Quality Improvement Basics: Data Basics and Data Collection Transcript

Slide 1:
Welcome to the Quality Improvement Basics course 'Data Basics and Data Collection' module.

Slide 2:
Our topics for this model will include:
- Using Data Basics
- Differentiate between Qualitative vs. Quantitative Data
- Select or create appropriate metrics for your Plan Do Study Act (PDSA) goal
- Data Collection Methods

Please note that there are several references to the PDSA, Plan Do Study Act improvement tool which precedes this module and the assumption is that you have a basic understanding of that.

Also, before we start, please open the related documents for this module (tools, templates and any samples) which are available on the web page where you found this module link. It will help you to have those ready for quick reference as screenshots of the documents may not legible on your screen.

Slide 3:
Using Data Basics

Slide 4:
One of the giants in the field of quality improvement, William Edwards Deming, is attributed to this brief, but poignant quote: "In God we Trust, all others bring data." Data and verifiable measurement is key to identifying and understanding the processes we seek to improve. To be useful, measurements need to be valid (that is, they need to measure what they are intending to) and reliable (if the same thing was measured twice, or by two different people, you would want it to result in the same value). In other words, your data must be reliable and credible.

Additionally, you are using data not only to confirm that you are making improvements and understanding the process you are analyzing, but also you'll use data to convince and persuade others to understand change that is needed and agree to your recommended changes…and that is why using charts, graphs and tables in an effective manner will be important in your work.

Slide 5:
A health care organization already has considerable amounts of data from various sources, such as, clinical records, practice management systems, satisfaction surveys, external evaluations of the population's health, and others. Using this data in a disciplined and methodical way allows an organization to evaluate its current systems, identify opportunities for improvement, and monitor performance improvement over time.

Data is indeed the cornerstone of QI and enables organizations to describe how well current systems are working. Data also demonstrates what happens when changes or modifications are made to a process and enables us then to identify variations that may be occurring in the process. By collecting and analyzing data over time we gain further insights into our processes and ultimately, after we have made changes and accomplished the goals of our Quality Improvement efforts, this data demonstrates and documents the success we have achieved.

Slide 6:
Data sheds light and clarifies what otherwise are hunches or guesswork…it separates what is thought to be happening from what is really happening.

Data helps us set a baseline from which to measure the changes we are applying to our processes and is the indicator for whether our changes have led to improvements. Sometimes in our efforts to make improvements, the outcomes lead to negative impact or unanticipated results and the data will provide transparency into these ineffective solutions we have tried. Conversely, when we are successful in modifying and improving our processes, it is not sufficient to have a 'one-time' success…rather, we want to ensure improvements are being sustained over time and our process metrics and underlying data help us to monitor that progress.

When we use the Quality Improvement model and Plan Do Study Act tool, we start small and then spread the improvement to other departments and sites. Through data collection, analysis and comparison, we can determine whether our process improvement is effective beyond our initial test location.

Slide 7:
When you are starting out on your quality improvement efforts, be sure to keep things simple and within the defined areas of improvement that you documented in your Project Charter. It's easy to want to accomplish change on a broader scale, but starting on a limited scale, one department, one location (whatever may be appropriate), will help you to determine and be confident that the changes you have made are reflected in the variations in the data you are collecting that supports the measure you have chosen. If your scope is too large, you can't be certain that the variations in data that you are seeing are directly correlated the changes you have made in your process.

As you carry out each PDSA improvement cycle, the changes will impact the set of data you are collecting and, therefore, impact the measure that you have selected…hopefully leading to the improvements your team has intended.

Be sure to communicate or 'tell your story' using the data you have collected. Having a set of confirmed facts and findings that are supported by your data and incorporated into your defined metrics is a powerful way to paint the picture and convince others of needed action. You've likely heard the saying, "You're entitled to your own opinion, but not your own set of facts" …which speaks to the core of using data for quality improvement.

Slide 8:
Quantitative vs. Qualitative Data

Slide 9:
Both quantitative and qualitative methods of data collection are helpful in QI efforts. Quantitative data involves the use of numbers expressed in measurable units. Quantitative data is often continuous, such as in height or length measurement. Quantitative data is objective and produced through processes that are verifiable, replicable and not subject to interpretation.

Quantitative data can be very helpful in looking for patterns and themes and can be processed utilizing software such as Microsoft Excel, Access, and population health analytics packages among many others. If you've ever recorded a blood pressure, looked at a hemoglobin A1C value, or other similar lab values, you've looked at and worked with quantitative data.

Here are a few other examples:
• 	Finding the average of a specific laboratory value
• 	Calculating the frequencies of timely access to care
• 	Calculating the percentages of patients that receive an appropriate health screening

Slide 10:
Qualitative methods collect data with descriptive characteristics, rather than numeric values. It can also be categorical, placing observations in specific categories. Qualitative data conveys attributes and properties.   It provides important information about patterns, relationships between systems, and is often used to provide context for needed improvements. Qualitative data would include data that is collected in:
• 	Patient and staff satisfaction surveys
• 	Focus group discussions
• 	Independent observations
• 	Race, ethnicity, language (REL data) are set of qualitative data that are used to better understand patient populations and identify health inequities

…and could also be observations that are narrative in nature such as an encounter note in a chart.

