DIABETES QUALITY IMPROVEMENT INITIATIVE

PERFORMANCE ANALYSIS PROJECT

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# Diabetes Quality Improvement Initiative

## Performance Improvement Analysis

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Introduction/Project Overview

The HRSA Bureau of Primary Health Care’s (BPHC) Diabetes Quality Improvement Initiative aims to reduce the number of health center patients that become diabetic, increase diabetes control in those patients living with the disease, and eliminate the disparities seen in diabetes occurrence, control, and complications. The Diabetes Quality Improvement Initiative is a strategy that directs BPHC resources towards a single focal point, diabetes, with the goal of improving the health outcomes of the 2.4 million persons with diabetes that receive services from the health center program.

BPHC has identified six diabetes control measures for 2020 which are being directly addressed through the Diabetes Quality Improvement Initiative:

1. Increase adult and pediatric weight screenings and counseling by five percent (5%).
2. Increase the number of health centers meeting Healthy People 2020 goals by five percent (5%).
3. Reduce new diabetes diagnoses by five percent (5%).
4. Reduce by five percent (5%) the number of patients with diabetes with an HbA1c value more than nine percent (95).
5. Reduce by one percent (1%) the disparities gap between racial and ethnic groups with the highest and lowest rates of diabetes.

To achieve these outcomes, in Fiscal Year (FY) 2019, for the second year in a row, all BPHC Health Center Operational Site Visits included a facilitated discussion of the health center’s diabetes performance analysis. The discussion was led by the site visit consultants and facilitated with key staff identified at the health centers. The aim of the performance analysis discussion was for health centers to develop an action plan for improving performance in diabetes outcomes. The structured discussions focused on the following elements: (1) reviewing the health center’s stated goal for the diabetes performance measure; (2) reviewing UDS trend and performance data; (3) facilitating a root cause analysis of diabetes performance, including a review of the contributing and restricting factors the health center self-identified in its most recent Service Area Competition and Budget Period Renewal applications, as well as a discussion of other applicable factors the health center may not have identified; and, (4) asking the health centers to rank the factors in order of priority, with those having the strongest influence on performance ranked the highest. Health centers identified internal and external influencing factors and were asked to consider how the health center’s goal for the measure might be impacted by these factors. They were then asked to develop and document three action steps to address the identified root causes necessary to improve performance on the measure’s outcome.

Coupled with the onsite OSVs, every year, HRSA randomly selects approximately 50 health centers to receive technical assistance on diabetes. The sites that are selected for onsite technical assistance do not have a scheduled OSV in the year and are in the fourth quartile for
the uncontrolled diabetes measure. During the day and half onsite visit, the BPHC consultants work with health center staff to review their clinical program and plan activities with a focus on diabetes. They look for barriers to improvement, develop a diabetes action plan, and provide additional guidance, support and assistance to health centers to improve their clinical diabetes outcomes.

The following analysis provides a qualitative overview of the diabetes performance improvement discussions occurring during the FY 2019 health center Operational Site Visits as well as the selected technical assistance site visits. The assessment and identified themes in the performance analysis process will allow BPHC to examine the strengths and weaknesses in its technical assistance offerings, detect gap areas identify health centers that would benefit from additional technical assistance, and recognize health centers that are excelling in diabetes quality/performance improvement for the collection and sharing of their best and promising practices.

Methodology

The diabetes performance analysis project was conducted by qualitatively reviewing the data from BPHC for each health center participating in the diabetes performance analysis activity during the Operational Site Visits as well as the diabetes technical assistance site visits conducted between October 2018 and September 2019. Qualitative data analysis refers to the process of identifying, examining and interpreting patterns and themes and determining how they help answer the issue being addressed. The process is important as it leads to verifiable, informed conclusions.

BPHC provided the researchers’ raw data in the form of an Excel spreadsheet separated into three columns: contributing factors, restricting factors, and recommended activities. The researchers quickly identified that the Excel columns for contributing and restricting factors contained data for both variables. It was noted that the current process for onsite consultants who upload data from the performance analysis, do not have a way to separate contributing and restricting factors. All data, either contributing and/or restricting, is entered into the same data box. As such, prior to the initiation of data analysis, the contributing and restricting factor columns had to be “scrubbed” and researchers had to remove all references to restricting data in the contributing data column, and vice versa. Once the data was scrubbed and analyzed for code word identification, an individual thematic analysis was conducted on each variable – contributing factors, restricting factors, and recommended activities.

The steps in the thematic analysis were as follows:

First, data from each variable was entered into “Wordstat”, which is text analysis software used for mining common words and theme trends in qualitative data. A Wordstat query was used to reduce the vast quantity of data into small meaningful segments through a frequency analysis
which identified key words or ‘code words’ seen most in each variable. The identified code words are depicted in the Word Cloud and Proximity Plot graphics in the data tables below.

Second, researchers used a qualitative data analysis program called “Quirkos” to assist with thematic development. Quirkos allows the researcher to use coded data (e.g., code words identified in Wordstat) to help sort, manage and understand text data. Quirkos allows for separation of data into folders as a method for refining qualitative analysis and development of themes. Researchers developed separate folders for each BPHC defined Clinical Performance Category (as listed below).

Third, within the Quirkos system, the code words identified in Wordstat were used as “search words” to query each variable. When a code word was entered into Quirkos, associated narrative was highlighted. This highlighted narrative was subjectively dropped into a corresponding clinical performance category folder.

Fourth, researches completed a representative two percent sample of the Quirkos data for each variable. Although increasing the percentage of sample entered individual folders would have increased rigor of this study, time limitations restricted the ability to do this.

BPHC’s Clinical Performance Categories:

- **Quality Improvement (QI)/ Quality Assurance (QA) Program** – Utilization of a structured, on-going program for planning, implementing, measuring and reporting the impact of quality improvement interventions on patient care process and outcomes, including having a designated individual(s) to oversee the QI/QA program.

- **Clinical Care Guidelines/Protocols** – Implementation of national, state, population-specific, or clinical care guidelines or protocols by clinical staff during patient assessment and treatment. Often this involves using evidence-based clinical standards and practices, and it includes staff training on the details of the guidelines or protocol.

