Diabetes Dashboards:
State Examples and Best Practices

Medicaid and public health agencies that are pursuing CDC's 6|18 Initiative interventions to expand access to the National Diabetes Prevention Programs (DPP) may be interested in tracking select measures and presenting them as public-facing dashboards. This resource examines existing state work in this area, with a focus on examples and measures that relate to prevention, risk factors, and/or understanding the overall prevalence, costs, avoidable health care utilization, morbidity, and mortality associated with diabetes. It also summarizes best practices in developing public-facing health dashboards.

Diabetes Dashboards: State Activity

Many states have produced public-facing dashboards with diabetes-related indicators. Some of these dashboards are specific to diabetes (e.g., Minnesota), while others include a subset of information related to diabetes as part of a broader dashboard looking at overall health or chronic disease. This resource compiles information about indicators related to disease prevention, as well as indicators that could be used to measure the impact of diabetes prevention on utilization, costs, illness burden, and mortality. Table 1 summarizes the findings and includes a hyperlink to the dashboard (the state abbreviation), along with information about which indicators are tracked and their data sources. The table is not exhaustive; in other words, the dashboards often contains more indicators than are summarized in the table. For ease of display and interpretation, this resource focuses on indicators most relevant to CDC's 6|18 Initiative objectives related to the DPP.

Overall, the dashboard produced by Minnesota's Department of Health is one of the strongest examples. This dashboard is well-organized, uses simple and intuitive visualizations, and includes a range of indicators that may be helpful for CDC's 6|18 Initiative teams to consider in their own dashboard work. Table 1 includes information about how state dashboards incorporate indicators related to: (1) diabetes rates; (2) prevention and risk factors; and (3) diabetes-related costs, utilization, illness, and mortality. Many of the indicators are based on Behavioral Risk Factor Surveillance System (BRFSS) data, and these data support estimates based on a variety of factors, e.g., race/ethnicity; age; educational attainment; income. See below for additional information about these three categories of diabetes indicators.

Rates: Most of the state dashboards report one or more "rate" related to diabetes in their population.

- **Pre-diabetes:** The share of the population who has been told they have pre-diabetes (BRFSS).

- **Diabetes:** The share of the population with diagnosed diabetes (BRFSS).

- **New cases of diabetes:** This measure is calculated by subtracting the respondent's age at diabetes diagnosis and current age; "new" cases are those where the difference is zero (e.g., the person was diagnosed in the year the survey was conducted) (BRFSS).

Prevention and Risk Factors: Additionally, states report on measures related to the prevention of diabetes, and important risk factors.

- **Glucose screening:** The share of individuals in the population who are overweight or obese (but not diagnosed with diabetes) and report having received a blood glucose test in the past three years (BRFSS).

- **Weight screening and follow-up:** The share of obese or overweight adults who report that a doctor advised about their weight (BRFSS).

- **Nutrition:** Table 1 notes whether a state dashboard included one or more measures related to nutrition (fruit/vegetable consumption and/or consumption of sugary beverages). Some states report for both adults (based on the BRFSS) and youth (based on the Youth Behavioral Risk Factor Surveillance System (YRBSS))

- **Physical activity:** The share of the population (again, some states report separately for adults and youth) who get the recommended amount of physical activity in a week. Some report separate measures for daily activity, aerobics, strength training, sedentary rates, etc. (BRFSS and YRBSS).

Diabetes Related Costs, Utilization, Illness, and Mortality: States report on measures that can be helpful for understanding the current impact of diabetes on costs, utilization, morbidity, and mortality; these measures can also be helpful for framing the potential savings and/or return on investment of preventing diabetes.

- **Total cost of care (TCOC):** States use a variety of data sources to measure the cost of diabetes. The estimates are based on information about the state's specific population and estimates of the excess cost of diabetes derived from an analysis conducted by the American Diabetes Association. Minnesota provides the most detailed description of their TCOC methodology here.

- **Kidney Failure:** The number of new kidney failure cases in which diabetes is the main diagnosis (US Renal Data System).

- **Inpatient stays:** Table 1 flags states reporting any inpatient stays where diabetes was listed as the reason for admission and states that are tracking one or more diabetes related preventable hospitalizations, as defined by the Agency for Healthcare Research and Quality (AHRQ). Diabetes-related preventable hospitalizations include diabetes short-term complications; diabetes long-term complications; uncontrolled diabetes; and lower-extremity amputation among patients with diabetes (claims data).

- **ED visits:** Measures of emergency department visits due to diabetes (claims data).

- **Years of potential life lost (YPLL):** States calculate the years of potential life lost (also known as premature mortality) due to diabetes based on their own vital statistics data. The number of years of potential life lost is calculated as the number of years between age at death and 75 years of age (for persons dying before their 75th year).

- **Mortality:** States calculate deaths due to diabetes based on their own vital statistics data. Diabetes deaths include those with ICD10 codes E100-E14. The National Center for Health Statistics also produces reports that include diabetes related death dates by states; see page 89 of this CDC report for an example.

