# Implementing and Evaluating Diabetes Self-Management Education and Support (DSMES) Programs for Underserved Populations/Communities

## A Practice-Based Guide

April 2019

## Acronyms

| | |
|---|---|
| A1c | Glycated Hemoglobin Test (Blood Sugar) |
| AADE | American Association of Diabetes Educators |
| ADA | American Diabetes Association |
| BMI | Body Mass Index |
| CDC | Centers for Disease Control and Prevention |
| CDE | Certified Diabetes Educator |
| DDT | Division of Diabetes Translation |

| | |
|---|---|
| DSMES | Diabetes Self-Management Education and Support |
| EA | Evaluability Assessment |
| EMR | Electronic Medical Record |
| FQHC | Federally Qualified Health Center |
| HEDIS | Healthcare Effectiveness Data and Information Set |
| SME | Subject Matter Expert |

# Contents

# Exhibits

# 1. Overview

This is a "how to" guide for implementing and evaluating American Diabetes Association (ADA)-recognized/American Association of Diabetes Educators (AADE)-accredited diabetes self-management education and support (DSMES) programs designed to reach underserved populations/communities. The information in this guide aligns with the 2017 National Standards for DSMES.[1]  This guide is also designed to complement the **Centers for Disease Control and Prevention's (CDC's) DSMES Toolkit**, which provides general resources and tools for developing, promoting, implementing, and sustaining DSMES services.

## Diabetes Data and Statistics

See Appendix A for additional data on diabetes prevalence, disparities, and DSMES participation rates.

## Why was this guide developed?

Diabetes is the seventh leading cause of death in the United States,[2] and the disease disproportionately affects racial and ethnic minorities and adults with low socioeconomic status.[3,4] DSMES programs can help people manage their type 2 diabetes and prevent complications,[5] but participation in DSMES programs remains suboptimal.[6] CDC's Division of Diabetes Translation (DDT) worked with contractors and subject matter experts (SMEs) to evaluate two DSMES programs reaching underserved populations/communities: Tandem Health (formerly Sumter Family Health Center) and BronxCare Health System. This guide was developed to share evaluation lessons learned and expert insights with DSMES programs working to better reach underserved populations/communities. See Appendix B for more information on how this guide was developed.

## Who is this guide for?

This guide is for organizations that would like practical guidance on planning, implementing, enhancing, and evaluating DSMES programs designed to reach underserved populations/ communities. In this guide, the term "underserved populations" is used to refer to groups of people who systematically experience

barriers to health and includes racial and ethnic minorities, people with low socioeconomic status, and people living in rural areas.[7,8] Guidance is based on findings from rapid evaluations[9] of two AADE-accredited DSMES programs that are being implemented in federally qualified health centers (FQHCs) and primarily serve African American

and Hispanic/Latino participants. Although this guide may be most useful for FQHCs that primarily serve African American and Hispanic/Latino patients, tips and tools can be adapted for DSMES programs implemented in other settings and DSMES programs serving other population groups that experience diabetes-related disparities.

## What is in this guide?

This guide includes practice-based evidence and insights from two FQHC DSMES programs reaching underserved populations/communities and from CDC and nonfederal SMEs. This guide consists of six main sections:

**1 Overview.** Section 1 briefly describes the purpose of this guide, including why it was developed and how it can be used.

**2 Conceptual Framework for Implementation and Evaluation of DSMES Programs**. Section 2 describes a framework, or key steps, for building or adapting DSMES programs to reach underserved populations/communities.

**3 Planning and Implementing DSMES Programs for Underserved Populations/Communities.** Section 3 shows how to apply the framework described in Section 2 to plan and implement DSMES programs for underserved populations/communities. This section includes specific guidance and tools for

- assessing community context,
- identifying organizational resources and resource gaps,
- building a team and intervention that address the unique needs of underserved populations, and
- developing and executing an implementation plan.

**4 Evaluating DSMES Programs for Underserved Populations/Communities.** Section 4 provides tips and tools for evaluating DSMES programs for underserved populations/communities. This section focuses on developing an evaluation plan and monitoring program participation, completion, and key diabetes management outcomes.

**5 Tips for Sustaining Programs.** Section 5 presents tips for sustaining DSMES programs. This section also highlights potential sustainability challenges that may be encountered during program implementation.

**6 Guide Evaluation.** We welcome feedback on this guide. Section 6 contains instructions for sharing feedback that will help DDT improve the content and usability of future DSMES resources.

The appendices following these six main sections contain more detail on the public health burden of diabetes (Appendix A) and guide development (Appendix B). Acknowledgments, including a list of SMEs, are at the end of the guide.

# How should this guide be used?

**Adopt guidance and tools when practical.** This guide is not prescriptive. Users can decide which guidance and tools to use on the basis of available resources and relevance to their organizations and communities.

**Adapt guidance as needed.** Tools and templates should be adapted to fit users' unique community and organizational context. This includes adapting guidance to fit the culture of intended program participants. Tools and templates include example entries, but ultimately, programs will need to adapt guidance in the manner that best fits their context, setting, available resources, and priority populations.

**Be flexible.** Program planning, implementation, and evaluation are iterative processes. This guide is a practical roadmap, but detours are inevitable. Detours are also important for ensuring a program is appropriately tailored to meet the needs of program participants and that the program is improving key diabetes management outcomes. Being flexible allows DSMES programs to make mid-course corrections and apply lessons learned to continuously improve the program.

## Use with CDC's DSMES Toolkit. The DSMES Toolkit is designed to

- communicate the evidence supporting DSMES, including the clinical and economic benefits;
- clarify the process for establishing a DSMES service that meets minimum standards and is eligible for reimbursement;
- provide resources and tools to facilitate becoming a recognized or accredited DSMES provider;
- describe common barriers to DSMES use and referral; and
- provide tips for overcoming these barriers.

This guide complements CDC's DSMES Toolkit by providing practice-based guidance for tailoring DSMES programs that meet national standards so they are responsive to the needs of underserved populations/communities.

# 2. Conceptual Framework for Implementation and Evaluation of DSMES Programs

This guide draws from evaluations of two FQHC-based DSMES programs primarily serving racial and ethnic minority participants and from SME input. We adapted implementation science and evaluation frameworks to gather practice-based evidence for this guide.

See Appendix B for more information on how this guide was developed.