- **Educations, Counseling and Other Support Provided to Patients** – Provision of educational resources, counseling or other support to patients related to health care prevention and/or disease management. Often this involves a focus on self-care management options.

- **Population Specific Strategies** – Implementation of population-specific strategies to support optimal patient outcomes. Population may be defined based on BPHC’s special populations (e.g., farmworkers, homeless, etc.), ages (e.g., school aged, elderly, etc.), geography, linguistics, or other characteristics shared across the population.

- **Clinical Capacity** – Appropriate number and types of clinicians and appropriate utilization of clinicians (e.g., team-based care) to support optimal provision of care.
• **Facility Capacity** – Physical space to support optimal provision of patient care. Includes the appropriate number and/or typed of clinical care spaces (e.g., patient care rooms) and the design or lay-out of clinical spaces within and across departments.

• **Information Technology** – Training on and use of electronic data systems to document and report patient care and outcomes. This may involve decision support features that facilitate clinician’s follow-up of patient care.

• **Patient Access to Low-Cost Medications and Related Supplies** – Patient access to the medications and supplies needed to support optimal clinical outcomes, including HRSA’s 340B Program, pharmaceutical company programs, and other patient assistance programs.

• **Partnerships** – Collaborations with other health centers, community providers, or other organizations to support optimal clinical outcomes.

• **Other Health Center Operational Processes** – Implementation of other health center operational processes that support optimal clinical care and outcomes (e.g., appointment scheduling, patient satisfaction assessments, or proven customer service practices). Includes any related staff training.

Fifth, once data was searched and sorted into the individual Clinical Performance Category folders, another Quirkos query was then completed for each variable (contributing factors, restricting factors, recommended activities). This final query identified common themes present in each individual folder.

Finally, the results of identified common themes are presented in this report, together with selected supporting grantee narrative. The results of the analysis efforts are detailed in the Presentation of Data section below.

## Presentation of Data

Qualitative analysis in healthcare is an excellent tool for determining how to better serve patients and meet their needs. Qualitative research focuses more on the why, how and what of things, than on specific numerical data. Both research and practice in healthcare benefit from qualitative analysis methods. Instead of trying to determine how many times something has occurred, qualitative methods try to discover why it occurred. Researchers investigate the experiences people have had with the different aspects of healthcare, identify themes in the experiences and make effective changes to provide better care.

Understanding the diabetes initiative qualitative data is critical to addressing the challenges faced by health centers nationwide in treating diabetes. The data analyzes health centers’ treatment strategies and describes the experiences of patients receiving or failing to receive
health care services. The qualitative data identifies themes and integrates these themes into the greater context of human life experiences.

The results are informative to BPHC, health center administrators, and care providers. The usefulness of these results lies precisely in their subjectivity: the subjects are telling us, or we identify through more subtle observation, what matters to the patient.

The data will be presented separately for each variable and will begin with a review and summary of overall themes identified, followed by a graphic presentation of the code words and themes, and then a summary of themes in the context of the Clinical Performance Categories. Information regarding contributing factors will be presented first, followed by restricting factors and recommended activities.

**Data Presentation of:**

**Factors Contributing to Diabetes Treatment**

**Summary of Themes**
Patients with diabetes require access to systematic and ongoing care delivered by a team of healthcare providers. The data supports that health centers largely bundle the delivery of diabetic care, to include measuring HbA1c (particularly with point-of-care HbA1c machines), evaluating blood pressure, completing regular foot examinations, and providing retinal scans (either directly or through referral) through a prescribed schedule. The data demonstrates that health centers have actively implemented programs to improve the care delivery of diabetic patients, including utilization of Plan Do Study Act (PDSA), Lean Six Sigma, and other systems to help identify, develop and implement new methodologies for treating patients.

QI/QA systems frequently included utilization of computerized clinical decision support systems within the electronic medical record (EMR) to improve practitioner performance in disease prevention and management. A common theme was regular mining of diabetic patient data, which was used to increase care management.

The data demonstrates many QI/QA directors are focusing their efforts on diabetic care systems within the health center. New programs included development of standardized EMR templates that are built to reflect the health center’s chosen diabetes treatment algorithm (e.g., ADA guidelines, etc.) and drive compliance. Templates act as decision support tools for providers and allow for focused change efforts on the front end. Many centers have developed a pre-visit template to use in daily huddles which includes recent visits, medications, and tests, upcoming examinations that are due, existing complications, home monitoring, and lifestyle questions.

Utilization of evidence-based care delivery programs incorporating local social determinants of health was clear in the data. It appears that health centers have improved their ability to mine accurate meaningful data from their EMR systems, and the data is being used to support
collaborative treatment programs including use of diabetic educators, clinical pharmacists, and support staff. Centers are actively involving ancillary support staff including medical assistants, outreach and community health workers. Their roles range from increasing compliance with follow-up visits to diabetic education.

In comparison to last year’s diabetes trend analysis, it appears that more health centers have the capacity to accurately pull data from their EMR. Use of reliable data is frequently cited as a method for driving system change and improving care delivery systems.

Team-based care programs were frequently identified as a contributing factor to success in treating diabetic patients. Collaborative care models utilizing a variant of team members were identified, including the use of Certified Diabetic Educators, Clinical Pharmacists, and specialty providers. Many health centers are actively working to include all members of the clinical team in care provision.

The data demonstrates that many health centers use 340B medications to support continuity of care for patients with diabetes. Additionally, the data documents that many health centers have utilized care coordinators to ensure patients have access to diabetic supplies through utilization of medication assistance programs.

The data demonstrated that health centers are working collaboratively with community partners to offer adjunct comprehensive care for diabetic patients. Health centers describe using outside agencies to support education programs, retinal exams, and other ancillary programs.

Presentation of Themes and Keywords within Contributing Factors Data:
Presentation of Contributing Factor Themes Specific to BPHC’s Clinical Performance Categories

**QI/QA Program** – Health centers have utilized several methods to increase the quality of care delivery as it pertains to diabetes treatment, including PDSA cycles, LEAN process improvement techniques, and utilization of quality reporting and analytic programs that draw data from the EMR. One health center described this process well by stating, “Quality Improvement activities across the organization include all staff members and providers. Data is shared at the clinic level, provider level, and organizational level so that all staff is aware of progress.”

