition[21]

Level 1: Describes a basic PCMH and requires practices to use paper-based systems and electronic administrative systems (e.g., practice management system [PMS]). Learning to document processes comprehensively and systematically may be a challenge, but the tips and tools offered in this site are designed to help with this process.

Level 2: Requires a practice to use some electronic systems such as registries or an EHR to plan, manage and coordinate care, and to document services.

Level 3: Indicates a technologically and administratively advanced healthcare system with the ability to communicate electronically to other entities (patients, hospitals, other social service and healthcare organizations). While Level 3 sites are not required to have fully implemented e-prescribing and bidirectional lab interfaces, Level 3 sites use EHRs as standard technology for care planning and practice management, and benefit from the allocation of ongoing resources (including permanent staff positions) to quality improvement.

Invested Leadership

The leadership team, composed of two primary care physicians, one nurse practitioner, and an operations manager, oversees and plans for all of the clinics within the Shands Jacksonville PCMH. In addition to the Shands Jacksonville PCMH leadership team, the project also gets strategic direction from the UF Health system leadership. The UF Health system leadership also offers financial resources.

Being connected to a large university healthcare system offers a variety of other support and resources. For example, Shands Jacksonville has access to academic resources like medical residents and pharmacy fellows, and research that supports the development of evidence-based disease management protocols.

Key Factors for Implementing the Infrastructure and Capacity Element

When implementing the infrastructure and capacity core element of the DHSME model in your community, key actions to consider include:

- Recruiting highly motivated staff members who are passionate and committed to improving the health of the community. The foundation for a strong and well-respected staff is staff members who can relate to patients and whose care reflects a genuine desire and ability to listen and consider patients' voices.
- Building support for the program by demonstrating its value and benefit (such as a, decrease in healthcare utilization).
- Seeking accreditation from organizations such as the American Heart Association (AHA) and AADE. Accreditation can help you expand the number of services that are eligible for reimbursement through Medicaid and other types of health insurance.
- Working to attain NCQA PCMH recognition by focusing on "must pass" elements.
- Ensuring that leadership values and works to sustain the implementation of the DHSME model and give periodic updates on the model's benefit to the health care system.

Core Element 2: Care Coordination Processes

Description of the Care Coordination Processes Element

The care coordination processes core element of the Shands Jacksonville DHSME model consists of four primary areas: team-based care, disease management protocols, medication management, and removing barriers that patients face in getting care.

- **Team-based** care involves using a multidisciplinary team to improve the quality of care for patients. This type of care involves collaboration and shared responsibility among the various team members who interact with the patient—PCPs, nurses, pharmacists, dieticians, and social workers. Team-based care can help improve chronic disease management and quality of life.[22]
- **Disease management protocols** should be developed based on nationally recognized guidelines for treating diabetes and hypertension like the Joint National Committee (JNC 8) hypertension guidelines,[23] Adult Treatment Panel (ATP-III) guide for treating elevated blood cholesterol,[24] and other guidelines from ADA and the National Diabetes Education Initiative (NDEI).[25]
- **Medication management** involves encouraging patients to comply with their medication regimen through frequent education and follow-up and collaboration with clinical pharmacists if needed.
- **Removing barriers** might entail offering subsidized medications to patients or offering home visits for patients who simply cannot make it to the clinic. It might mean building clinics in locations near the target patient population or ensuring that the clinic is near a bus or train route. It also might mean providing extended clinic hours and offering times when no appointments or copayments are required. Each of these steps can make it easier for patients to come to the clinics for their appointments and thereby to better manage their chronic disease.

Shands Jacksonville's Implementation of the Care Coordination Processes Element

Team-Based Care

Staff within the Shands Jacksonville PCMH and DPCs embrace a team-based care approach to deliver the DHSME model and accomplish the goal of helping patients manage their diabetes and hypertension. Effective communication is the cornerstone of Shands Jacksonville's DHSME model, with DPC staff and PCPs meeting regularly to discuss and coordinate treatment plans. The multidisciplinary team consists of registered nurses, nurse practitioners, data analysts, social workers, dieticians, and a clinical pharmacist. The team supports the efforts of the PCP in monitoring and managing patients with hypertension and diabetes. Each team member has clearly defined roles and responsibilities in implementing the DHSME model. Nursing staff provide education to the patients about how to manage their hypertension and diabetes and useful materials to help patients self-manage their conditions. The nurse practitioner manages patient medications, follows up with patients, and provides self-management support. The clinical pharmacist titrates patients' medication and communicates with PCPs about these changes.

Evidence-Based Disease Management Protocols

Shands Jacksonville uses evidence-based disease management protocols to treat patients who participate in the D-RAP, REACH, Freescript, and SEAT programs—all of which are included in its DHSME model. These protocols are reviewed monthly by the leadership team and revised as necessary. A clinical pharmacist also reviews the protocols to ensure that the chronic disease medication management services are aligned with the current literature and guidelines for treatment. See Appendix C for a detailed description of how patients might flow through the DHSME model.