**Exhibit 1** is an "action-oriented" framework, or series of connected steps, intended to help guide future efforts to implement and evaluate DSMES programs that reach underserved populations/communities.
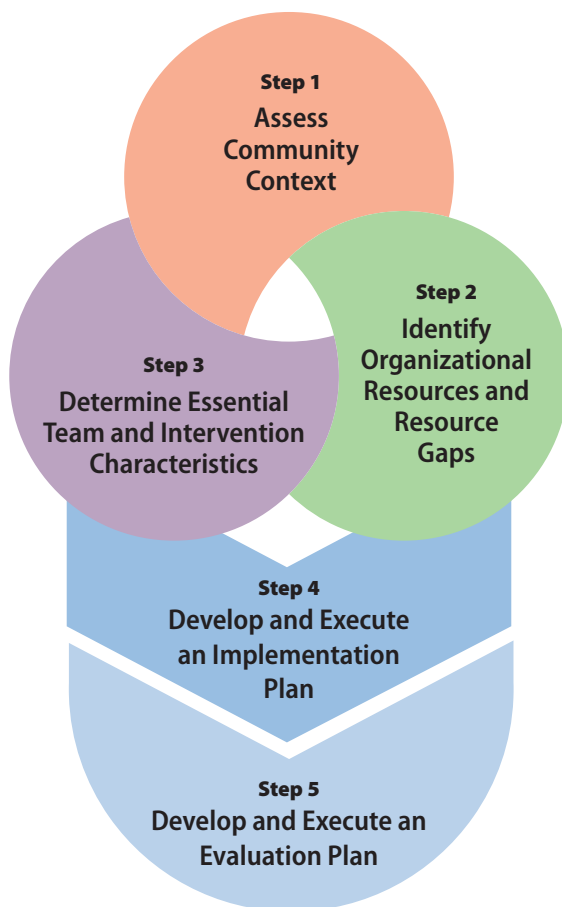
## National DSMES Standards

This guide aligns with the 2017 National Standards for DSMES, which "define timely, evidence-based, quality DSMES services." This guide provides practical information and real-world examples for delivering DSMES programs that meet these national standards and are responsive to the needs of underserved populations/communities. See **CDC's DSMES Toolkit** for more information on the National Standards for DSMES.

**Step 1**
**Assess Community Context**

**Step 2**
**Identify Organizational Resources and Resource Gaps**

**Step 3**
**Determine Essential Team and Intervention Characteristics**

**Step 4**
**Develop and Execute an Implementation Plan**

**Step 5**
**Develop and Execute an Evaluation Plan**

**Exhibit 1.** Framework for Implementing and Evaluating DSMES Programs Designed to Reach Underserved Populations/Communities

# Framework Steps at a Glance

**Step 1: Assess community context**
Contextual factors that may affect programs include the following:
- External policies, regulations, or incentives (e.g., incentives for meeting national quality programs' or health plans' quality of care benchmarks)
- Community characteristics (e.g., demographics, social climate, economic conditions)
- Limited number of provider referrals
- Location of the program (e.g., located within the community, accessible by public transportation)
- Barriers to DSMES participation, such as financial, medical, linguistic, and sociocultural factors

**Step 2: Identify organizational resources and resource gaps**
Resources required to implement and evaluate programs include the following:
- Funds, staff, materials, partnerships, and leadership support necessary to implement DSMES programs and tailor programs to participants' culture
- Data systems and protocols to manage referrals, monitor program implementation, and track outcomes

**Step 3: Determine essential team and intervention characteristics**
Team and intervention characteristics to consider include the following:
- Complexity (e.g., number and type of visits required for completion)
- Cultural adaptations (e.g., tailored dietary recommendations)
- Cultural competence (e.g., skills that are helpful for reaching and relating to underserved populations/communities, such as motivational interviewing)

**Step 4: Develop and execute an implementation plan**
The implementation plan includes a program description and should specify the following:
- Tailored outreach, recruitment, and delivery strategies (e.g., use of visual aids for participants with low educational attainment or low health literacy, interpreters for participants with limited English proficiency)
- Referral protocols
- Participation targets (i.e., the number of people with diabetes in the clinic, workplace, or community that DSMES programs intend to reach)

**Step 5: Develop and execute an evaluation plan**
The evaluation plan should outline data collection and reporting protocols for internal monitoring and ADA recognition/AADE accreditation. Example outcome indicators to monitor include the following:
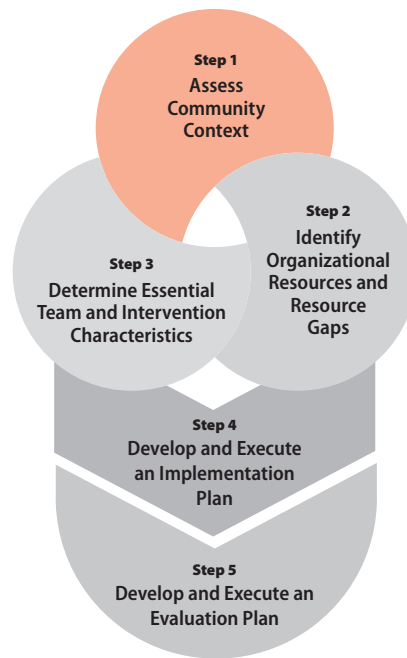- Proportion of eligible staff/partners who make program referrals
- Proportion of eligible adults who enroll in the DSMES program
- Proportion of participants who complete the program
- Changes in participants' knowledge of and skills related to diabetes management
- Healthy behaviors
- Clinical outcomes (e.g., A1c and body mass index)

# 3. Planning and Implementing DSMES Programs for Underserved Populations/Communities

The National Standards for DSMES should drive program planning and implementation. Resources for planning and implementing a DSMES program that meets national standards are available in **CDC's DSMES Toolkit**. This chapter complements the DSMES toolkit with additional steps to deliver services that are responsive to the needs of underserved populations/communities. The steps described in the following sections are not prescriptive, and programs should adapt steps in the manner that best fits their context, the culture of priority populations, and available resources.

## Step 1: Assess Community Context

Contextual factors can support DSMES program implementation or hinder it. When planning or refining a DSMES program designed to reach underserved populations/communities, it is important to consider community context, participants' culture and common participant needs, and the health policy context. This will help programs prepare for potential pitfalls and leverage external resources. **Exhibit 2** lists example questions and data sources for assessing contextual factors that may affect DSMES programs. Staying attuned to context and culture will help programs form the right DSMES team and tailor services to best meet program participants' needs.