**Clinical Care Guidelines/Protocols** – Health centers frequently described utilization of evidence-based clinical care guidelines and protocols to direct care delivery. Many described using clinical care guidelines produced by the American Diabetes Association. One center described, “Patient care is guided by standard clinical care guidelines, such as those formed by the American Diabetes Association. Practice guidelines are discussed in regular staff meetings and during didactics with family medicine residents. Providers have online access through both EHR clinical modules and web-based tools (including UpToDate, etc.) to clinical guidelines for easy reference. Compliance with the guidelines is monitored by quality audits pulled directly from patient care records.”

**Education, Counseling and Other Support Provided to Patients** – Health centers describe education both in terms of patient education as well as staff education. Many health centers describe recent educational programs provided to clinical staff. Support programs were identified frequently through use of behavioral health programs focused on increasing compliance with medication regimens. Utilization of a clinical pharmacist was also frequently identified as a contributor to care delivery. One health center described, “The health center established a Diabetes Charter (i.e. registry) that targets patients with HbA1c > 9%, provided education to the providers on diabetes management, and developed a referral system to link patients to diabetic education programs in the community and other collaborating organizations.”

**Population-Specific Strategies** – Health centers described how social determinants of health impacted a patient’s compliance with treatment regimens. Many centers described utilization of behavioral health programs to assist patients. To illustrate, “[Center] collaborates with a wide variety of community-based organizations that serve vulnerable populations by addressing social determinants of health. [Center] has recently reorganized and several leadership roles now are responsible for understanding and building bridges with community-based organizations that serve vulnerable populations.” Additionally, the data identified utilization of screening tools (such as PRAPARE) for screening patients for social determinant of health.

**Clinician Capacity** – Health centers described expansion of resources, through increasing hours of operation, utilization of team-based care, and the addition of ancillary staff members.
Predominately centers describe utilization of team-based care delivery to support treatment. “[Center] works towards a low no-show rate, optimized use of exam rooms and office space through team schedules, point-of-care encounters, and creative use of workstations.”

**Facility Capacity** – Facility management was rarely mentioned as a contributing factor; however, one health center described the ideal facility, “The health center has a state-of-the-art medical facility: 10 exam rooms, an exercise facility, walking/biking trail, and a conference room supportive of one-on-one/group sessions/activities.”

**Information Technology** – Effective utilization of EMR systems was frequently identified as a contributing factor to achieving improved outcomes for patients with diabetes. Specifically, health centers describe the ability to mine data on a regular basis that can be used to support care delivery. Some health centers describe using data analytics software (i.e., AZARA DRVS) to support their data mining efforts, while others solely use the EMR. Data mining tools allow the center to pre-plan activities for the patient’s visit utilizing non-provider staff such as medical assistants. This effort maximizes provider intervention during the face-to-face visit. One center described utilization of technology as: “The staff recently had comprehensive training on AZARA DRVS, with a goal of better utilizing pre-visit planning. Pre-visit planning easily identifies care gaps by provider panel. The center understands the benefits of advancing information technology related to patient health records and ensuring the security of that information.”

**Patient Access to Low-Cost Medications and Related Supplies** – Not surprisingly, access to 340B medication was frequently identified as a contributing factor in treatment of patients with diabetes. Many health centers describe working with pharmaceutical medication assistance programs to further support the provision of newer medications and supplies. Many health centers also use clinical pharmacists to support care provision. One health center described, “The in-house pharmacy provides a medication assistance program, pre-packaged medications, and notifies patients when prescriptions are past due for refills.”

**Partnerships** – Centers frequently described collaborative efforts with local resources including specialist, hospitals, health departments, and community resource centers. Resources were largely dependent on the center’s location, e.g., rural centers had fewer options than urban centers. Specifically, centers described coordinating care efforts with behavioral health providers, both internal and external resources. Additionally, centers describe collaborations with community diabetic educators. The data supports centers reaching out to available partners to assist in high-quality care provision. One center described, “Strong partnerships with [a local Accountable Care Organization] working toward improved services for opioid use disorder patients, integrating behavioral and physical health, chronic disease management, and care transitions for Medicaid patients across the county. [Center] partners with [local community-based organization], which provides community health workers serving the Latino and Somali communities in the County. [Center] collaborates with a wide variety of community-based organizations that serve vulnerable populations by addressing social determinants of health.”
Other Health Center Operational Processes – Data described utilization of huddles, PDSAs, and other activities to support implementation of improved operational processes. One health center described their efforts to operationalize access to their financial counselors to increase care delivery, “The ongoing QI operational project of a robust review of the revenue cycle has included changes that opened access to financial counselor appointments.” This same health center described how their increased focus on customer service has improved care provision: “[Center] used QI grant monies to breathe new life into customer service. That work operationalized such patient-focused actions as “Team Dance,” “Red Carpeting,” and other improvements. The call center continues to present solid customer service metrics, and outreach to the DM population has shown a marked increase in DM focused visits. Linked appointment (text and phone) auto-reminders through the EMR has been well received and have been instrumental in decreasing the clinic’s overall no-show rate. There is increased access to BH services thanks in part to the partnership with [local behavioral health provider] and the Health Infrastructure Investment Program (HIIP) grant provisioning of six new BH spaces.”

Data Presentation of:
Factors Restricting Diabetes Treatment

Summary of Themes
Diabetes is a complex and often misunderstood chronic health condition. The human costs are measured in the horrific complications, including blindness, amputation, heart disease, kidney failure, and death. The data demonstrates that health centers face numerous challenges in care provision to a vulnerable population.

Analysis of restricting data presents a significant change from common issues identified in the previous year’s analysis. No longer is data mining of the EMR a predominate issue. Health centers are now facing challenges with implementation of robust care management systems. Restricting data consistently includes references to social determinants of health and their influence on comprehensive care management.

Data documented the driving force for any quality measurement program is to improve medical care to produce better health outcomes. Health centers reported a focus of performance measurement related to evidence-based clinical guidelines. However, implementation of new systems of care delivery have restricting factors related to staff turn-over and limited time to spend with diabetic patients. Although it appears health centers are not facing the same challenges experienced last year with data mining, this remains an issue. Health centers specifically referenced challenges with staff consistently following newly developed care algorithms.