Medication Management

The Shands Jacksonville DHSME model supports medication management and patient medication adherence through a variety of methods. First, nurses educate patients about their condition(s) and why it is important to regularly take their prescribed medicines. And, to obtain medication prescription refills, patients are required to attend follow-up appointments for blood pressure and HbA1c checks. This ensures that patients are monitored closely and don't fail to return after a visit.

The engagement of a clinical pharmacist in implementing the DHSME model ensures that nurse practitioners and PCPs are adhering to evidence-based treatment guidelines when prescribing medications.

Staff at DPCs developed a structured documentation and follow-up procedure to remind patients about appointments and to inform providers in the system about individual patient's treatment and medication management plans. Also, our education modules contain information for both providers and patients, including an overview of the conditions; management strategies such as, healthy eating, physical activity, and medication management; and recommended approaches for different patient populations. Uninsured patients who cannot afford medications are placed in the Freescript program to receive subsidized medications that are part of a formulary developed by Shands Jacksonville and its community pharmacy partner. Once enrolled in Freescript, patients must return weekly to have their vital signs checked. This helps patients manage their chronic health condition(s) and adhere to their medication regimen. Within DPCs, as part of the DHSME model, patients are educated on medication management and how to monitor their symptoms at home through home blood pressure checks. This approach enables patients to track their levels on their own and helps them to feel that they have a role in managing their conditions. Finally, the clinical pharmacist can help the patient by titrating medications and educating patients.

Removing Barriers to Care

Shands Jacksonville's DHSME model is specifically designed to help alleviate barriers to accessing health care. For example, the team has strategically located DPCs in areas where its target patient populations reside. Under the Shands Jacksonville model, patients are not charged copays for their visits to DPCs and people are welcome to come in even if they don't have an appointment. Also, the SEAT program allows a nurse to go and visit a patient in his or her home. The nurse can even visit the patient at their PCP's office if it is not feasible for the patient to come into a DPC. At least one Shands Jacksonville clinic is always open early in the morning, while one stays open late in the evening. This scheduling allows patients to come to the clinic without interfering with their normal daily commitments. The Freescript program enables patients who cannot afford to pay for medications to get them free of charge. Finally, uninsured patients can meet with DPC staff who will help them enroll in patient assistance programs or other insurance opportunities if they are eligible. Some patients have low literacy skills or no Internet access, so DPC staff will assist patients with completing forms and procedures to help them gain access to appropriate medical coverage.

Key Factors for Implementing the Care Coordination Processes Element

When implementing the care coordination processes core element in your community, key actions to consider include:

- Defining the roles and responsibilities for different team members.
- Providing staff training and fostering a collaborative working environment.
- Continuing to assess current practice and processes of care to identify areas for improvement.
- Developing and adhering to your disease management protocols that are proven to be effective in managing patients with hypertension and diabetes, such as JNC 8 and ATP III.
- Increasing accessibility to medications and using strategies to enhance medication adherence.
- Offering services such as follow-up visits and medications at no cost.
- Improving accessibility and location of clinics.
- Building community-based clinics and offering in-home services for some patients.

Core Element 3: Strategic Partnerships

Description of the Strategic Partnerships Element

Developing and maintaining partnerships is critical to sustaining a DHSME model. Forming partnerships with community, pharmacy, and healthcare entities can help you deliver more care and link providers to community resources. Such linkages will help your patients get to appointments and manage their condition(s).

- **Community-level partnerships** will help you establish relationships with local schools or community-based agencies that may host health fairs or other events that could increase your visibility and raise awareness about chronic diseases.
- **Pharmacy partnerships** can help you secure subsidized medications for patients who cannot otherwise afford them.
- **Healthcare system partnerships** can be instrumental in helping patients receive patient assistance or other kinds of insurance. Also, partnerships at this level could involve working with dieticians, endocrinologists, and other specialists to deliver targeted care to your patients.

Shands Jacksonville's Implementation of the Strategic Partnerships Element

Community-level Partnerships

Shands Jacksonville staff work within the local community to increase awareness about chronic disease management and promote the services of the DHSME model. Staff often hold events are at health fairs, schools, churches, and other locations where the target population may be present. During these events, the staff provide routine health screenings, education, disease counseling, case management, and other resources that help reduce barriers to treatment, such as transportation, employment, child and elder care assistance.

Pharmacy Partnerships

Shands Jacksonville PCMH partners with a local community pharmacy to provide eligible patients with low-cost or free medications through the Freescript program. Together, the PCMH staff, clinical pharmacist and community pharmacist develop formularies that include medications commonly prescribed by providers for diabetes and hypertension. If a medication is not included on the formulary, the providers explore other options, including enrolling patients in a patient assistance program or reaching out to pharmaceutical companies.

Healthcare System Partnerships

At the healthcare system level, a partnership with a team of specialists within the UF Health system enhances the DHSME model by delivering specialty care to patients, collaborating on a patient's treatment plan, and providing input on revisions to the protocols, when necessary. These specialists may include such as, endocrinologists, dieticians, or others. Shands Jacksonville's DHSME model has helped to divert patients from higher cost care, such as the emergency room and hospitalizations. Its partnership with UF Health has been instrumental in making this possible. Often when patients are diagnosed with diabetes and hypertension in UF Health they are referred to DPCs for care.