**Callouts and links to relevant DSMES toolkit chapters, including descriptions of National Standards for DSMES, are included throughout the guide.**

**Standard 3
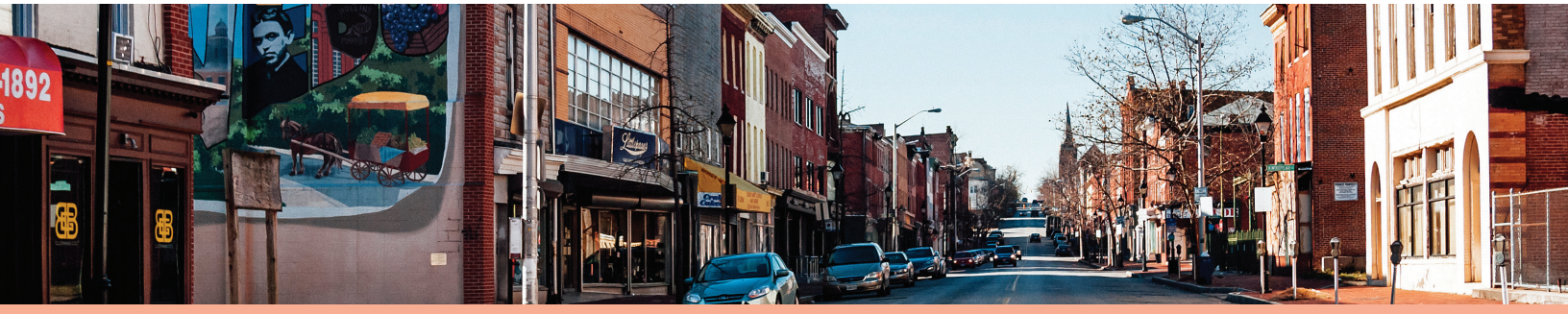Evaluation of
Population Served**

**Exhibit 2.** Context Assessment: Example Questions to Consider

## Community Context

*"…we have very, very poor… transportation. Our bus service services the city only, doesn't serve any of outside of our city."*

—FQHC program administrator

**What to Consider**
How could community factors affect the DSMES program? Consider:

- Geographic location
- Political and social climate
- Economic conditions
- Relevant local organizations and institutions
- Past efforts at addressing the issue
- Community buy-in

**Where to Get Information**
- **U.S. Census Quick Facts Data**
- **Health Resources and Services Administration Uniform Data System reports**
- Hospital or health department community health needs assessment
- Community partners

## Participant Needs

*"They're often dealing with comorbidities. There are these cost barriers, insurance barriers and… you're trying to help them."*

—FQHC clinical staff

**What to Consider**
What needs are commonly reported among the participants or intended participants? How might these needs affect the DSMES program? Consider:

- Financial and transportation needs
- Language- and literacy-related needs
- Need for responsiveness to cultural practices and preferences
- Support needs related to immigration status
- Family dynamics and living situation
- Medical needs related to managing comorbidities
- Access to local stores
- Access to safe places to exercise

**Where to Get Information**
- Patient and Family Advisory Council, or similar group of selected patients, family members, and other caregivers convened to give input and feedback on quality of care
- Patient survey
- Electronic medical records
- DSMES staff, including clinical and support team members

## Health Policy

*"…our Healthfirst Quality Incentive Program. For the first time, these guys are requiring not just that you check the hemoglobin A1c…and check an eye exam, but they're throwing in controlling diabetes. It's a HEDIS [Healthcare Effectiveness Data and Information Set] measure. So, we're incentivized not to just provide this care for the diabetes I mentioned, but also to control the diabetes."*

—FQHC program administrator

**What to Consider**
How might external policies, regulations, mandates, or recommendations affect the DSMES program? Does the external health policy context affect population groups differently? Consider:

- State or national programs that give incentives for meeting quality benchmarks
- Value-based payment systems
- Medicaid coverage and expansion
- Reimbursement policies

**Where to Get Information**
- Billing and quality improvement staff
- Health care insurers your organization bills to
- State Medicaid office
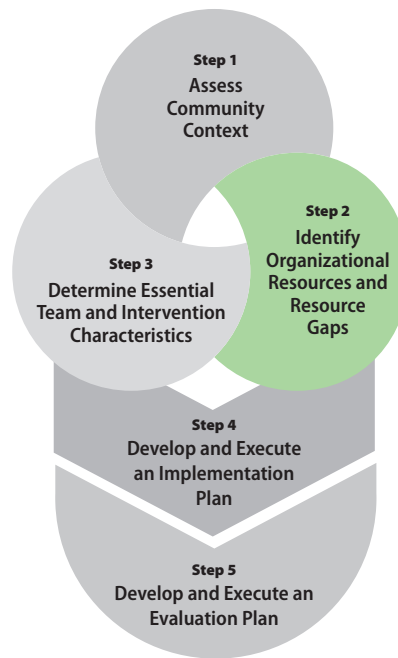
## Examples from the Field: FQHC Resources for DSMES

- Data analyst who can help DSMES staff run reports on DSMES outcome data
- Community health workers and translators who are available to provide support across clinic programs, including DSMES
- Pharmacy that participates in the Health Resources and Services Administration Office of Pharmacy Affairs 340B Program, which provides medication at significantly reduced prices
- FQHC pharmacy resources for printing medication labels in multiple languages for patients with limited English proficiency

## Step 2: Identify Organizational Resources and Resource Gaps

Key resources required to implement DSMES programs include staff, educational materials, data systems, partnerships, and funding. Your organization should identify the resources available to implement or enhance the DSMES program, tailor program services and materials to participants' culture and socioeconomic status, maintain the program, and evaluate outcomes. While inventorying resources, it may be helpful to consider the key contextual factors identified in step 1. Special resources may be needed to overcome contextual factors that could limit the reach of your DSMES program.

**Tool 1** is a worksheet DSMES programs can use to inventory resources, identify resource gaps, and determine a strategy for addressing resource gaps. **Tool 1** highlights examples of resources used by real-world DSMES programs reaching underserved populations/communities. These examples come from our rapid evaluations of two FQHC-based AADE-accredited programs.

## Tool 1  Resources Inventory Worksheet

| Types of Resources | Examples of Available Resources | Examples of Resource Gaps | Examples of Strategies to Address Gaps |
|---|---|---|---|
| **Key Staff** | Certified diabetes educators with continuing education units that meet national standards, program director, data manager, community health workers | Lack of bilingual diabetes educators | Engage staff outside the program who can translate and interpret |
| **Educational Materials** | Curriculum, visual and tactile learning aids | Lack of culturally appropriate cookbooks and diabetes management guides | Request resources from local or state health department, diabetes organizations, or pharmaceutical companies |
| **Data Systems** | Electronic medical records, Diabetes Education Accreditation Program Annual Status Reports | Data staff have limited availability to support DSMES reporting | Save report commands so they can be re-run efficiently |

## Tool 1  Resources Inventory Worksheet *(continued)*

| Types of Resources | Examples of Available Resources | Examples of Resource Gaps | Examples of Strategies to Address Gaps |
|---|---|---|---|
| **Partnerships** | 340B pharmacies, local health department or community center, local farmers market, drug or medical device companies | Lack of community-based social service agencies | See if state health department, local ADA, or other diabetes organizations have complementary programs/services |
| **Funding** | Start-up grant from state health department | Limited reimbursement | Invest in workforce development to maximize reimbursement rates (e.g., registered dieticians may be able to bill more as CDEs) |
| **Other** | AADE accreditation/ADA recognition, membership fees, continuing education | Limited resources for obtaining accreditation/recognition | Make the business case for DSMES |

### SME Insights

### Data System Resources
- Assess the electronic medical record (EMR) system to see whether it will work for collecting and analyzing key DSMES outcome data. If needed, work with a quality improvement champion to ensure the EMR supports DSMES evaluation. Consider user-friendly options for entering and retrieving data.
- Build in protocols for gathering participant feedback on the program (e.g., patient satisfaction surveys).
- Establish protocols and systems for tracking cost data for the DSMES program (e.g., internal systems to track staff time dedicated to the program).