Table 1: Diabetes Dashboards: State Activity

State	Rates			Prevention and Risk Factors					Diabetes Related Costs, Utilization, Illness, and Mortality					
	Pre-diabetes	Diagnosed prevalence	New Cases	Glucose screening[1]	Weight screening and follow up	Obesity/ overweight	Nutrition	Physical activity	Total cost	Kidney failure	Inpatient stays[2]	ED visits	YPLL[3]	Mortality
AK	X	X				X	X	X						
AZ		X				X	X	X						X
CA		X	X			X	X	X						
CT		X									X			
FL	X	X				X	X	X						
HI	X	X	X		X	X	X	X						X
IN		X				X	X							X
KS		X				X	X	X					X	X
MA		X										X		X
MN	X	X	X	X				X	X	X	X		X	
NE		X									X			X
NJ	X	X				X	X	X			X	X		X
NM		X				X	X	X	X*		X			X
SD		X				X								
UT		X	X			X	X	X			X			X
VA		X		X		X								
Data Sources	BRFSS	BRFSS	BRFSS	BRFSS	BRFSS	BRFSS	BRFSS	BRFSS	Multiple	US Renal Data System	Claims	Claims	State vital statistics data	State vital statistics data; CDC Wonder

[1] Among non-diabetics.

[2] Includes measures that assess the number of hospitalizations that were diabetes related and measures that focus specifically on a subset of hospitalizations for complications of poorly managed diabetes.

[3] Years of Potential Life Lost due to diabetes.

* Displayed as part of descriptive text at start of "diabetes hospitalizations" report.

Dashboards: Best Practices

Be selective: The primary reason for developing a dashboard is to provide your audience with a curated overview of key indicators related to the topic of interest. Often, you will have more indicators and data than can be meaningfully displayed and interpreted on a dashboard. It is important to be selective in the indicators you choose to highlight— think about your core policy goals, likely audiences, and the availability of similar content from other sources. Helpful criteria to consider when selecting indicators include:

- Is the measure likely to "move" in response to the DPP intervention? Over what timeframe?
- How often can the measure be refreshed?
- Can the measure be "cut" for key subpopulations (e.g., payer, race, income, age, geography etc.)?
- What is the additional cost/staff time involved in generating and updating the measure?

Organization: It is helpful to have a landing page that makes all indicators visible to users with limited scrolling, and provides users with the ability to "drill down" to more detailed comparisons, methodology, etc. If it is not possible to show all indicators, there should be an obvious and intuitive option for the user to "hover" over a list and get an "at a glance" view of the content. It is also helpful to group indicators into high-level categories (e.g., prevention, cost, and utilization). This provides additional context for interpreting the data, without the need for lengthy text descriptions.

Benchmarks and trends: It is important to put data points into context, through the use of statewide or national benchmarks. If possible, it is also helpful for users to view data over time, to provide perspective on overall trends.

Visualizations: Choose visualizations that are clean and compliant with a range of browsers. Simple visualizations can help users interpret more complex data in an "at a glance" way. For example, many dashboards use up or down arrows to indicate whether most recent data indicate improvement or performance declines. These visualizations are also useful for providing quick comparisons to available benchmarks. The example on the right from the Arizona Health Matters dashboard effectively uses simple visualizations to help users quickly interpret data.
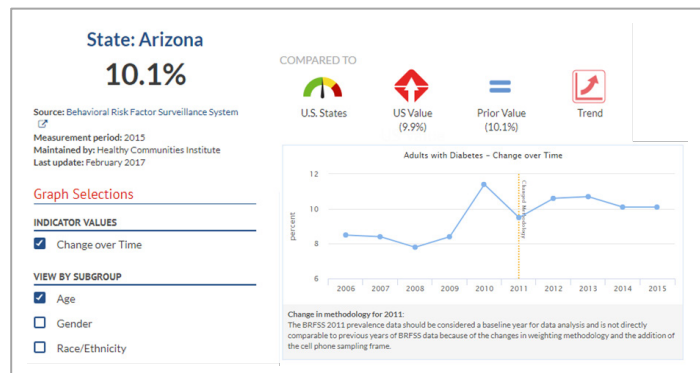
Details on methods and data sources: Although you should avoid "cluttering" a dashboard with extensive text, it is also important to provide users who are interested with information about data sources and methodology. If space is limited, it is fine to provide hyperlinks to more detailed information on these factors. However, the links should be tested regularly to ensure they are still "live" and taking users to the correct information.

ADVANCING IMPLEMENTATION OF THE CDC'S 6|18 INITIATIVE

Through support from the Robert Wood Johnson Foundation, the Center for Health Care Strategies, in collaboration with a number of partners, is coordinating technical assistance to facilitate state Medicaid and public health implementation of the Centers for Disease Control and Prevention's (CDC) 6|18 Initiative. The CDC's 6|18 Initiative promotes the adoption of evidence-based interventions that can improve health and control costs related to six high-burden, high-cost health conditions — tobacco use, high blood pressure, inappropriate antibiotic use, asthma, unintended pregnancies, and type 2 diabetes. For more information and additional resources, visit www.618resources.chcs.org.