Partnering with an academic training institution like UF Health has provided an opportunity for clinical residents and fellows to be exposed to and trained on the DHSME model, which could ultimately increase the number of providers working in community-based clinics treating patients with diabetes and hypertension.

Key Factors for Implementing the Strategic Partnerships Element

When implementing the strategic partnerships core element in your community, key actions to consider include

- Establishing partnerships with easily accessible local community pharmacies that are open to offering subsidized medications to the target patient population.
- Partnering with local schools, churches, and other organizations to broaden access to the community via health fairs and other events aimed at increasing awareness of chronic diseases.
- Partnering with local academic institutions to inform the patient care delivery model via research and the development of disease management protocols.
- Creating opportunities to increase the workforce trained to implement such care by involving and training clinical residents and fellows on your chronic disease care delivery model.

Core Element 4: Health Information Exchange

Description of the Health Information Exchange Element

Health information exchange (HIE) refers both to population health management registries and EHRs that facilitate tracking and follow-up of diabetic and hypertensive patients. EHR data populate the population health management registries and allow healthcare staff to run queries in the system to find information about patients with certain conditions or those who have not come back to the clinics for a follow-up appointment within a certain period of time. HIE facilitates coordinated patient care.

Shands Jacksonville's Implementation of Health Information Exchange

At Shands Jacksonville, registry specialists manually input information from the paper PQRS forms into an Access Database. Patient data are also recorded directly into a patient's EHR. Shands Jacksonville uses the PQRS form to track patients' health information, including vitals, blood pressure, glucose (HbA1c), and cholesterol. When patients progress through education modules such as D-RAP and REACH, their learning is recorded in the EHR. Once the data are entered into the database, patients can be tracked and monitored across multiple DPCs, providers, specialists, and facilities. This system is set to enable the DPC staff to query when patients are due for follow-up and to keep track of their medications and other issues or concerns that arise. DPC staff also can communicate with providers to keep them informed about their patients. HIE provides an online patient portal to allow patients to communicate directly with providers (for example, to let them know about home blood pressure results) and also to access their test results.

DPC providers execute treatment plans when abnormal values or ranges are identified through routine registry queries. The status of patients with specific chronic diseases are tracked and documented by certain indicators such as vital signs and laboratory values. If abnormal values are present, DPC providers are expected to develop or adjust treatment plans immediately in collaboration with PCPs. This is in contrast to a practice that does not use HIE, where treatment only happens at an appointment. Shands Jacksonville's EHR can communicate and link with the hospital's electronic record keeping, which further facilitates patient-centered care and ensures accuracy and a complete picture of each individual patient.

Two additional ways that Shands Jacksonville uses HIE are E-Prescribing and in giving patients "visit summaries." At the end of each encounter, patients receive a visit summary documenting the plan of care, including medications, next visit date, and self-management goals. This visit summary is generated through the EHR. At the DPCs, providers use E-Prescribing, which enables them to send prescriptions electronically to the patient's pharmacist.

Key Factors for Implementing the Health Information Exchange Element

When implementing the HIE core element in your community, key actions to consider include:

- Developing data collection systems with population health management registries to monitor and track patients and ensure coordinated care.
- Considering customization of EHRs to align with implementation of the DHSME model. For example, develop templates for recording and tracking patient self-management goals.
- Establishing protocols that support well-organized, centralized, systematic patient tracking and data collection.
- Training staff to be competent users of your clinic's EHR system.
- Educating patients about how accessing their health records can empower them to be involved in their healthcare.

IV. Program Monitoring and Evaluation

This section provides general guidance and a brief overview of core concepts in program monitoring and evaluation. It also discusses developing, implementing, and ultimately monitoring and evaluating a similar model in your community. In this section, you will see that we have incorporated what we learned in our evaluation of Shands Jacksonville's DHSME model.

Benefits of Program Monitoring and Evaluation for Public Health Practitioners

Measure progress toward a specific set of program goals.

- Identify opportunities for improvement.
- Demonstrate the program's effectiveness and cost savings to key stakeholders.

While there are multiple types of evaluations, here we focus on process (including program monitoring), outcome, and economic evaluation. Refer to the CDC Framework for Evaluation in Public Health (http://www.cdc.gov/eval/framework/index.htm) and the resources in Appendix D for additional guidance on evaluation.

Steps for Planning Program Monitoring and Evaluation

Below are some key steps to include when planning any program monitoring and evaluation of a DHSME model.

Determining Key Activities and Outcomes of a DHSME Model

Before you begin, it is important to have a solid understanding of the activities to be implemented, how much they will cost, and how the activities are intended to link to certain outcomes. Be sure to engage stakeholders in order to identify important activities and to develop evaluation questions that will help you assess the impact of the program. It is also important to develop a program logic model to serve as a base for monitoring and evaluating your DHSME model. Refer to the Shands Jacksonville's logic model in Appendix B as a template or guide as you specify your inputs, activities, and anticipated outcomes.