### Reimbursement
- All DSMES programs should be working toward ADA recognition or AADE accreditation because those programs have set standards that will position programs to reimburse for services.

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**Standard 5**
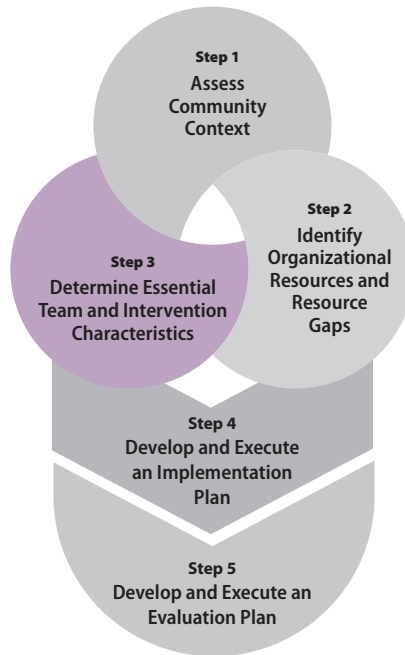
**DSMES Team**

## Step 3: Determine Essential Team and Intervention Characteristics

### DSMES Team

The National Standards for DSMES set minimum requirements for DSMES team qualifications. For example, the national standards require that at least one of the team members responsible for facilitating DSMES services is a registered nurse, registered dietitian/nutritionist, pharmacist with training and experience pertinent to DSMES, or another health care professional holding certification as a diabetes educator or board certification in advanced diabetes management. According to findings from the rapid evaluations of two AADE-accredited DSMES programs that are being implemented in FQHCs, it is also important for diabetes educators to have compassion and empathy for participants as well as "cross-cultural ease." Staff from the two DSMES programs also report that adult education and counseling skills have been useful in connecting with underserved populations.



**SME Insights**

**DSMES Team**
- If possible, staff the program with providers who are representative of the populations being served.
- Staff should appreciate the importance of empowering patients to take control of their own health.

*"Cross-cultural ease. … I don't know how you get that, other than being exposed to people of different cultures, and dealing with your own issues. You know, I just think measurably what that means is those populations don't find you to have many barriers. It's sort of immeasurable, frankly… there's maybe access to you as a human being that comes because you have that empathetic capacity or the lack of judgment. You're not requiring them to come to you, you're going to them."*

*—FQHC diabetes educator*

### Intervention

**Standard 6**
**Curriculum**

**Standard 7**
**Individualization**

**Standard 8**
**Ongoing Support**

Depending on available resources and participant needs, DSMES programs may consist of individual sessions with the diabetes educator, shared medical visits, group education sessions, follow-up support group meetings, or combinations of these. The National Standards for DSMES include requirements for curriculum, individualized services, and ongoing support to participants. As DSMES programs are being designed to meet the national standards, it is important to consider what tailoring strategies may be needed to help reach underserved populations/communities. Examples of tailoring strategies used at Tandem Health and BronxCare to reach African American and Hispanic/Latino participants in underserved communities are provided in **Tool 2**. These examples are an illustrative, but not exhaustive, list of tailoring strategies. **Tool 2** is a worksheet that can be used alongside the national standards to plan DSMES services that are responsive to participants' needs, culture, and community context. The context assessment completed under step 1 and resource inventory completed under step 2 are helpful for selecting tailoring strategies that are the best fit for DSMES programs' context, resources, and participants.

## **Tool 2** Intervention Tailoring Worksheet

| Example Barriers to DSMES Participation (build on your context assessment) | Example Tailoring Strategies | |
|---|---|---|
| **Financial Needs** | Tailor DSMES services and examples to the socioeconomic status of participants—teach participants about affordable healthy food options.<br><br>Provide education on options for obtaining lower-cost diabetes medications, meters, and testing strips, such as using the clinic pharmacy.<br><br>Work with community partners to offer free support services, including cooking classes. | _____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____ |
| **Language- and Literacy-Related Needs** | Use plain language, visuals, and models to help participants grasp DSMES content (e.g., show the amount of sugar in one soda).<br><br>Work with bilingual educators or translators for non-English-speaking participants and offer education materials in participants' preferred language. | _____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____<br>_____ |

## Tool 2 Intervention Tailoring Worksheet *(conditued)*

| Example Barriers to DSMES Participation (build on your context assessment) | Example Tailoring Strategies | |
|---|---|---|
| **Sociocultural-Related Needs** | Engage families in DSMES and frame the program as beneficial to participants' health and families. Share culturally relevant strategies for dietary changes (e.g., avoid recommendations to eliminate foods that are central to a participant's culture; share tools that are tailored to participants' culture, such as the National Diabetes Education Program's **Choosing Healthy Foods at the Buffet Table: Tips for African Americans with Diabetes**.  | |

**Increasing Referrals and Overcoming Barriers to Participation**



## Engaging Providers

As you are designing your program model, plan ahead to create a referral process that supports maximum participation in the DSMES program. Also, consider whether providers need training to support the program as planned. Lessons from the field and expert insights on engaging providers are in **Exhibit 3**. CDC's DSMES Toolkit also includes a chapter on increasing DSMES referrals.

**Exhibit 3.** Tips for Engaging Providers
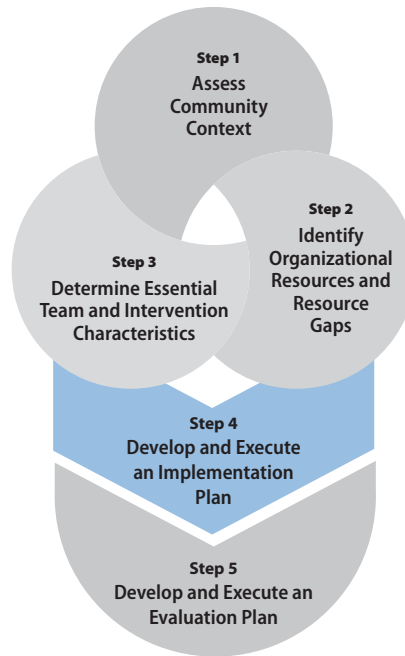


### FQHCs

**Tips for Engaging Providers**
- Involve DSMES program administrators in provider and clinical team meetings.
- Communicate clinical improvements to providers.
- An automated EMR referral feature based on high A1cs may help further boost physician referrals to DSMES.
- Provider education about the DSMES program can occur on an ad hoc basis and more formally during daily huddles, during weekly ambulatory care meetings (cross-disciplinary), during monthly diabetes meetings, and through electronic health record secure messaging.
- Certified diabetes educators (CDEs) can educate providers to help over-come the perception that certain patients are well-controlled and don't need to see the CDE.