While development and implementation of clinical guidelines and protocols appear to have improved care, health centers described challenges associated with buy-in for providers, clinical staff and even upper management. Data demonstrated the prescribed guidelines do not always
respond appropriately to the patient mix, ethnic and/or cultural implications. Several health centers described having clinical champions who left the center, resulting in lost effort toward system change. Additionally, health centers reported not having appropriate staff, both in skill level and in numbers, to complete increased screening and education programs for patients.

Responding to population-specific strategies, references to social determinants of health was perhaps the most responded to restricting factor. Health centers reported that when patients face challenges with their physical environment, such as transportation, neighborhood safety, and healthy food, their care delivery is negatively impacted. When barriers to these factors are present in individuals with diabetes, inadequate access to resources among such disadvantaged populations means fewer tools are available to overcome barriers, thus, effects are magnified. Health centers described how social determinants and inequities stemming from race/ethnicity, income, and other factors negatively affect clinical outcomes.

The data supported restricting factors related to health literacy among the patient population. In addition, local cultural influences impact the patient willingness to follow a prescribed medication regimen.

The data demonstrated that clinicians are overburdened with high acuity patients, which reduces the amount of time they have for diabetic education. Some health centers respond by using support staff to provide patient education; however, completing appropriate education programs for lower level staff is a restricting factor. Team-based care delivery was identified as a contributing factor, but ensuring the correct staff is in place, trained and available is restricting.

Data referencing information technology was largely focused on patient access to resources, both internal and external. Health centers described trying to implement educational resources through patient portals with limited success. Some health centers had identified the use of technology to supplement diabetes care by providing both educational and motivational support. Technology appears to extend the reach of diabetes education and support when primary care resources are insufficient or patient resources and access to care are limited; however, it was noted as a restricting factor for patients that either did not have access to technology or did not know how to use it.

Although many health centers have access to 340B medications, health centers describe the high cost of medications and supplies as barriers to care. Health centers described that even for patients with access to 340B and/or insurance, cost was identified as a barrier second to co-payments etc. Access to diabetic supplies was also identified as a restricting factor to care. Health centers describe that patients are unable to access blood glucose testing machines, strips, or newer medications that are not available in many formularies. Health centers frequently described how patient-borne expenses for prescription drugs are an important issue and can have a negative impact on treatment access and outcomes.
Many centers state mental health issues were a significant restricting factor in care delivery. Patients are often isolated and overwhelmed by their diabetes, and the condition can amplify stresses they were already experiencing and contribute to worsening mental health in those who already had or have behavioral issues. While many health centers were anxious to include behavioral health services in their treatment plan, facilitating partnerships with community behavioral health providers specifically to address diabetes was identified as a restricting factor. For health centers with internal behavioral health staff, many expressed challenges with limited staff and available time to coordinate care.

The data describes how diabetes is a significant challenge and frustration for patients. It requires a complete reorientation of a patient’s life. Multiple medications, needle sticks, food restrictions, increased exercise, and multiple visits to health care providers are a few of the life changes patients need to make to address diabetes. These changes are coupled with a lifestyle that is strongly influenced by culture, belief systems, values, socioeconomics, family, religion, and psychosocial wellbeing. Any or all of these may be a barrier to effective care.

**Presentation of Themes and Keywords within the Restricting Factors Data**

Restricting Factors Word Cloud
Presentation of Restricting Factor Themes Specific to BPHC’s Clinical Performance Categories

QI/QA Program – Interestingly, data analysis specific to the terminology of “quality” frequently referenced barriers to patients accessing quality foods. One health center reported, “The health center has locations that do not offer a grocery store near the vicinity of the health center/communities where many of the underserved reside. This creates limited access to quality food sources for diabetes care within these populations.” Health centers also reported challenges with staff availability to complete quality data analysis activities.

Clinical Care Guidelines/Protocols – The data describes staff challenges in relation to implementation of clinical care guidelines and protocols. Several health centers reported having diabetic “champions” in place whose role was to train staff and initiate systems for implementation of clinical care guidelines; however, the champions were restricted by a lack of time available to teach staff and providers on adopted guidelines and protocols. One health center described: “During the reporting period of 2018, the health center had a provider champion who spearheaded the education of staff on clinical care guidelines. The provider champion left the health center in 2018. While another reported, “Due to the hiring of several new providers, additional in-service training on clinical care guidelines/protocols is needed.”

Education, Counseling and Other Support Provided to Patients – Poor health literacy among patients was frequently identified as a restricting factor to improving diabetes outcomes. Data demonstrates a population served that does not have access to accurate health information, while cultural and community norms frequently override medical information. As one health center stated, “Language barriers and/or educational level may impede the understanding of diabetes care.” Another center described, “Some patients equate insulin usage with horrible outcomes (amputation). Additionally, some patients are burdened with the stigma of diabetes.” Data also presented barriers with the staff’s cultural beliefs. Staff members, like the patients being served, do not understand the complexity of the disease or its long-term health consequences. The data also documented that there is a lack of available health educators, including trained staff, diabetic educators, and case managers available to provide education, counseling and other support. One health center reported, “Lack of a Health Educator, given the difficult recruitment of this professional in this geographical area.”

Population-Specific Strategies – Restricting factors associated with meeting the needs of the target population were identified over 266 times in the data. References included factors affecting social determinants of health on numerous levels including transportation, access to health food, access to safe exercise areas, cost of medication and supplies, language and cultural barriers. Data emphasized the vulnerable populations served by health centers. For example, one center reported: “[We] have a very ethnically diverse patient population, with almost 60% of patients with English as a second language and about 30 languages spoken. This makes designing patient educational materials and classes challenging.” Mental health issues were also frequently identified as a restricting factor in the target population. Diabetes is a self-
managed condition, which means that it is the person with diabetes, not their doctor, who is responsible for taking care of him or herself daily. Diabetes involves making frequent, sometimes life or death decisions under sometimes stressful and physically uncomfortable circumstances. For patients experiencing mental and behavioral health issues, management of chronic disease can be particularly difficult. One health center reported, “Approximately one-third of the patient population has some mental health diagnosis on their program list. This makes management of a chronic disease more difficult.” A frequent identified theme was that mental health issues adversely impact compliance with chronic disease control.