Logic Model and Program Monitoring

Your program logic model can serve as a primary resource for establishing your program monitoring plan. Specifically, the outputs column specifies the direct and tangible results or products of program activities (i.e., things that can be counted). These are often represented by documentation of progress on implementing program activities (e.g., program/educational materials developed, partnerships formed, number of providers trained, patients screened).

Developing the Evaluation Questions and Design

Once a program logic model has been developed, information gathered about a program can be used to create appropriate evaluation questions and develop an evaluation design. Evaluation questions are often process- or outcome-focused and align with a program's objectives. Process evaluation questions facilitate the exploration of a program's implementation, while outcome evaluation questions allow for the exploration of a program's effect on specific outcomes. Finally, an economic evaluation is a process to identify, measure, value, and compare the costs and outcomes of programs and policies. Exhibit 5 provides the evaluation questions used to guide the evaluation of the Shands Jacksonville DHSME program.

Exhibit 5. Example Evaluation Questions

Type of Evaluation	Description
Process Evaluation	Process evaluation is used to determine whether a program is being implemented as intended. Process evaluation focuses on the left side of the program logic model, with program inputs, activities, and outputs. Process evaluation is used to establish the plausible links between your program activities and program outcomes. By demonstrating with process evaluation that the program was implemented as intended, you can set the stage for your expected outcomes as part of an outcome evaluation.[26,27] **Example Process Evaluation Questions:** • What are the core elements of the DHSME model? • What are the factors that affect implementation of the DHSME model? • What is the reach (proportion of individuals served by the intervention) of the DHSME model?
Outcome Evaluation	Outcome evaluation focuses on the short-term, intermediate, and sometimes long-term outcomes of the program.[26] Outcome evaluation is used to determine the effectiveness of the program on the expected outcomes. For the DHSME model, consider improvements that go beyond health outcomes, such as well-being, the efficiency and quality of care provided, and changes in the networks between health systems and the community. **Example Outcome Evaluation Questions:** • What is the impact of the DHSME model on clinical, utilization, and self-management outcomes? • How are participants differentially affected by the DHSME model?
Economic Evaluation	Economic evaluation is a process to identify, measure, value, and compare the costs and outcomes of programs and policies.[28, 29] Economic evaluation can be used to assess the costs of implementing different aspects of the DHSME model. A type of economic evaluation is programmatic cost analysis. The main objective of a cost analysis is to determine the true costs associated with a given program. Other objectives are to learn how resources (money and time) are being allocated across the program; and help inform future decisions for the program. **Example Economic Evaluation Questions** • What resources are required (e.g., financial, personnel) to implement the DHSME model? • What are the costs associated with implementing the DHSME model? ` What does it cost to provide patient care in each program?   ` What are the administrative/operational costs for each program? ` What is the average annual program cost per patient?   ` How are costs distributed across activities within the programs?

Once you have written evaluation questions that align with your program objectives and determined how you will go about getting answers to your evaluation questions, solicit input from key stakeholders to further refine and finalize the questions. Establish your evaluation priorities based on the following perspectives:

Stage of program development.

- Short-term vs. long-term evaluation priorities.
- Budget and feasibility factors.

An evaluation matrix like the example presented in **Exhibit 6** can help you organize the planning process and ensure that all of the evaluation questions are addressed.

Exhibit 6. Example Evaluation Matrix

Evaluation Question	Data Sources	Methods	Indicators	Analyses
What is the number of patients served in the REACH program?	Disease registries for hypertension: Total number of hypertensive patients • PQRS form • Demographics • Blood pressure measurements of patients • Modules given to patients	Data extraction and analysis	• Number of patients enrolled in REACH (numerator)/Total number of hypertensive patients identified in Shands Jacksonville PCMH (denominator) • Number of patients who completed educational sessions and modules (numerator)/Total number of patients initially enrolled (denominator) • Number of patients enrolled in REACH (numerator)/Total number of patients with hypertension and diabetes (denominator)	Descriptive analysis

To begin addressing evaluation questions, it is important to determine appropriate methodologies. Many evaluations do not rely on one single type of evaluation, but instead use a mixed-method approach, using both quantitative and qualitative methods. In the mixed-method evaluation of Shands Jacksonville's DHSME model, both quantitative and qualitative approaches were used.

- **Quantitative methods** are used to collect numerical data that can be used to make calculations and draw conclusions in terms of percentages, proportions, and other values.29 Examples of quantitative methods include surveys, structured observations, physiological tests, and record abstractions. The data answer questions that are quantifiable like "how much" or "to what extent;" commonly used quantitative analytical methods include descriptive statistics, one- and two-tailed t tests, correlations, cross-tabulations, and multiple regression or other advanced statistical models.
- **Qualitative methods** are used to collect descriptive information in the form of notes, verbal responses, transcripts, and written responses.30 Examples of qualitative methods include interviews, focus groups, document review, and unstructured observations. Qualitative data are usually in the form of notes or transcripts and answer questions that are descriptive such as "why" or "how;" common qualitative analytical methods include participant observation and content, thematic, or pattern analysis.