### SMEs

**Tips for Engaging Providers**
- If provider referrals are required, invest in protocols that make it easy for providers to refer people to the DSMES program.
- Frame the benefits of DSMES to providers in terms that are relevant to them (e.g., handing education duties off to a CDE so providers can focus more on the clinical aspects of care).

Step 1
Assess Community Context

Step 2
Identify Organizational Resources and Resource Gaps

Step 3
Determine Essential Team and Intervention Characteristics

Step 4
Develop and Execute an Implementation Plan

Step 5
Develop and Execute an Evaluation Plan

## Step 4: Develop and Execute an Implementation Plan

Building on previous planning steps, create a plan to guide DSMES program implementation. The plan does not have to be lengthy or complex, but it should capture key stakeholders and program components. The plan will be useful for

- keeping key stakeholders on the same page about program protocols and services,
- describing the program to organizational leadership and potential new partners,
- applying for funding opportunities, and
- orienting new staff to the program.

**Tool 3** is a checklist that can be used alongside the national standards to draft a program implementation plan. The checklist is designed to help programs create an implementation plan that is responsive to community context and participants' needs and culture. The tool builds on previous steps and can be adapted as needed. This section of the guide also includes tips on developing a program description in a logic model format, as well as general implementation tips from real-world programs reaching underserved populations and SMEs.

**Standard 2**

**Stakeholder Input**

## Tool 3   Implementation Plan Checklist

| | |
|---|---|
| ☐ **Document Context** | Document the contextual factors that may affect program success and strategies for addressing challenging factors (Table 1. Context Assessment). |
| ☐ **List Key Stakeholders** | List individuals or groups who are essential for program implementation and document their roles. For example, primary care providers are stakeholders responsible for referring patients to the program. Remember individuals or groups who will help your program address the needs of underserved participants. For example, the local health department could offer free cooking or exercise classes to participants. Individuals who assist with data collection, analysis, and synthesis are also important stakeholders to involve in program planning and implementation. |
| ☐ **Describe the Program** | Briefly describe program resources, activities, and intended outcomes. A logic model is a useful tool for describing a program. Whether using a logic model or crafting a narrative description, the following details should be captured:<br>• Plans for promoting the program (among potential participants and providers).<br>• Approach to recruiting participants.<br>• Education and support services the program will offer. If applicable, specify the core components of the program—that is, activities that are required for program completion versus those that are optional for participants. For example, a program may include physician referral, initial visits, and follow-up certified diabetes educator (CDE) visits within a 6-month period as core components, plus outpatient or inpatient group education classes as supplemental services. |

**Marketing and Promotion**

## Logic Models

A logic model is a graphic that depicts key components of a program and how those key components are intended to relate to one another. It's a useful tool for describing DSMES programs and focusing program monitoring and evaluation. **Exhibit 4** shows the basic components of the logic model and includes example DSMES program components. Visit the CDC Program Performance and Evaluation Office website for additional logic model resources.
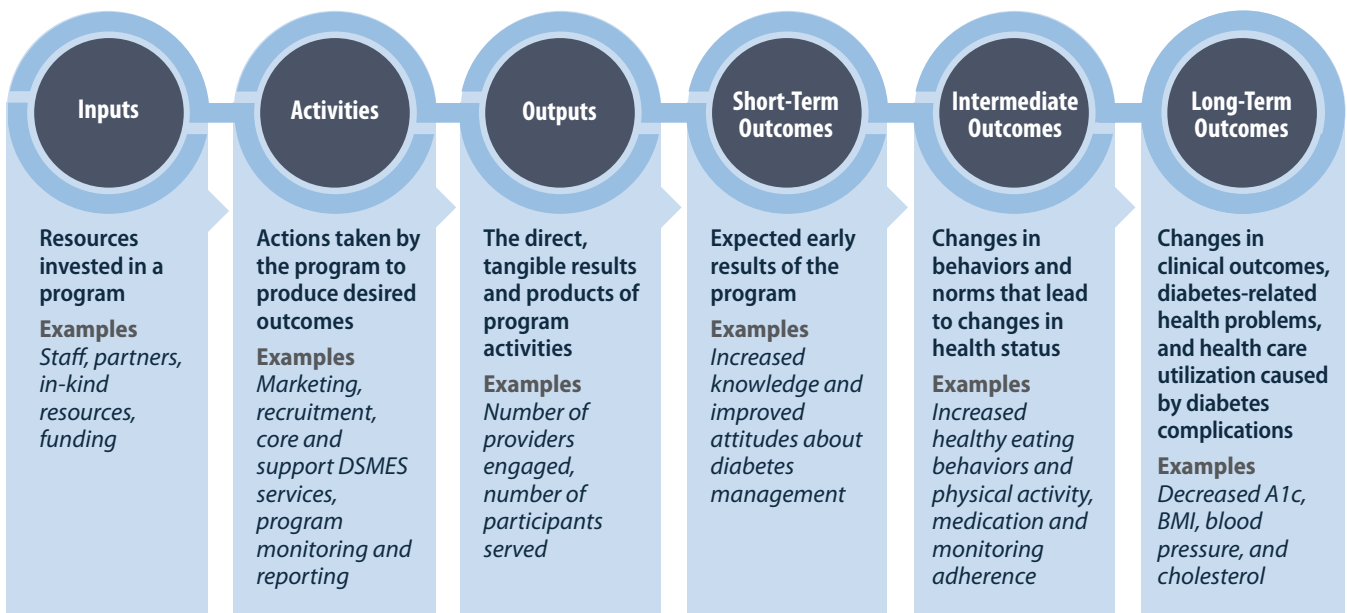
| Inputs | Activities | Outputs | Short-Term Outcomes | Intermediate Outcomes | Long-Term Outcomes |
|---|---|---|---|---|---|
| Resources invested in a program | Actions taken by the program to produce desired outcomes | The direct, tangible results and products of program activities | Expected early results of the program | Changes in behaviors and norms that lead to changes in health status | Changes in clinical outcomes, diabetes-related health problems, and health care utilization caused by diabetes complications |
| **Examples** *Staff, partners, in-kind resources, funding* | **Examples** *Marketing, recruitment, core and support DSMES services, program monitoring and reporting* | **Examples** *Number of providers engaged, number of participants served* | **Examples** *Increased knowledge and improved attitudes about diabetes management* | **Examples** *Increased healthy eating behaviors and physical activity, medication and monitoring adherence* | **Examples** *Decreased A1c, BMI, blood pressure, and cholesterol* |

**Exhibit 4.** Logic Model Components

## Practical Implementation Tips

**Exhibit 5** lists practical considerations to keep in mind while planning and implementing DSMES programs for underserved populations/communities.