Slide 11:
Here are some examples of quantitative and qualitative data. A short-hand method to remember the difference is quantitative is generally a quantity with qualitative describing qualities about what you are collecting.

There is a deeper science within these types categories of data, but we'll keep it higher level for our purposes.

[read through both columns]

It is important to determine which type of data you are collecting as it will impact how you are able to conduct analysis on it and which data visualization tools you'll be able to use to tell your data story. We'll learn more about that later in this module.

Slide 12:
Selecting Measures

Slide 13:
When deciding what to measure, there are two main types of measures: process measures and outcome measures. Process measures examine the steps of the process, how things are done. Examples may include the number of people assessed for a fall risk, or the number of people screened for a referral. Process measures are typically employed when it is thought that there are specific actions that either represent high quality or are likely to promote high quality, such as following guidelines or best practices. They may also be used when trying to promote standardization: are all providers remembering to ask their clients with diabetes when they last had an eye exam, for example. Take a moment to look over the examples of process measures on this slide.
Process Measures:
- Assess our processes:
- Are they still working for us?
- Are we using the process we have in place?
- Are we using them accurately and adhering to policies and procedures that support them?

If a process or procedure is changed as part of a corrective action, it is important to know if the change actually occurred

If the outcome improves, you want to know if it was linked to an actual change in process.

Here are some additional Process Measure Examples:

The number of patients that receive a second blood pressure check if the first measurement is elevated during an encounter

The number of patients over 18 who are screened for pre-diabetes that are not already diagnosed with diabetes or gestational diabetes

Slide 14:
Outcome measures, on the other hand, reflect the result of the process currently in place and, typically in health care, how the patient's health has been impacted.

If you want to establish that a change to the process ultimately had the desired effect on the overall health and care of those involved, some type of outcome measure will be needed. It is not enough to simply measure the process.

Outcome Measures
- Measure our outcomes
- What was the impact on the community members?
- Did the change in process have the desired result?

Measuring the process is not enough if your outcome is to assess whether the change you have put in place had the desired effect

You want to see a change in outcome – eliminate recurrence of the event

Outcome Measure Examples
- The number of patients diagnosed with hypertension that have their BP under control
- The patients diagnosed with prediabetes that have not progressed to a diabetes diagnosis within one year of the original diagnosis

Slide 15:
As your team determines what they need to learn about a particular process or outcome, you'll be one step closer to defining the measure needed to compare what the current state is and whether changes you make have led to improvement: the future state.

- What problem have you identified and desire to measure and analyze?
  - o (will the chosen measure yield the knowledge needed at the level of detail needed about the process or outcome?)
- How will the measure influence your audience?
  - o As we learned in the Change Management module, your audience will need convincing and motivation to change and make the transition to the future state. Does your measure and the underlying data help accomplish this?
- Are you able to collect the desired data?
  - o This is a segue to the next section of this module. You'll need to determine whether the data you desire can indeed be collected.

You may find that you can jump a few steps in the process if you determine that the ideal metric is one that is already being collected and reported. It's also not uncommon for QI teams and goals to be focused on existing metrics that are reported to state or federal programs. Your organization may be rated directly on specific metrics and the fact that you are not performing well was the impetus for creating a QI team and prioritizing the metrics you are working on.

Slide 16:
Another quality improvement tool that you can utilize is the Measure Collection and Monitoring Plan. For each measure/indicator that you choose to collect and monitor, there are six questions you can answer that correspond to the columns in this tool. Use one row for each measure. The questions are:

- What are we measuring? Describe what is being measured. Also enter any standard name if there is a state of federal quality measurement naming convention for the measure you are tracking.
- When are we measuring (frequency)? Indicate the frequency with which you are tracking the measuring and/or pulling data.
- Who is responsible for tracking this measure? Include specific names of team members here.
- What is our current performance goal or aim? If this is a standard measure that you have been using and have a baseline value, enter that here.
- What is our performance goal or aim? Enter your targeted performance goal or aim for each measure here.
- How will data finding be tracked and displayed? Include any notes, descriptions, comments as to how you'll track and/or share/display this measure, such as in a report specific to your quality team or an existing report that includes your chosen measure.

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Data Collection Methods

Slide 18:
There are several steps included in a data collection strategy. Determining what information to collect and how to collect it will frequently be considered together. For example, if you want to collect customer satisfaction, your method of "how to collect" will obviously need to involve some sort of interaction with the customers themselves (a survey, interview, etc.). The next three aspects all have to do with how much data you feel you will need. The frequency with which you collect data, how much you collect at each period, and for how many periods, will all determine how much data you end up with.

It can be difficult to know how much data you will need overall and at each time point. If possible, look at previous quality improvement projects within your organization or turn to external sources, perhaps from published literature or other disseminated materials. You can also conduct a few "trial runs" for a couple of time periods to see what kind of data you are getting, how much data and if there are any barriers or circumstances you had not thought of. You will need to balance the need for enough data to identify a change in your process with the reality that there are limited resources for collecting data in terms of staff time and effort.

