

## Implementation Measurement

**What is the purpose of this tool?** The purpose of the implementation measurement tool is to provide a format in which you can determine if best practice processes are successful in your organization. The tool provides general guidance on implementation measurement, as well as an example of an implementation measurement instrument that could be adapted for use at your hospital (using catheter-related bloodstream infections as an example).

**Who are the target audiences?** The tool is intended for use by the quality improvement team to assess adherence to implemented practices.

**How can the tool help you?** The implementation measurement tool will help you develop an approach to determine whether the selected best practices have been implemented and if your team needs to change any practices. As part of the Plan-Do-Study-Act (PDSA) cycle, studying your results will help your team determine if best practices are successfully implemented. Without studying the process of change implementation, your team cannot determine why an implementation is successful or why it is not.

**How does this tool relate to others?** This tool should be used with the other tools found in the Implementing Improvements section of the toolkit (section D). In particular, the tool will reference the Implementation Plan (Tool D.6)

## Approach to Implementation Measurement

Best practices may not be consistently performed over time and across all relevant units of the hospital, so implementation measurement is important to assess the extent to which interventions are implemented as planned. To ensure feasibility, the instrument could be used for only a subset of cases. For example, if thinking about catheter-related bloodstream infections, you could collect data on all central lines placed during a defined measurement period (e.g., 1 week) to assess implementation progress against plans. Collecting a greater amount of data on implementation will improve your accuracy in understanding the implementation of your project but will also cost more in terms of time and resources.

Implementation measurement is an important complement to outcome measurement. Outcome measurement tells you whether the quality improvement project is achieving the desired results, but not why or why not. Implementation measurement provides information about why the quality improvement project is or is not achieving those results.

Implementation measurement should be tailored to the Implementation Plan (Tool D.6). For each task/action associated with best practices that was specified in the plan, develop one or more measures to assess the extent to which the task/action is regularly being performed.

## Example of Implementation Measurement

In the example below, let's assume you decided to focus on improving performance on catheter-related bloodstream infections and that your implementation plan (from Tool D.6) included tasks/actions related to the following best practices:

1. Follow Protocol for Insertion
2. Site Selection
3. Maximal Barrier Precautions and Skin Preparation
4. Daily Monitoring and Assessment

Once you have generated a list of all the activities your hospital implemented related to the above best practices, identify implementation measures for each activity. For example, for "(1) Follow Protocol for Insertion," you might want to determine adherence to several specific measures, such as use of a central line checklist and a timeout prior to insertion (see example document below), on all cases or a subset of cases.

In the example below, each of the four best practices is captured by a number of questions that would allow you to measure the implementation of the best practice:

1. Follow Protocol for Insertion: questions A3, A4, A5, A9, A10, A11
2. Site Selection: question A8
3. Maximal Barrier Precautions and Skin Preparation: questions A6, A7
4. Daily Monitoring and Assessment: question B1

Once you have gathered data using an instrument such as in the example below, results may be reviewed, interpreted, and discussed. If adherence to implementation measures is high and your outcomes have also improved, you can move on to monitoring progress so that you can sustain

improvements (using tool E.1 for guidance). However, if your performance falls short on one or more implementation measures, you may want to consider restarting the PDSA cycle, particularly if your outcomes are not improving as expected.

## EXAMPLE: Catheter-Related Bloodstream Infection Prevention Measurement Instrument

### A. Central Line Insertion

1. Unique identifier: \_\_\_\_\_
2. Line insertion date:  
Date of line insertion: \_\_/\_\_/\_\_\_\_ (mm/dd/yyyy)  Unknown/not documented
3. Is there documentation that a central line insertion cart was used for insertion?  
 Yes  
 No/unknown  
 Not tracking
4. Is there documentation that consent was obtained prior to insertion?  
 Yes  
 No/unknown  
 Not tracking
5. Is there documentation that a timeout was performed prior to insertion?  
 Yes  
 No/unknown  
 Not tracking
6. Is there documentation in the medical record that any of the following sterile precautions were used during insertion of the central line? **(Check all that apply.)**  
 Hand washing before procedure by person inserting and person assisting in inserting the line  
 Sterile gloves worn by person inserting and person assisting in inserting the line  
 Sterile gown worn by person inserting and person assisting in inserting the line  
 Cap worn by person inserting and person assisting in inserting the line  
 Mask worn by person inserting and person assisting in inserting the line  
 Full body drape to cover the patient  
 Use of sterile precautions/technique without specific interventions documented  
 None of the above/unknown  
 Not tracking
7. Indicate which of the following skin prep was used for central line insertion:  
 Chlorhexidine (skip to question 8)                       Skin hygiene documented, agent unknown  
 Betadine (iodine)     Other (specify) \_\_\_\_\_  
 Alcohol     None of the above/unknown  
 Not tracking (skip to question 8)
- 7a. Indicate reason chlorhexidine was not used:  
 Patient allergy to chlorhexidine  
 Other (specify) \_\_\_\_\_  
 No reason indicated