**Exhibit 5.** Practical Implementation Tips for Providing DSMES to Underserved Populations/Communities



### FQHCs' Tips

- Explain "why" when providing DSMES information to help engage and empower patients (i.e., don't "talk at" them).
- Keep materials simple, then adapt verbal messaging as appropriate for the audience.
- Keep perspective when working with underserved populations/communities and be mindful of where your messaging may fall within the hierarchy of their needs.
- Share personal perspectives and experiences, if relevant, to increase receptivity.
- Frame encounters to respect the patient.
- Frame messaging in terms of what patients can do to avoid overwhelming them.
- Facilitate provider referrals through, for example, provider training or automated referral options in the EMR system—strong provider referrals are important for patients to follow through with their DSMES appointment.
- Understand patient needs and how to address them in a culturally sensitive manner.
- Have a process for obtaining patient feedback.

### SMEs' Tips

- Be aware of your own culture and biases and consider how your cultural preferences and views may differ from the cultural preferences and views of DSMES participants. Acknowledge differences but avoid stereotyping.[10]
- Be willing to listen and learn from DSMES participants to better understand how cultural beliefs and practices may affect health behaviors. Pay attention to nonverbal cues and ask about how you can provide DSMES in a culturally appropriate manner.[10]
- If possible, take the program to the communities, rather than asking people to come to the health care setting. Taking DSMES to the communities puts the programs in a place that is already considered a safe space.
- Use the language preferred by the program participant, which may require working with interpreters.[10] Expand literacy- and language-related supports to include health literacy supports.
- Think outside the box for ways to engage and celebrate the populations you are trying to reach (e.g., create a forum for DSMES graduates to share success).
- Follow up with people who drop out or do not join the program to gain insights for enhancing recruitment and retention efforts.

# 4. Evaluating DSMES Programs for Underserved Populations/Communities

The national standards set requirements for monitoring DSMES participants' progress and conducting evaluation for program improvement. AADE-accredited programs are required to submit an Annual Status Report on participants' progress, and the report is a useful source of evaluation data.

This section of the guide focuses on developing and executing an evaluation plan that accounts for programs' efforts to reach and improve outcomes among underserved populations/communities. It includes example evaluation questions, indicators and data sources, and a checklist that lists the basic elements of an evaluation plan (**Tool 4**). The evaluation plan checklist builds on previous steps in the guide and can be adapted to programs' unique needs and context.
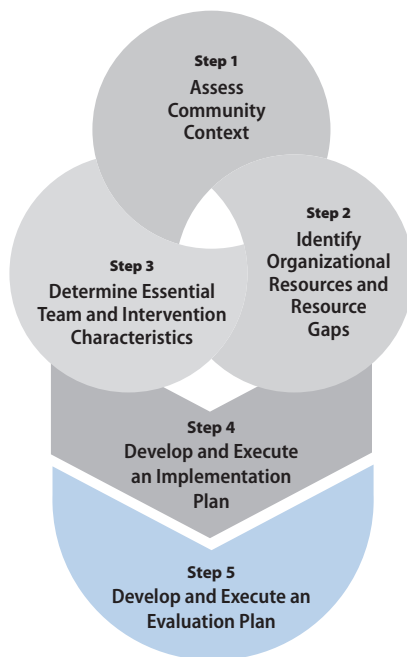
## Program Reach

In addition to tracking the number of program partici-pants, consider assessing the proportion of eligible adults who are participating in the program (reach = number of participants ÷ number of eligible participants). If possible, explore the pro-portion of eligible adults who are participating your program by race, ethnicity, and income to see whether the program is reaching underserved populations/communities as intended.

## Step 5: Develop and Execute an Evaluation Plan

The program description developed under step 4 is a starting point for eval-uation planning because it depicts the plan for implementing the program and achieving key DSMES outcomes. In general, evaluating DSMES programs involves assessing the degree to which the program was implemented as planned and intended outcomes were achieved. **Exhibit 6** includes exam-ple evaluation questions, indicators, and data sources. These examples are based on our rapid evaluation of two FQHC-based DSMES programs reaching underserved populations/communities, and examples can be adapted to fit programs' unique context and resources. See the CDC Program Performance and Evaluation website for additional guidance indicators.

**Standard 9**
**Participant Progress**

**Standard 10**
**Quality Improvement**

**Exhibit 6.** Example Evaluation Questions, Indicators, and Data Sources

## Implementation

| Evaluation Question | Indicator | Data Source |
|---|---|---|
| Are providers referring people with diabetes to the program as expected? | Proportion of eligible patients who are referred to DSMES by a provider<br>Referral rates by provider | EMRs |
| Is the program reaching eligible adults from underserved populations/communities as planned (compare the program's actual reach to the target reach)? | Proportion of referred patients who participate (i.e., complete at least one required class/visit) in the program by race, ethnicity, gender, age, and/or risk status | DSMES program records |
| What proportion of participants are completing core components of the program? How does completion vary by population group (e.g., Latino women vs. Latino men)? | Proportion of participants who are completing the program by race, ethnicity, gender, age, and/or risk status | DSMES program records |
| What proportion of participants are receiving support services from partners (e.g., transportation assistance)? | Proportion of DSMES participants who obtain support services from community partners among those who received a referral for support services by race, ethnicity, gender, age, and/or risk status | EMRs and community partner records |

## Outcomes

| Evaluation Question | Indicator | Data Source |
|---|---|---|
| Are program participants receiving recommended diabetes-related tests and exams? How do outcomes vary by population group (e.g., race, ethnicity, gender, age, risk status)? | Proportion of DSMES participants who are receiving recommended exams by race, ethnicity, gender, age, and/or risk status | DSMES program records |
| Are there improvements in clinical outcomes, such as A1c, among program participants? How do outcomes vary by population group (e.g., race, ethnicity, gender, age, risk status)? | Average change in clinical outcomes among DSMES participants by race, ethnicity, gender, age, and/or risk status | DSMES program records |

## Share and Use Data to Improve the Program

Share evaluation data and results with key stakeholders. Sharing program achievements may help increase or sustain support for the program. It's also important to engage program staff, participants, and other key stakeholders in problem-solving any program challenges that the data reveal. For example, if data show low participation among a priority population group, program administrators may want to meet with diabetes educators or follow up with patients to explore participation barriers and identify strategies to address them.