**Clinician Capacity** – Availability of trained diabetic educators was repeatedly identified as a restricting factor. Medical providers have limited time to spend on diabetic education, while there is limited staff to exclusively fill that role. One health center described this challenge by stating: “Staffing limitations: Among our RD/CDE staff, there were three maternity leaves in the past two years, and we lost one RD/CDE who left the practice. That resulted in less capacity for diabetes care management, since there were fewer people working.” This situation was commonly described in the data.

**Facility Capacity** – Although not frequent, several centers did describe inadequate facility space. Data referenced facility capacity in relation to inadequate exam rooms and insufficient parking. Sadly, one health center described a recent fire that destroyed their largest facility resulting in limited access for patients.

**Information Technology** – Interestingly data referencing technology was largely related to patient inability to utilize technological resources, including patient portals. Centers described challenges with getting patients to access patient portals. Portals allow the center to provide educational, and nutritional resources. Additionally, portals could be used for regular discussion of at home blood sugar readings. One health center described, “Problems setting up the program in the EMR to enable staff to follow patients and monitor progress in disease management: forums for patients to share information with each other on their disease management: patients’ willingness to participate in self-management. The center has difficulty getting patients to participate: one person dedicated as the cheerleader for the patients. Patients are unable to read the information being provided.” Another health center described, “There is a difficulty for patients to access information due to a lack of technology to communicate. Encouraging patients to utilize technology when they have access to technology: teaching patients how to use smartphone apps more effectively.” There were a few health centers who described issues with lack of staff trained in data management.

**Patient Access to Low-Cost Medications and Related Supplies** – Reference to medication, 340B, and access was referenced frequently in the data (over 417 times). One health center described, “Lack of financial resources makes it difficult for patients to afford copays/sliding fees, testing supplies, and medications.” Another stated, “The prior authorization process to obtain diabetic supplies and medications takes much time and presents as a barrier to care.” Cost of medication, and more predominately, cost of diabetic supplies was frequently identified as a restricting factor. One health center stated, “Although the organization utilizes the 340B
program for medications, patients are often unable to obtain needed diabetic testing supplies.” Compliance with taking medications was identified as the next most common reference. One center described, “Patients are non-compliant with medication management due to the lack of knowledge about medications and the inability to afford purchasing medications.” Many centers described patient fear, and/or distrust with taking medication prescribed for diabetes. Cultural influences and poor health literacy have resulted in patient distrust. This was documented several times in reference to treatment with insulin and fear of amputations. Once center described, “The oil field worker population are difficult patients to work with: they have a poor diet with inconsistent eating patterns. They resist injectable insulin because this will cause loss of a commercial driver’s license.” Utilization of point-of-care testing (HbA1c) was frequently linked with medication treatment. Health centers described challenges with consistently completing testing, which further supports timely treatment.

**Partnerships** – Several centers describe challenges with development of local resources, with references to other community resource agencies, churches, managed care organizations, behavioral health providers, and specialty providers. Some centers describe limitation secondary to rural locations, such as, “Due to the rural areas in which they serve a community partnership with other facilities that provide patient support for diabetes is difficult to obtain.”

**Other Health Center Operational Processes** – References to operational challenges were largely related to staffing issues. One health center described, “[We] have struggled to maintain appropriate operational skills due to staffing changes and turnover.” Although not discussed frequently, one health center reported, “The EMR significantly restricts data collection, analysis, and reporting. (The center is finalizing the purchase of a new EMR, and this should be operational in the approximately six months.)” Although this issue is significantly improved from the previous year’s analysis, clearly it is still impacting a few health centers.

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**Data Presentation of: Recommended Activities to Address Diabetes Treatment**

**Summary of Themes**

Although the achievement of evidence-based clinical goals significantly reduces the risk of morbidity and mortality with diabetes, the delivery of care in community practices and referral centers often falls short of these goals. BPHC has charged its health centers to identify three (3) SMART goals that would support improvement of HbA1c levels in the diabetic patient population. This activity proactively allows health centers to appropriately respond to the unique needs of their community and specifically, their patients with diabetes. While some of the data analyzed from this activity aligned with findings from the previous year’s data, health centers have become more sophisticated in their treatment strategies for diabetes.

In 2018, the data focused on the availability of consistent quality staff with the skills to effectively mine internal data. In contrast, the FY 2019 data demonstrates an apparent
improvement in that area. QI/QA goals were more focused on utilization of quality directors, and teams to study data at a high level for compliance with the organization’s pre-defined goals. The data demonstrates that health centers are now able to regularly mine trustworthy data and use that data to drive systems change within the center.

Development and implementation of clinical care guidelines/protocols was predominately identified in the data. Proposed guidelines were offered under several contexts including delivery system programs (i.e., appointment changes, algorithms, etc.), self-management support (i.e., provision of CDE’s, other educational programs, etc.), decision support programs (i.e., initiation of standing orders for clinical staff, etc.), clinical information systems (i.e., utilizing EMR data to drive change in developed systems, etc.), and utilization of community resources to supplement care delivery. Health centers are leveraging internal and external resources to support care delivery and writing this into corporate protocols, which subsequently allows for continuous review.

The importance of using coordinated systems of care was evident in the data. Multiple health centers describe utilization of a behavioral health provider to address patient barriers, while others propose system improvements to medication management through innovative methods including utilization of clinical pharmacists and expanding roles of registered nurses. Many health centers described collaborative efforts with community partners to increase access to educational opportunities and specialty services.

Both contributing and restricting data reference social determinants of health and their impact on care delivery. Health inequities related to diabetes and its complications are well documented and are heavily influenced by social determinants of health. Health centers have presented many innovative programs to address these challenges including using screening tools and providing care in a culturally responsive manner. The data supports health centers’ unique ability to understand and respond to the complex factors in the physical and social environments affecting health. Centers have developed policies that improve income instability, low educational attainment, inadequate housing, and food insecurity.