Another item to consider when determining a data collection strategy is how you will assess the results. That is, consider what you would like the "end game" or "final report" to look like before you even begin. Once you have identified a strategy, you will need to determine how, exactly, you will track, display, and assess the results. The answers will also help you identify which type of charts or graphs will be best suited to your situation.

Slide 19:
There are likely to be multiple ways to measure your performance. Generally speaking, you do not want to make it too complicated…simple is better.

Here is a list of methods to collect your data, measure performance and track improvement. Keep in mind that many will have trade-offs between the time they require and the level of detail they provide.

Tally sheets and checklists may be a quick method of gathering data depending on the level or amount of detail in the data you are collecting, and the length of the time period being observed. An example of this is counting the number of instances when something occurs in a process, such as the number of screening questionnaires that are provided to patients upon check in vs. how many are actually filled out. This is a good example of quantitative data collection.

Questionnaires and interviews, on the other hand, may involve a significant time investment to collect and analyze, but they may provide a much deeper understanding of your process. This type of data collection is qualitative in nature as the data, for example, may describe patient observations and feedback about the care they received during a hospitalization.

There are several other methods, such as observations, daily reviews and chart audits, however, one of the most efficient methods for data collection is to determine what data you may have already entered and stored in your EHR. Check with your EHR expert or super-user if that's not your role…and also determine if there are any 'native' or 3rd party reporting or data extraction tools that are part of or

integrated into your EHR. You may also be measuring and analyzing a process for which you are already producing quality measures for a state or federal reporting program, so there wouldn't be a requirement to re-collect or compile this existing data.

Slide 20:
Depending on the situation, sampling may be an effective strategy to speed up learning and improvement. Sampling is collecting a portion, rather than all of the data, with the expectation that it accurately represents the larger data set.

For example, if a public health official an initiative to increase influenza vaccinations was effective, they would probably not need to collect data on every single person in the community to see if there was an impact. Instead, they could probably take a sample of clinics, and only during a portion of the flu season to assess whether a change had occurred. Consider your individual situation to determine whether it is necessary to collect data on everyone, or whether a sample (a subset of the population that accurately represents the population as a whole) would be sufficient. As there are often many or multiple considerations to deciding how and whether to collect sample data, it's a good idea to consult a data analyst or statistician who can provide guidance on this.

Slide 21:
Determining the frequency and duration of data collection goes hand-in-hand with the sample size. The frequency will need to be often enough so that you are confident that the data set represents the process over a sufficient amount of time and, for example, doesn't represent a period of time where there were unusual outliers in the data, such as only peak times, weekends, etc. With regard to duration, the timeframe is often "longer than you would like" it to be.   You first want to have a data collection period long enough to represent what is happening in the current state or 'as-is' process.

Once you make your improvements and modify a process, you'll then want to collect an appropriate amount of date to confirm the change occurred, but also whether that change is sustained going forward. For process measures, you want to be certain that the process is being consistently carried out over time and for outcome measures, you want to be certain that impact on patient's health is also evidenced by positive and desired outcomes over a given period of time.

Slide 22:
Once you have determined what data you are going to collect, it's helpful to summarize the various aspects we've touched on by putting them together in a single document: a data collection plan. This doesn't have to be overly formal and you can simply answer the follow questions:
- Purpose of collection (the QI project and goals) (why?)
- Source(s) of your data (where is it being collected?)
- Frequency of data collection (schedule of collection) (when?)
- Who is responsible for collecting data?
- Type of data: (what are we collecting?)
- Data dictionary that describes each element you are collecting
- Method of data storage (Excel, written, etc.)
- How will data be displayed (graphs, charts, diagrams, etc.)

As you may surmise…these questions ask the who, where, when, why and what around collecting your data. One of the key questions you'll answer here is specifically the 'why' of collecting data. Always

keep the purpose of this data collection at the top of your list of questions here and determine why you need the data. Once you become a bit more equipped around data collection, you might wish to expand into building out a data analysis and use plan. We won't get to that level of detail in this course, but we'll start learning about data analysis as our next topic.

Slide 23:
Here is a data collection plan template that you can use as part of the materials for this course. The template offers some of the core or typical information (metadata…data and descriptions about the data you'll collect) such as:
- Data to be collected (the specific fields, not the high-level data set description)
- Type of data (is it a data, number, a certain number of decimal points, etc.)
- Purpose of collection…why do you need to collect this specific field
- Source…this might be the same for each data element you'll describe here if it is coming
- Frequency…how often will you collect the data
- Who…who is responsible for the data collection?

You can convert this table to an Excel format and then add additional columns as needed such as stratification factor which would describe a certain level of granularity that you need, such as by clinician, specific time factors (day, week, month, etc.).

Slide 24:
Thank you for taking time to learn about Data Basics and Data Collection as part of the QI Basics course. Please join me for the next module in the course: Data Analysis and Data Display Methods