---

**Tool 4**   Evaluation Plan Checklist

### A. Describe the Evaluation Approach

| | | |
|---|---|---|
| ☐ | **Develop Evaluation Questions** | Work with key stakeholders to prioritize evaluation questions related to program implementation and outcomes. |
| ☐ | **Identify Indicators** | Identify indicators for program implementation and outcomes (i.e., what will be measured to answer the evaluation questions?)<br>• Implementation indicators may include targets for the number of participants and population groups the program will reach. The number of providers who are engaged in the program or the number of participants who receive support services from program partners can also be tracked.<br>• Outcome indicators will focus on participants' knowledge or attitudes related to diabetes management, behavior changes, and clinical measures. Programs should keep AADE accreditation/ADA recognition requirements for reporting behavioral and clinical outcomes in mind when establishing indicators of success. |
| ☐ | **Specify Data Collection and Analysis Protocols** | Document how the program will obtain data to track progress on each indicator of success. This includes describing the data source, how often data will be reviewed, and how data will be analyzed (e.g., calculating the average change in A1c from start of the program to completion and comparing outcomes across different population groups). |

### B. Summarize Plan for Sharing Results and Making Program Improvements

| | | |
|---|---|---|
| ☐ | **Identify Target Audiences and Establish a Communication Strategy** | Think about who needs to hear about the program's outcomes—participants, providers, partners, national organizations (e.g., ADA and AADE)—and determine how and when to share program data with these key stakeholders. If sharing program results with participants, use plain language and participants' preferred languages. Be sure to also plan for AADE accreditation/ADA recognition reporting requirements. |
| ☐ | **Program Review** | Document how often program staff will review data and use it to strengthen the program. |

# 5. Tips for Sustaining Programs

Planning for sustainability early on in program development and implementation is important for ensuring the longevity of DSMES programs. The following questions can help programs plan for sustainability:

- What factors support sustainability of our DSMES program?
- What factors will challenge sustainability of our DSMES program?
- What strategies can we use to overcome potential challenges to sustainability?

**Exhibit 7** lists some real-world examples of sustainability facilitators and challenges from our rapid evaluation of two FQHCs.

**Exhibit 7.** Practical Implementation Tips for Providing DSMES to Underserved Populations/Communities

### Example Factors That Support Sustainability

**Value to quality incentive programs and value-based payment models**
"And the Medicaid managed care plan, Healthfirst, which is our main insurance company [uses a value-based model], but all of the insurance companies are moving to a value-based model where we take risk. I always explain to the administration, and they know this, that having the clinical diabetes educators controlling the diabetes, it's not just billing them for the visit … but we get a couple million dollars if we do well on this … for Healthfirst."

–FQHC program administrator

**Positive participant outcomes**
"But right now, they haven't kicked us out the door yet. And I think it's because of what we do for the patients. And it's a commitment. Plus, people who have better A1Cs tend to keep their follow-up appointments. It would be nice if everybody would see the return on investment by improving people's health."

–FQHC program administrator

**Having the program within a FQHC setting**
"I don't know seriously how a non-embedded program financially and patient-wise could survive because just having them coming within a familiar setting is hard. But if you ask them to go to an unfamiliar setting it's going to be another barrier."

–FQHC program administrator

**Reimbursement and Sustainability**

### Example Factors That Challenge Sustainability

**Cost of DSMES and limited reimbursement**
"It can be costly with the staff and the clinic … the utilization … especially since we have a high Medicaid population and a high uninsured population, not seeing that return unfortunately in the long run could be detrimental to the program."

–FQHC biller

**Barriers to care participants face**
"Right now, I don't know that we have enough [resources to sustain], because we identified transportation, financial barriers, and I don't know that we have enough to satisfy those barriers yet."

–FQHC clinical staff

**SME Insights**

### Sustainability
- It is crucial to understand the quality incentive programs and value-based payment models, which likely requires engagement of senior-level management.
- Conduct a cost-benefit assessment of the program to show that DSMES is worth the investment. Check out the CDC Office of the Associate Director for Policy website for economic evaluation tools and training materials.

# 6. Guide Evaluation

This guide was developed for organizations that need practical tips on planning, implementing, enhancing, and/or evaluating DSMES programs for underserved populations/communities. We would appreciate feedback on the guide's usefulness.
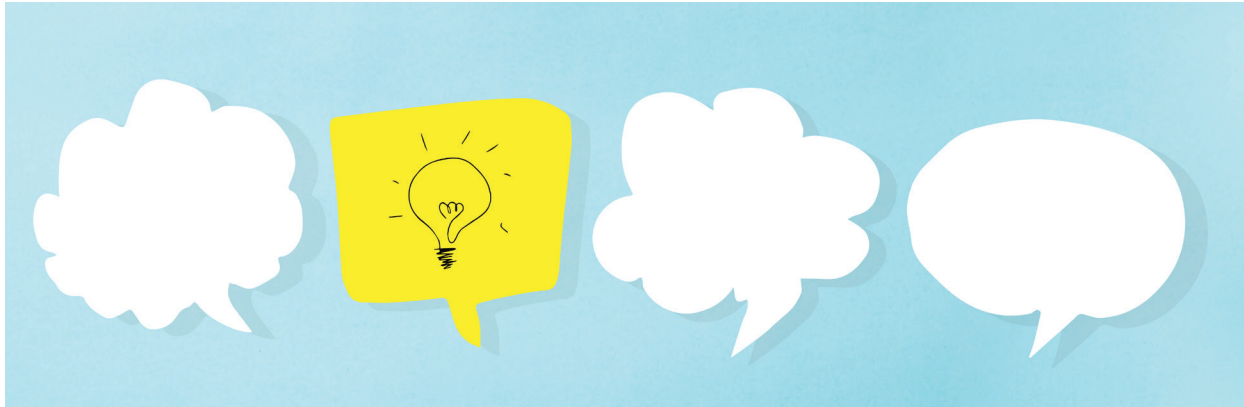
Please send feedback to

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We would like to know:

- Is the guide user-friendly?
- In what ways has your organization used the guide to develop or refine an implementation and evaluation plan for your DSMES program?
- Does the guide present the guiding implementation and evaluation framework in a way that is understandable? If no, please explain.
- How practical are the guide's tips for implementing and evaluating a DSMES program designed to reach underserved populations/communities?
- Is there any additional information that should have been included in the guide?

We thank you in advance for your feedback and recommendations for improvement.