The data showed response to clinical capacity largely in reference to behavioral health providers and clinical pharmacist. Team-based care appears to be utilized to adjunct care provided by physicians, physician assistants, and nurse practitioners. Team-based care to improve diabetes control is a health systems-level, organizational intervention that assigns a multidisciplinary team to help patients manage their diabetes.

Health centers suggested innovative strategies of collaboration with community groups to expand physical resources to patients. Examples included utilization of group kitchens at community centers, faith-based organizations, public health departments, etc., to hold food preparation education programs. Partnerships were also extended to YMCAs/YWCAs, hospitals and other groups with fitness and/or wellness centers to offer exercise classes and/or fitness training for patients.
Health centers suggested use of technology to supplement provider diabetes care by providing both educational and motivational support. Health centers proposed using technology to support patients and help them learn new practices and routines related to diabetes management. Health centers also proposed utilizing technology to support daily diabetes self-management activities including blood glucose monitoring, exercising, healthy eating, taking medication, monitoring for complications, and problem-solving.

Health centers proposed utilization of case managers to assist patients in accessing medication and supplies. Unfortunately, the data suggests this is an area of intervention that is difficult to impact. Although 340B medications are helpful, barriers still exist including co-pays, lack of access to diabetic supplies, and limitations in newer medications. Although some health centers have proposed goals to address this barrier, it was not common.

As discussed, many health centers proposed developing programs in collaboration with community partners which would both expand current resources and initiate new opportunities. Collaboration with behavioral health providers and specialty providers was identified as a goal by multiple health centers.

**Presentation of Themes and Keywords in Recommended Activities**

**Recommended Activities Word Cloud**
Distribution of keywords (Frequency)

Word Cloud Proximity Plot
Presentation of Recommended Activities Themes Specific to BPHC’s Clinical Performance Categories

**QI/QA Program** – Data demonstrates recommended activities referencing quality were related to utilization of quality committees, directors, etc. charged with studying, developing and implementing new systems to improve care delivery within health centers. Many health centers described goals such as, “In an attempt to gain new ideas and insight on methods to improve the diabetes quality score from more people within the agency, center will develop a quality sub-committee that focuses on chronic disease management. The subcommittee will implement at least two new diabetes-related initiatives over the next 12 months.”

**Clinical Care Guidelines/Protocols** – In alignment with contributing and restricting data, many health centers described a process for identification, development and implementation of evidence-based clinical guidelines and/or protocols, as well as monitoring compliance with implemented programs. Many health centers proposed goals reflecting activities such as, “The diabetes workgroup will review 2019 ADA guidelines at the May 2019 meeting and make a recommendation to Clinical Performance Improvement (CPI) for a diabetes huddle checklist by the end of the second quarter of 2019. Staff will implement the new huddle checklist for review of diabetes patients based on the 2019 ADA guidelines by the end of the third quarter of 2019.”

**Education, Counseling and Other Support Provided to Patients** – Education programs were frequently identified (over 442 times) as a goal both for staff and patients. Health centers described initiation of patient diabetic education programs utilizing staff (i.e., CDE’s, trained clinical staff, etc.), conducting diabetic clinics, and food preparation demonstrations. Health centers also described programs supporting education of both provider and clinical staff. Patient education strategies were detailed to include, “By October 2020, 75% of patients with HbA1c over 9% will have at least one diabetes education session by a certified diabetic educator or certified FNP.” While staff education programs included, “The health center will provide staff education upon hiring and on a quarterly basis throughout the next calendar year. This will allow for increased awareness of how to manage the diabetic patients and how the health center is performing in diabetic management.”

**Population-Specific Strategies** – The data supports that health centers are comprehensively looking at population management within their programs. More than 177 health centers identified population health management as a goal for 2020. Examples include, “The newly developed protocols and algorithms will improve the education and awareness of diabetes population management.” Many health centers (57) describe utilization of social determinants of health screening tools (i.e., PRAPARE) in the future. This aligns with contributing and restricting factors focusing on the challenges of social determinants of health. One example included, “Implement screening for social determinants utilizing the PRAPARE tool and linking to referrals through the EHR. Implement screening by end of first quarter.”
Clinician Capacity – Data references to clinical capacity were largely focused on expanding capacity for behavioral health providers and clinical pharmacists. Examples of expansion of behavioral health capacity include, “Contact 50 percent of the patients on the list and offer a referral to BH (based on BH appointment capacity): Q3 - contact the rest of the patients on the list (as BH capacity allows): and Q4 - develop a report on the number of patients offered an appointment and the number who made and kept an appointment with BH.” Access to clinical pharmacists’ goals include, “Increase the number of patients, with an HbA1c > 9%, receiving medication management counseling from the clinical pharmacist. Establish capacity for patient visits by a clinical pharmacist by the fourth quarter of 2019. Develop a protocol to define appropriate referral of patients who are to see the clinical pharmacist and begin scheduling by the first quarter of 2020.”

Facility Capacity – Although not mentioned frequently, health some centers describe collaborative efforts with community partners to increase facility capacity. One health center described: “By August 31, 2020, the center will have explored a relationship with an exercise facility in each area and attempt to procure a partnership to offer services to adolescents (defined here as ages 12-17) with a BMI > 30.”

Information Technology – In agreement with data, goals specific to technology were focused on increasing access to educational and support programs for patients. One health center described a process to: “Utilize existing technology to share health education information with patients to include educational TV programming at various internal and (possibly) external outlets. By April 1, 2020, determine availability of such technology applications, choose a vendor, and commence provision of health education using technology.” While another center set a goal as, “Consider free or discounted 340B medications for the first year of diagnosis: Increase screening for patient eligibility for Patient Medication Assistance Programs.”

Patient Access to Low-Cost Medications and Related Supplies – Despite a large focus on medication/supply in the data, there were few goals focused on increasing patient access to either. Health centers that choose to look at this strategy largely focused on increasing access to diabetic supplies and medications not on current formularies. One example includes, “Increased training on ADA 2019 Clinical Guidelines and use of GLP-1 medications to help with lowering A1c and weight loss, - Partner with pharmaceutical companies to improve access to GLP-1, SGLT-2, and DPP-4 medications, which preferably include a component of pharmacy-driven case management.”