An additional key decision is whether the evaluation will rely on existing (secondary) data sources, or if new data—primary data—will need to be collected. Your program monitoring and evaluation methods, data sources, and analyses should be driven by the evaluation questions. We encourage you to consider the availability of existing data that will help you address your evaluation questions. This can help reduce the costs associated with data collection and the burden of the monitoring and evaluation activities on program staff and participants. Below, **Exhibit 7** exemplifies some of the data sources, measures, and methods that were used for Shands Jacksonville.

Exhibit 7. Shands Jacksonville's Evaluation Data Sources, Measures and Methods

Data Sources	Measures	Method(s)
Interviews with program staff and providers	• Barriers and facilitators to implementing the DHSME model • Perceived core elements of the DHSME model • Impact of the DHSME model on practice • Perceived impact of the DHSME model on patients	Systematic review of program documents, observation of program implementation, and thematic analysis
Electronic Health Records	• Number of DHSME appointments • Smoking status • Blood pressure • Body Mass Index (BMI) • Emergency room visits • In-patient hospital days • Hemoglobin A1c	Data collection/extraction and analysis
Program documents (e.g., DHSME protocol and module)	• Description of referral process • Follow-up and retention process • Outreach activities • Description of the procedures for identifying, enrolling, tracking, and retaining patients	Systematic review of program documents and thematic analysis
Disease registries for hypertension and diabetes	• Total number of patients with hypertension and diabetes • Number of participants enrolled in SEAT, REACH, D-RAP	Data collection/extraction and analysis
PQRS form	• Demographics • DHSME modules given to patients	Data collection/extraction and analysis
Cost study instruments	• Cost of employment for various staff and training • Cost of necessary equipment and supplies • Costs for facilities and utilities (e.g., electricity, water, Internet, etc.) • Transportation costs (e.g., travel for staff to meetings or transporting patients to the clinics and back)	Data collection/extraction and analysis

Interpreting and Disseminating Evaluation Findings and Implications for Your Program

When data collection and analysis are complete, it is important to interpret the evaluation data to determine what the data say about a program. During this process, it is important to engage stakeholders, as they can help review the data and provide additional context.

The way in which evaluation results will be disseminated and shared should be considered prior to the end of the evaluation period. Sharing lessons learned is a key step in the evaluation of a program, as it can help to inform the field and build the evidence for the use of a particular strategy.

When reporting your findings, consider multiple communication channels for disseminating the findings, such as evaluation reports, executive summary, fact sheets/briefs, newsletter articles, formal and informal presentations, and journal publications. Finally, and perhaps most importantly, be sure to use your evaluation findings to identify ways to further improve your DHSME program. The findings of the Shands Jacksonville evaluation inspired the creation and dissemination of this implementation guide, which we hope public health practitioners will use to inform the development and implementation of similar programs.

For More Information

Appendix D includes resources that you might consult as you develop, implement, monitor, and evaluate your DHSME model.

V. Conclusions

Overall Strengths of the Shands Jacksonville DHSME Model

The Shands Jacksonville DHSME model has shown promise in improving how patients diagnosed with diabetes and hypertension manage their health conditions. Core elements of the Shands Jacksonville DHSME model are infrastructure and capacity, care coordination processes, strategic partnerships, and health information exchange. Incorporating all four of these core elements allows Shands Jacksonville DHSME to provide high quality, evidence-based care, tailored to meet the needs of the patient population. Some strengths of this model include:

- Alleviating barriers and improving access to care for patients by operating DPCs in neighborhoods where patients reside; flexible clinic hours; helping patients obtain low- to no-cost medications; eliminating copays to improve access to care; assisting patients as they apply for Medicaid or other patient assistance programs; and seeing patients where it's easiest for them (accomplished through the SEAT program, which allows nurses with DPC to go to the person's home or office to provide treatment when necessary).
- Implementing a healthcare cost saving model that requires weekly treatment follow-up and medication management. This model ultimately diverts patients with chronic disease from emergency room visits and extended hospitalizations.
- Working with clinical pharmacists and other healthcare specialists to ensure that their disease management protocols are revised to align with the most recent evidence and guidelines for treating their patient population.
- Embracing a team-based care approach so that staff can collaborate and communicate often to help patients better manage chronic disease conditions. The roles and responsibilities for each team member are clearly defined. Team members are expected to participate regularly in trainings that will help in the delivery of high-quality care to patients.
- Establishing strategic and sustainable partnerships and clinical-community linkages at the pharmacy, community, and healthcare system levels with the intention of improving chronic disease health outcomes of patients.
- Developing an HIE that allows staff to electronically track, monitor, and manage treatment progress and patient data through chronic disease registries.

Key Recommendations for Implementation

This evaluation resulted in the following key recommendations for implementing a DHSME model similar to Shands Jacksonville in other settings:

- Build support for the program by demonstrating the value and benefit (such as a decrease in healthcare utilization) of your DHSME model.
- Make sure your leadership is invested in making chronic disease management a priority and will advocate for the implementation and sustainability of your DHSME model.
- Recruit highly motivated staff members who are passionate, committed, and invested in improving the health of the community. Clearly define their roles and responsibilities and provide training opportunities so that they deliver care informed by the most current policies, protocols, and treatment guidelines.
- Implement evidence-based disease management protocols.
- Establish sustainable partnerships to help you connect with resources and obtain support to sustain your model over time.
- Develop electronic data collection systems with population health management registries because tracking and monitoring patient data helps ensure coordinated care.