# Appendix A

# Taking a Closer Look at the Public Health Challenge

## Overall Burden

- 30.3 million people have diabetes (9.4% of the U.S. population).

- 23.1 million people are diagnosed with diabetes.

- 7.2 million people are undiagnosed (23.8% of people with diabetes are undiagnosed).

- More than 90% of people with diagnosed diabetes have type 2 diabetes.[11]

## Cost Burden

- $245 billion: estimated cost of diabetes in 2013.[12,13]

- $13,700: average medical expenditures per year for people with diagnosed diabetes.[14] About $7,900 of this amount was attributed to diabetes.

- Average medical expenditures among people with diagnosed diabetes were about 2.3 times higher than expenditures for people without diabetes (after adjusting for age group and gender).

## Racial and Ethnic Disparities

- Prevalence of diagnosed diabetes[14,15]

  - 15.1%: American Indian/Alaska Native

  - 12.7%: non-Hispanic black

  - 12.1%: Hispanic ethnicity

  - 8.0%: Asian

  - 7.4%: non-Hispanic white

  - 12.6%: adults with less than a high school education

  - 9.5%: adults with a high school education

  - 7.2%: adults with more than a high school education

- Complications[16]

  - Ethnic and racial minorities are more likely to develop retinopathy than non-Hispanic whites.

  - Ethnic and racial minorities have higher prevalence rates of end-stage renal disease.

  - The age-adjusted prevalence rate of obesity for U.S. adults in 2009–2010 was 35.7%.

    - Non-Hispanic black adults had the highest prevalence rate of age-adjusted obesity, at 49.5%. Mexican-American adults had rates of 40.4%, and non-Hispanic white adults had rates of 34.3%.

  - Studies demonstrate that racial and ethnic minorities with type 2 diabetes have worse glycemic control. Non-Hispanic black and Hispanic Americans have A1c values that are 0.6% and 0.5% higher than non-Hispanic whites.

  - Minorities are more likely to suffer from depression. Depression is a well-recognized comorbidity of type 2 diabetes. Diabetic patients with depression have poorer adherence to self-management behaviors than those without depression.

## Diabetes Self-Management Education and Support (DSMES) Program Participation

- Fewer than 60% of adults aged 18 years or older with diabetes have ever attended a DSMES class.[17]

- 6.8% of individuals with newly diagnosed type 2 diabetes with private health insurance participated in DSMES within 12 months of diagnosis.[18]

- 4% of Medicare participants received DSMES and/or medical nutrition therapy.[19]

# Appendix B

# Guide Development

The evaluation work behind this guide included systematic screening and assessment (SSA), a rapid evaluation, and engagement of subject matter experts (SMEs).

# SSA

As a first step, an SSA, a type of evaluability assessment, was conducted to identify and screen innovations to determine readiness for full evaluation. The Centers for Disease Control and Prevention (CDC) and a contractor, NORC at the University of Chicago, conducted the SSA to identify diabetes self-management education and support (DSMES) programs that are implementing promising and effective strategies to manage diabetes among African American and Latino populations. The SSA nomination process required that programs

- were American Association of Diabetes Educators (AADE)–accredited or American Diabetes Association (ADA)–recognized;
- had been operating for at least 1 year;
- were serving participants at the time of the assessment;
- had a participant population that was at least 50% African American, Latino, or both; and
- had not previously been evaluated and were not undergoing evaluation.

Based on the SSA, the Tandem Health and BronxCare DSMES programs were selected for rapid evaluation (**Exhibit 8**).

Scan public information for DSMES programs → Expert panel selects subset of identifed programs → Conduct EA, including site visit, for 4 DSMES programs → Expert panel reviews results, selects 2 programs for evaluation → Disseminate EA results through briefs and presentations
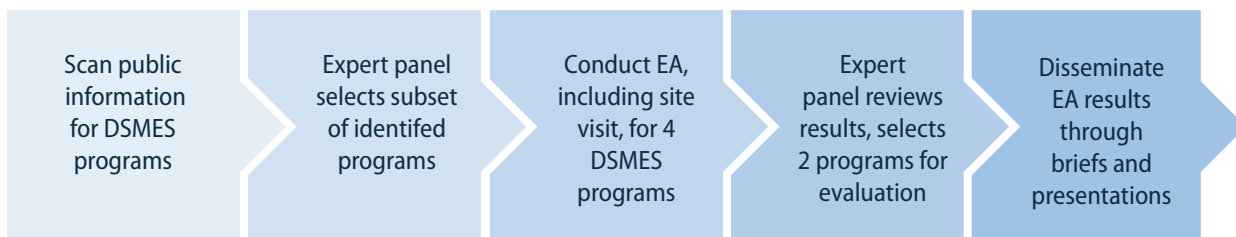
**Exhibit 8.** Evaluability Assessment Process

# Rapid Evaluation Process

The rapid implementation and outcome evaluations were designed to build on the SSA by gathering data on

- factors that support and challenge implementation of the Tandem Health and BronxCare DSMES programs;
- Tandem Health and BronxCare's strategies for recruiting, enrolling, and retaining African American, Hispanic/Latino, and African immigrant participants in DSMES programs; and
- key DSMES outcomes for these program participants.

The rapid evaluation approach aligned with the CDC Framework for Program Evaluation in Public Health, which is a utilization-focused framework that is helpful for organizing the overall evaluation.[20]  We also applied principles of culturally responsive evaluation and adapted the Consolidated Framework for Implementation Research [21, 22] to focus the evaluation design and inform the development of data collection tools.

Our qualitative methods included a review of the evaluability assessment and relevant program documents and site visits. A five-member team (three RTI International members and two Division of Diabetes Translation [DDT] members) conducted the 2-day site visit to the Tandem Health DSMES program on March 21 and 22, 2018. A six-member team (three RTI members and three DDT members) conducted the 3-day site visit to the BronxCare DSMES program from March 26 through 28, 2018. During the site visits, we interviewed key program staff—including program administrators and community health workers—and key health department partners. We also conducted focus groups with diabetes educators and observed a Tandem Health DSMES session. Quantitative methods included analysis of deidentified secondary data on program participants' use of DSMES services and clinical outcomes related to DSMES. We also collected and analyzed data on costs related to program start-up and maintenance.

# SME Review

We worked with DDT to identify diabetes and health disparities experts who could assist us with interpreting evaluation findings through a lens of context and culture. We convened four nonfederal and three federal SMEs for a full-day meeting at the RTI Atlanta office on June 26, 2018. During the meeting, SMEs gave feedback on evaluation methods, suggested key content for the guidance materials that will be based on this evaluation work, and offered thoughtful considerations on evaluation results and limitations.

# Acknowledgments

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# Acknowledgments

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