Partnerships – Partnerships, or more appropriately, community resources were identified as a recommended activity over 142 times in the data. Health centers described coordinating activities with local community partners to support care delivery. Many health centers proposed community diabetes days and were presented as collaborative activities to provide community education and screening. Examples include, “Start evening diabetic teaching sessions, possibly tying in with a fun community event such as Bingo” and, “Identify resources in the community to address affordable healthy food choices and how to prepare healthy foods by July 2019. The nutritionist will utilize community resources and use an identified curriculum
Other Health Center Operational Processes – Health centers are very focused on development and implementation of new processes to improve diabetes care delivery. This ranged from initiation of new screening processes, to utilization of diabetes paraprofessionals to increase education opportunities. Health centers proposed innovative processes to address these issues, including, “The health center will develop a process for stratifying its HbA1c data into segments that can be specifically targeted. Q1 - Develop a report of all health center patients with diabetes, separate into two groups - those with an HbA1c < 9 percent and those 9 percent and greater; further sort out by site; select one site to pilot the process; identify employee(s) to work the report. Q2 & Q3 - Selected employees will contact patients in the second group who have not had an office visit or an HbA1c within the past six months. Q4 - Report on the percentage of patients who were contacted and made and kept an appointment.” While other goals included, “Center will measure the number of face-to-face diabetes-focused care coordination visits with the documented content of the education provided. Each quarter the health center will report the average for the number of modules dispensed and educated upon that quarter.”

Strengths and Limitations of the Research

The Diabetes Performance Analysis process provides a rich data set for reviewing factors and forces that impact, positively or negatively, the clinical health outcomes of patients with diabetes who are served by federally funded Community Health Centers. The data reflects that nationwide, health center staff is developing unique, well-planned strategies for approaching diabetes care and treatment as well as more traditional methods using evidenced-based performance metrics. Study findings document that OSV and TA consultants are engaging health centers positively in the root cause analysis discussion, as the depth and amount of information submitted in FY 2019 increased substantially from the FY 2018 data submission. And, while the data from the current analysis appears to demonstrate a more robust response to diabetic care delivery, it has not yet translated to significant change in diabetes outcomes as reflected in the Uniform Data System reports.

Upon completion of the Diabetes Performance Analysis discussion during the OSV and TA visits, the onsite consultants submit their findings into the Technical Assistance Tracking System (TATS) report by entering text into a dialogue box after selecting a drop-down button for either contributing or restricting data into any of the Clinical Performance Review categories. TATS is not sophisticated enough to discern between contributing and restricting text or the accuracy of the information in the categories; thus, one of the inherent problems with the process is that consultants are able to enter information for both contributing and restricting data into a single dialogue box and click both the restricting and contributing drop down buttons. When this occurs, contributing and restricting data is interspersed together and not appropriately separated by category or factor type.
As previously described, BPHC provided the researchers raw data in the form of an Excel spreadsheet separated into three columns: contributing factors, restricting factors, and recommended activities (Attachment A), but given the concern described above, prior to the initiation of data analysis, the contributing and restricting factor columns had to be “scrubbed” and researchers had to remove all references to restricting data in the contributing data column, and vice versa. The data then had to be organized in an efficient manner for coding and analysis. This cumbersome process lessens the integrity of the data, as assumptions are made based on subjectivity of the researchers, rather than what might be the true intention of participants of the Diabetes Performance Analysis discussion.

The Excel spreadsheet given to researchers also did not separate the information from TATS by Clinical Performance Review category; thus, it was impossible to tell how the onsite consultants organized their Performance Analysis Report. As a result, the researchers again had to recode and subjectively assign the data to various Clinical Performance Review categories, which again, decreases data integrity, as assumptions are made based on subjectivity of the researchers, rather than what might be the true intention of participants of the Diabetes Performance Analysis discussion.

A significant weakness of the study is that BPHC has not used its resources to support data analytics software for this activity. As the sheer magnitude of data inputted into TATS for Performance Analysis process continues to increase, it cannot continue to manually be analyzed with any level of reliability. As it stands, because of the volume of the data and time constraints, researchers were only able to review a two percent (2%) sample. For appropriate rigor within a qualitative data analysis study, a minimum sample of 25 percent is expected. Time constraints did not allow for this level of analysis.

Because BPHC does not have data analytics software, researchers also spent time reviewing multiple data analytics tools (i.e., Quirkos, WordStat, etc.) to assess their utility for the study. Once the tools that were deemed helpful were identified, one researcher signed up for a free trial to perform the data analysis. Free trials typically last 14 to 30 days; thus, there is no opportunity to rerun data analytic trials or confirmation studies by the time the trial period expires. Additionally, the time needed for training on the software presents a significant burden for researchers. This again illustrates the limitations of the study analysis.

Summary and Recommendations

Diabetes poses a unique challenge for health care providers across the country and specifically the HRSA Health Center Program. One of seven health center patients have diabetes, and nearly one in three of those has uncontrolled diabetes.¹ The Diabetes Performance Analysis

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¹ Uniform Data System, 2018
Diabetes Quality Improvement Initiative - Performance Improvement Analysis

aims to inform BPHC leadership for future programming and improve the understanding of health center needs and performance relative to the management of chronic disease. The Diabetes Performance Analysis activities may eventually result in meaningful change in diabetes outcomes among patients seen at health centers, but currently, the facilitated discussions are most useful for providing a platform to develop creative solutions and best practices for addressing the burden of disease. As HRSA’s BPHC continues to evaluate the viability of the Diabetes Performance Analysis project, consideration should be given to the following recommendations:

The data demonstrated a significant improvement in the depth of the Diabetes Performance Analysis activity and subsequent responses between FY 2018 and FY 2019. It is possible that health centers are spending more time preparing for the activity prior to the onsite visits, and/or the consultants are spending more effort engaging staff in the process. Either way it was clear from the data that health centers are seriously considering the unique needs of their community and how that relates to diabetes treatment.

Although much of the FY 2019 data was similar to the FY 2018 analysis, several significant changes were present. First, health centers repeatedly identified problems with data mining of their EMR systems as a critical issue in last year’s analysis, but this was not a prominent theme in FY 2019.

1. Health centers have invested more resources in complex software programs and EMRs have become more sophisticated in querying systems to secure reliable and valid information.