Much has been learned through the evaluation of the Shands Jacksonville DHSME model. The evaluation has revealed that this type of care delivery model works: one focused on reducing barriers to care and improving hypertension and diabetes-related health outcomes for patents in urban community settings. Shands Jacksonville takes a team-based approach to implementing a model that sustains and reduces healthcare utilization and expenditures based on its ability to routinely identify areas for improvement, assess the impact of barriers to care on improving patient health outcomes, and leverage partnerships, leadership support, and other resources to better serve patients. Using information in this guide will help you:

- Assess and understand the needs, assets, and barriers to care that are more important for your community.
- Develop an implementation strategy that addresses infrastructure and capacity, care coordination processes, strategic partnerships, and health information exchange, which are the four core elements of the Shands Jacksonville DHSME model. Focus on what's most relevant to your goals and objectives.
- Identify resources to facilitate implementation.
- Successful implementation of this model in your specific context, with your particular patient population, requires that you create a sustainability plan, evaluate progress toward your goals and objectives, apply lessons learned toward continuous program improvement, and demonstrate program value.

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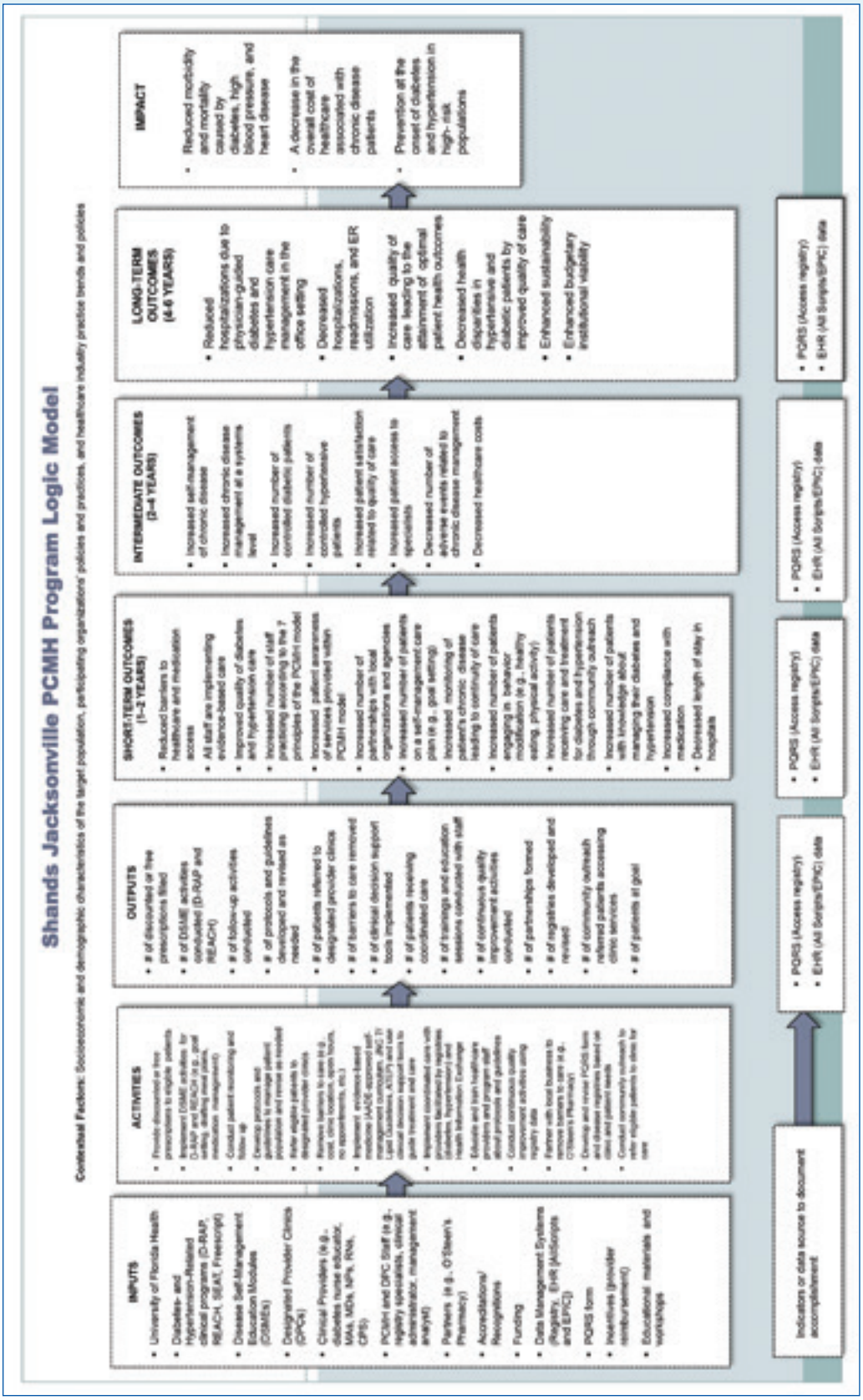
Appendix A. Glossary of Key Terms

Note: This glossary of terms covers terminology and definitions as used in this guide. You may consider using other terms that work for your staff and stakeholders.