8. Site of insertion: **(check one)**

- |   |   |
|---|---|
| <input type="checkbox"/> Subclavian (skip to question 9)<br><input type="checkbox"/> Internal jugular<br><input type="checkbox"/> Femoral | <input type="checkbox"/> Unknown/undocumented<br><input type="checkbox"/> Other (specify) _____<br><input type="checkbox"/> Not tracking (skip to question 9) |
|---|---|

8a. Indicate reason subclavian not used:

- Provider discretion  
 Other (specify) \_\_\_\_\_  
 No reason indicated

9. Indicate which type of dressing was used: **(check one)**

- Transparent (skip to question 10)  
 Gauze  
 Other (specify) \_\_\_\_\_  
 None of the above/unknown  
 Not tracking (skip to question 10)

9a. Indicate reason a transparent dressing was not used:

- Site oozing/bleeding  
 Patient diaphoretic  
 Other (specify) \_\_\_\_\_  
 No reason indicated

10. Is there documentation of a followup x-ray completed to verify placement?

- Yes  
 No/unknown  
 Not tracking

11. Is there documentation of a central line insertion checklist used for insertion?

- Yes  
 No/unknown  
 Not tracking

**B. Central Line Days**

1. Indicate if the central line was assessed for need and the central line site was inspected everyday for up to 5 days after insertion:

Day	Date				
1	__/__/__	<input type="checkbox"/> No central line present	<input type="checkbox"/> Assessment of need	<input type="checkbox"/> Site inspected	<input type="checkbox"/> Neither
2	__/__/__	<input type="checkbox"/> No central line present	<input type="checkbox"/> Assessment of need	<input type="checkbox"/> Site inspected	<input type="checkbox"/> Neither
3	__/__/__	<input type="checkbox"/> No central line present	<input type="checkbox"/> Assessment of need	<input type="checkbox"/> Site inspected	<input type="checkbox"/> Neither
4	__/__/__	<input type="checkbox"/> No central line present	<input type="checkbox"/> Assessment of need	<input type="checkbox"/> Site inspected	<input type="checkbox"/> Neither
5	__/__/__	<input type="checkbox"/> No central line present	<input type="checkbox"/> Assessment of need	<input type="checkbox"/> Site inspected	<input type="checkbox"/> Neither

## Catheter-Related Bloodstream Infection Prevention Measurement: Description of Each Data Element

### Section A

- A.1. Create a unique number that can be used to track your cases. This unique identifier will relate to the insertion of a central line, not a patient.
- A.3. Indicate if the cart was pulled into the room or brought within close proximity of the room for use. This information may be found on an insertion checklist.
- A.5. “The purpose of the time-out is to conduct a final assessment that the correct patient, site, and procedure are identified. During a time-out, activities are suspended to the extent possible so that team members can focus on active confirmation of the patient, site, and procedure. A designated member of the team initiates the time-out and it includes active communication among all relevant members of the procedure team. The procedure is not started until all questions or concerns are resolved.” (Excerpted from Joint Commission National Patient Safety Goals Effective January 1, 2016. Available at: [http://www.jointcommission.org/assets/1/6/2016\\_NPSG\\_HAP.pdf](http://www.jointcommission.org/assets/1/6/2016_NPSG_HAP.pdf))
- A.6. This information could be found on an insertion checklist in the medical record. Indicate which sterile technique precautions were used by the provider inserting the catheter and the person assisting in insertion. If specific sterile precautions were not documented, but a general statement indicates that precautions were used, then check “Use of sterile precautions/technique without specific interventions documented.”
- A.7. This information should be available on an insertion record. If no documentation can be found of skin antisepsis used during insertion, indicate “none of the above.” If “chlorhexidine” or “not tracking” is answered, skip question A7a. If you choose “Other,” you must specify why (e.g., age of patient).
- A.7a. Only answer this question if “chlorhexidine” was NOT answered for question A.7. Indicate the reason chlorhexidine was not used. If you choose “Other,” you must specify why.
- A.8. Choose the site of entry for the central line. If you choose “Other,” you must specify a location that is not available in the above list. Do not select “Other” if an existing category applies. If “subclavian” or “not tracking” is answered, then do not answer question A8a.
- A.8a. Only answer this question if “subclavian” or “not tracking” was NOT answered for question A.8. Indicate the reason the subclavian site was not chosen for insertion. If you choose “Other,” you must specify why. If “provider discretion” is chosen, there must be documentation in the medical record. There must be documentation in the medical record as to reasons for selecting a specific vessel.
- A.9. Indicate what type of dressing was used to cover the central line site. If “Other” is checked, specify an answer.
- A.9a. Only answer this question if “transparent” or “not tracking” was NOT answered for question A.9. Indicate the reason a transparent dressing was not used. If you choose “Other,” you must specify why.
- A.10. For each central line insertion, indicate if an x-ray was done to verify placement before central line use.
- A.11. For each central line insertion, indicate if the central line checklist was used during the procedure. The checklist can be found in the medical record. It is also acceptable if the checklist is saved for quality purposes.

### Section B

- B.1. For this question, indicate if there is documentation of assessment of central line need and if the central line site was assessed. Day 1 will refer to the day after the central line was inserted. The date entered for “Day 1” in the question should be one day after the date entered in question A2. If the central line was discontinued anytime after insertion, then indicate “no central line present” in the appropriate box.