2. The data documented that health centers are using both internal and external resources to address the needs of patients with diabetes, with unique and nontraditional partnerships focused on health and wellness, exercise and fitness, and healthy foods and meal planning. In the previous analysis, external partnerships focused on more traditional partners such as the health department or the local diabetes chapter, rather than partnerships with fitness centers, food banks, grocery stores, etc.

3. Incorporation of comprehensive clinical care systems was identified as a common occurrence with integrated care crossing disciplines from primary care to behavioral health to pharmacy, oral health, and other disciplines. In the previous analysis, clinical integration with behavioral health and pharmacy were only emerging as themes; however, the current analysis documented extensive integration throughout all disciplines of health center operations.

4. Health centers are now incorporating responses to social determinants of health in a comprehensive manner, whereas, social determinants of health were rarely addressed in FY 2018. It is evident health centers are using their unique experience with their population to drive innovative care models.

As BPHC continues to evaluate the success of the Diabetes Performance Analysis Project, consideration should be given to the following recommendations:
• Given each passing year, the data set becomes richer and having the ability to mine “clean” data becomes increasingly critical. BPHC should consider refining the current format of data input into TATS. Separate sections for input of contributing and restricting data should be built into the system to allow no overlap within the categories. Data then needs to be kept in the separate and respective categories in the transfer to Excel to allow accurate mining for each individual element.

• BPHC should also consider developing a mechanism for sorting data specific to the Clinical Performance Categories and transferring the information by category into Excel. Doing so would allow for increased analysis of each section with less subjectivity during coding.

• Each clinical consultant conducting the Diabetes Performance Analysis Activity should be regularly trained and provided information regarding BPHC’s focus on diabetes, particularly as it relates to the Clinical Performance Categories. This would support more consistent data entry.

• BPHC consultants conducting onsite visits need additional education on properly recording contributing and restricting factors. Nearly all comments entered TATS by the TAR researchers addressed problems related to documentation of contributing and restricting factors.

• Although most diabetes performance improvement goals were written in a SMART format, this still appears to be a challenge for some consultants. Further education for consultants would be of value. The researchers suggest not doing this until after any data input systems have changed.

• BPHC should consider developing or investing in a data analytics software program for conducting both quantitative and qualitative data analytics. Because BPHC does not have data analytics software, the researchers needed to exercise “trial-memberships” of data software programs (secondary to cost of programs). Although this was critical to data analysis of large amounts of data, the programs were not customized for BPHC, frequently crashed, required considerable learning time, and were limited in the time available for use. Given that BPHC has invested the time and resources to conduct 478 site visits in FY2019, making a subsequent investment in data analytics software is an essential component for which to assess its efforts. Having one program that could be used year after year would reduce training time, increase data reliability, and provide BPHC increasingly meaningful reports which have depth, scale, and specificity based on the specific needs the project.

• As the diabetes initiative progresses, the importance of aligning quantitative UDS data and qualitative data will become more critical. BPHC should consider enlisting the resources of high-level statisticians to assist in conducting future analysis.
Conclusions

Diabetes continues to be a complex and often misunderstood chronic health condition affecting 30.3 million Americans or 9.4 percent of the population. Approximately 1.5 million Americans are diagnosed with diabetes every year, and diabetes remains the seventh leading cause of death in the United States.\(^2\) It is also one of the nation’s leading chronic health care crises. The American Diabetes Association reports that the cost of diagnosed diabetes in the United States in 2017 was $327 billion dollars, including $237 billion for direct medical costs and $90 in lost productivity.\(^3\)

Diabetes poses a unique challenge for the HRSA Health Center Program. At least one out of every eleven health center patients has a diagnosis of diabetes, with the disease disproportionately affecting Asians, Pacific Islanders, American Indian/Alaska Native, Native Hawaiian, Black/African American, and Hispanic or Latino patients.\(^4\) The management of patients with diabetes, like other chronic conditions, is complicated and requires care that addresses factors impacting the medical, social and behavioral needs of individuals, along with pro-active population management.

In 2018, 32.8 percent of health center patients’ blood sugar levels were reported as uncontrolled\(^5\), which is more than double the Healthy People 2020 target of 16 percent.\(^6\) Poorly controlled diabetes can lead to multiple complications, poor health outcomes, and reduced quality of life. Diabetes also has many health care cost implications. Medical expenditures of people with diabetes are approximately 2.3 times higher than expected costs if they did not have diabetes.\(^7\)

The Diabetes Performance Improvement project provides an opportunity for health centers to address the root causes of uncontrolled diabetes, ultimately leading to improved diabetes treatment and management, increased diabetes prevention efforts and reduced health disparities among the patients they serve.

Health centers are uniquely equipped to improve diabetes outcomes. As patient-centered medical homes that integrate behavioral, oral, and primary health care and address social determinants of health, health centers can support patients with diabetes while managing co-occurring physical and behavioral conditions such as mental illness, substance use disorder, and addressing other socioeconomic challenges. Successful self-management stems from care that

\(^4\) Uniform Data System, 2018
\(^5\) Uniform Data System, 2018
\(^7\) American Diabetes Association, https://www.diabetes.org/resources/statistics, retrieved 12/27/19
is personalized. It is incumbent on the diabetes care team to assess a person’s ability to understand and process health information, gain insight into their life experiences and social support, and most importantly, make efforts to meet a person in their cultural space. When the whole person is taken into context, health care delivery becomes person-centered and supportive, leading to improved outcomes and sustainable self-management.

Health professionals stress that contextual factors are more important barriers to optimal diabetes care than physician knowledge and attitudes. Barriers exist at multiple levels and are interrelated in a complex manner. Examples include: time constraints and practice economics in the private practice setting; the need to maintain referral relationships and the maldistribution of professionals in the practice community; low awareness and low socioeconomic status among patients; and lack of access for low-income patients, low reimbursement, and insufficient focus on prevention in the U.S. health care system. To address these barriers, effective outpatient interventions that improve diabetes control and process outcomes must also be interconnected and multi-level, targeting the patient, provider, and healthcare system simultaneously. The Diabetes Performance Improvement project demonstrates how unique, multifaceted solutions employed across the country are working to improve outcomes for patients with diabetes.