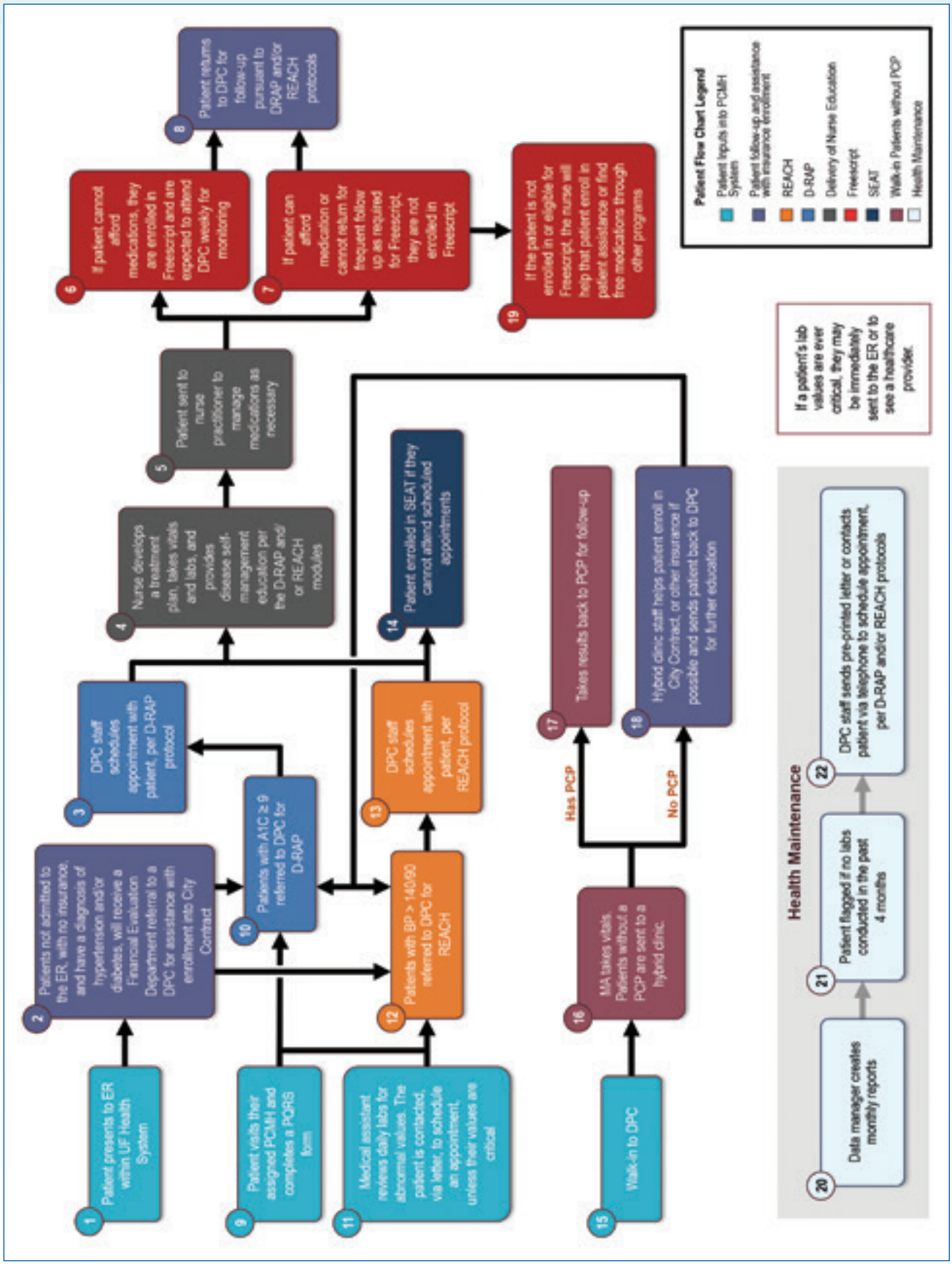
Key Term	Definition
Community Health Needs Assessment (CHNA)	A community health needs assessment (CHNA) is a prerequisite of public health accreditation under the Public Health Accreditation Board (PHAB) standards. Tax-exempt hospitals are required to conduct CHNAs under Section 501(r) of the Internal Revenue Code. CHNAs provide an aggregate profile of the health status and quality of life for residents in designated communities. CHNA data serve as a baseline to monitor improvements associated with actions taken to address one or more indices of health.
Designated Provider Clinic (DPC)	Designated provider clinics (DPCs) were established by the Shands Jacksonville PCMH in 2000 to address patients' unmet needs related to managing chronic health disease conditions like diabetes and hypertension. Shands Jacksonville's DHSME model is primarily provided in the DPCs.
Diabetes and Hypertension Self-Management Education (DHSME) Model	Diabetes and Hypertension Self-Education Models (DHSME) include critical elements to assist healthcare educators in providing evidence-based education and self-management support to patients with diabetes and hypertension. The models are designed to prevent or delay complications related to poorly controlled diabetes and hypertension by helping patients manage their health-related behaviors and lifestyle, diverting them from higher cost care, and improving clinical outcomes over time. At Shands Jacksonville, the DHSME is comprised of four primary core elements: infrastructure and capacity, care coordination processes, strategic partnerships, and health information exchange.
Disease Management Protocols	Disease management protocols include nationally recognized guidelines for treating diabetes and hypertension like the Joint National Committee (JNC-7) hypertension guidelines, Adult Treatment Panel (ATP-III) guide for treating elevated blood cholesterol, and other guidelines from the American Diabetes Association (ADA) and the National Diabetes Education Initiative (NDEI).
Evaluation	Evaluation is defined by the Centers for Disease Control and Prevention (CDC) as a systematic approach to collecting, analyzing, and using data in order to determine the effectiveness and efficiency of programs and to inform continuous program improvement.
Health Information Exchange (HIE)	Health Information Exchange (HIE) refers to population health management registries and electronic health records (EHR) that facilitate tracking and follow-up care for patients. EHR data populates population health management registries and allows healthcare staff to monitor the status of a patient's chronic disease treatment plans and return for follow-up appointments.

