



Sampling

Measurement should speed improvement, not slow it down. Often, organizations get bogged down in measurement and delay making changes until they have collected all of the data they believe they require. Remember, measurement is not the goal; improvement is the goal. In order to move forward to the next step, a team needs just enough data to make a sensible judgment as to next steps. Instead of measuring the entire process (e.g., all patients waiting in the clinic during a month; all transfers from the ICU to the floor), measuring a sample (e.g., every sixth patient for one week; the next eight patients) is a simple, efficient way to help a team understand how a system is performing. Sampling saves time and resources while accurately tracking performance.

This tool contains:

-  Directions for Systematic Sampling
-  Directions for Block Sampling

Sampling

Directions

Choose from two different types of sampling, depending on the process you are measuring.

Systematic Sampling

Systematic sampling is a method used to collect data at fixed time or count intervals — for example, every hour on the hour, or every fourth patient. Systematic sampling is useful for a high-volume process. Use it to gain a general picture of the performance of a process and to sample data over extended periods of time. Systematic sampling reduces the impact of time and sequencing (i.e., queuing effects) on data.

- Decide how much data is needed and how much you can afford to collect.

Keep in mind that you can learn a lot about the performance of a process from very small samples of data. For example, if you are trying a new method to streamline transfers from one unit to another, you can learn much from just 10 transfers.

- Estimate the total number of units that will likely occur in the process over the time period being studied.

Use short time periods when running PDSA cycles. Instead of collecting data over a month, collect it over a week; instead of a week, try just three days; instead of a day, try a few hours. This speeds up data collection, gives “good enough” data, and keeps momentum going.

- Calculate the sampling interval; divide the total number of units by the number of data points you need.

For example, if you see 300 patients per week, and you need 50 data points, collect data on every sixth patient (300 divided by 50).

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Block Sampling

Block sampling is a method designed to select sample units in a block of predetermined size. Instead of measuring at a fixed time or count interval, as in systematic sampling, measure a straight sequence within a limited time frame. Block sampling is used to gain a picture of the data that is time- or sequence-dependent. It is helpful when attempting to capture the detailed behavior of the process.

- Decide how much data is needed and how much you can afford to collect.

Keep in mind that for PDSA cycles, you can learn from very small samples of data. For example, if you are trying a new method of registering patients, you can learn a great deal from trying the method with the next five to eight patients. You can take what you learn, incorporate it, and try the revised method again with the next 15 patients, and so forth, until you feel comfortable implementing the new method for all patients.

- Select the location and the time to begin the data collection.
- Select the first unit at that time and location and every unit that follows until you have the needed number of units. Be sure to preserve the sequence of the data.