Key Term	Definition
Logic Model	Logic model is a planning tool that clarifies and graphically displays what your program or evaluation intends to do, what it hopes to accomplish, and the short- and long-term outcomes or impact. Logic models help to summarize key program elements, provide a rationale for program activities, clarify intended outcomes, and can be used to communicate and/or interpret outcomes with key stakeholders.
Patient-Centered Medical Home (PCMH)	A Patient-Centered Medical Home (PCMH) is a care delivery model whereby patient treatment is coordinated through their primary care physician to ensure that they receive the necessary care when and where they it is needed, in a manner in which they are engaged and can understand. PCMHs are required to provide care that is (1) comprehensive, patient-centered, coordinated, accessible and of high quality and safety.
Pre-evaluation Assessment	Also referred to as evaluability assessments, pre-evaluation assessments involve a document review and a 2.5-day site visit during which site visit teams assess program implementation and data collection, and explore options to determine whether a program is ready for an in-depth evaluation.
Team-Based Care	A team-based care model is based on a multidisciplinary team comprised of the patient, the patient's PCP, and other professionals such as nurses, pharmacists, dietitians, social workers, and medical assistants, who coordinate comprehensive disease management plans.

Appendix B. Shands Jacksonville PCMH Program Logic Model



Appendix C. Shands Jacksonville DHSME Model Treament Flow Chart



Appendix D. Shands Jacksonville DHSME Model Suggested Resources

Core Element 1: Infrastructure and Capacity	
Agency for Health Research and Quality (AHRQ) Resources	*AHRQ Resources for developing a patient-centered medical home* http://pcmh.ahrq.gov/page/tools-resources
National Center for Quality Assurance (NCQA)	*NCQA resources for attaining patient-centered medical home recognition* http://www.ncqa.org/Programs/Recognition/Practices/PatientCenteredMedicalHomePCMH.aspx
American Association of Diabetes Educators (AADE)	*National Standards for Diabetes Self-Management Education and Support* http://www.diabeteseducator.org/export/sites/aade/_resources/pdf/general/2012nationalstandards.pdf
Core Element 2: Coordinated Care Processes	
Committee on Public Health Priorities to Reduce and Control Hypertension in the U.S. Population; Institute of Medicine	*A Population-Based Policy and Systems Change Approach to Prevent and Control Hypertension* http://www.nap.edu/openbook.php?record_id=12819
National Diabetes Education Program/ National Institutes of Health (NDEP/NIH)	*Team based approach to diabetes management* http://ndep.nih.gov/media/NDEP37_RedesignTeamCare_bw_508.pdf
American Cancer Society/American Heart Association (ASA/AHA)	*Team-based approaches needed to fight high blood pressure* *http://newsroom.heart.org/news/team-based-approaches-needed-to-fight-high-blood-pressure*
Million Hearts	*Developing Treatment Protocols for Hypertension* http://millionhearts.hhs.gov/resources/protocols.html

Core Element 3: Strategic Partnerships	
AHRQ	*Clinical-Community Linkages*. This Web site offers an overview of clinical-community linkages and describes how they can improve patient care. http://www.ahrq.gov/legacy/clinic/pcc/clincomlink.htm
The National Academies Press (NAP)	*PRIMARY CARE AND PUBLIC HEALTH: Exploring Integration to Improve Population Health* http://www.nap.edu/catalog.php?record_id=13381&utm_expid=4418042-5.krRTDpXJQISoXLpdo-1Ynw.0&utm_referrer=http%3A%2F%2Fwww8.nationalacademies.org%2Fcp%2Fprojectview.aspx%3Fkey%3D49346

Core Element 4: Health Information Exchange	
AHRQ	*Health Information Technology: Turning the Patient-Centered Medical Home from Concept to Reality* http://www.ahrq.gov/news/newsroom/commentaries/pcmh-concept-to-reality.html
Centers for Medicaid and Medicare Services (CMS)	*2014 Definition Stage 1 of Meaningful Use* https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Meaningful_Use.html

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