

HOSPITAL SURVEY ON PATIENT SAFETY CULTURE VERSION 2.0 USER'S GUIDE



**PATIENT
SAFETY**

This page intentionally left blank.



Surveys on Patient Safety Culture™

AHRQ Hospital Survey on Patient Safety Culture Version 2.0: User's Guide

Prepared for:

Agency for Healthcare Research and Quality
U.S. Department of Health and Human Services
5600 Fishers Lane
Rockville, MD 20857
<http://www.ahrq.gov>

Contract No. HHSP233201500026I/HHSP23337004T

Prepared by:

Westat, Rockville, MD
Joann Sorra, Ph.D.
Naomi Yount, Ph.D.
Theresa Famolaro, M.P.S., M.S., M.B.A.
Laura Gray, M.P.H.

AHRQ Publication No. 19-0076
September 2019



This project was funded under contract number HHSP233201500026I/HHSP23337004T from the Agency for Healthcare Research and Quality (AHRQ), U.S. Department of Health and Human Services. The authors are solely responsible for this document's contents, findings, and conclusions, which do not necessarily represent the views of AHRQ. Readers should not interpret any statement in this product as an official position of AHRQ or of the U.S. Department of Health and Human Services. None of the authors has any affiliation or financial involvement that conflicts with the material presented in this product.

Public Domain Notice. This document is in the public domain and may be used and reprinted without permission in the United States for noncommercial purposes, unless materials are clearly noted as copyrighted in the document. No one may reproduce copyrighted materials without the permission of the copyright holders. Users outside the United States must get permission from AHRQ to reprint or translate this product. Anyone wanting to reproduce this product for sale must contact AHRQ for permission.

Citation of the source is appreciated.

Suggested Citation:

Sorra J, Yount N, Famolaro T, et al. AHRQ Hospital Survey on Patient Safety Culture Version 2.0: User's Guide. (Prepared by Westat, under Contract No. HHSP233201500026I/HHSP23337004T). Rockville, MD: Agency for Healthcare Research and Quality; September 2019. AHRQ Publication No. 19-0076. <https://www.ahrq.gov/sops/surveys/hospital/index.html>.

Contents of This User’s Guide

This AHRQ Hospital Survey on Patient Safety Culture Version 2.0 User’s Guide and other toolkit materials are available on the AHRQ website (www.ahrq.gov/sops/surveys/hospital). These materials are designed to provide hospitals with basic knowledge about how to administer the SOPS Hospital Survey 2.0, analyze the data, and report results.

Table of Contents

Chapter		Page
1.	Introduction	1
	Survey Items and Composite Measures.....	2
	Survey Modifications	3
2.	Getting Started	4
	Determine Available Resources and Project Scope	4
	Decide on Your Data Collection Method	4
	Decide Whether the Survey Will Be Confidential or Anonymous	4
	Decide Whether To Use an Outside Vendor	5
	Plan Your Project Schedule.....	6
	Form a Project Team.....	7
	Establish Points of Contact.....	8
	Perform Additional Tasks To Administer the Survey in Multiple Hospitals.....	8
3.	Selecting Your Survey Population	10
	Determine Whom To Survey	10
	Determine Whether To Conduct a Census or Sample	10
	Compile Your Provider and Staff List.....	10
	Select a Sample	11
4.	Administering a Web Survey	13
	Design and Test the SOPS Web Survey	13
	Publicize and Promote the Survey	14
	Administer the Survey	15

Contents (continued)

5.	Administering Paper Surveys	18
	Determine How To Distribute and Return Completed Surveys.....	18
	Develop and Assemble Survey Materials.....	18
	Publicize and Promote the Survey	19
	Administer the Survey	20
6.	Analyzing the Data	24
	Create and Clean Your Survey Data File.....	24
	Calculate the Final Response Rate.....	26
	Deidentify and Analyze Open-Ended Comments.....	26
	Analyze the Data	26
	Submit to the SOPS Database.....	29
	References	30

List of Appendixes

Appendix		Page
A	Sample Data Collection Protocol for the Hospital Point of Contact: Web Survey	31
B	Sample Data Collection Protocol for the Hospital Point of Contact: Paper Survey	32

Contents (continued)

List of Tables

Table

Table 1.	SOPS Hospital Survey 2.0 Patient Safety Culture Composite Measures.....	2
Table 2.	Confidential Versus Anonymous Surveys.....	5
Table 3.	Minimum Sample Sizes by Total Number of Providers and Staff.....	11
Table 4.	SOPS Web Survey Design Features	13
Table 5.	Sample Response Option Coding	24
Table 6.	How To Calculate an Item Percent Positive Score for a Positively Worded Item.....	28
Table 7.	How To Calculate Item Percent Positive Scores for a Negatively Worded Item.....	28
Table 8.	Example of How To Calculate Item and Composite Measure Percent Positive Scores.....	29

List of Figures

Figure

Figure 1.	Patient Safety Culture.....	1
Figure 2.	Task Timeline for Project Planning for a Single Hospital	6
Figure 3.	Web Survey Recommended Survey Administration Steps.....	15
Figure 4.	Paper Survey Recommended Survey Administration Steps.....	20

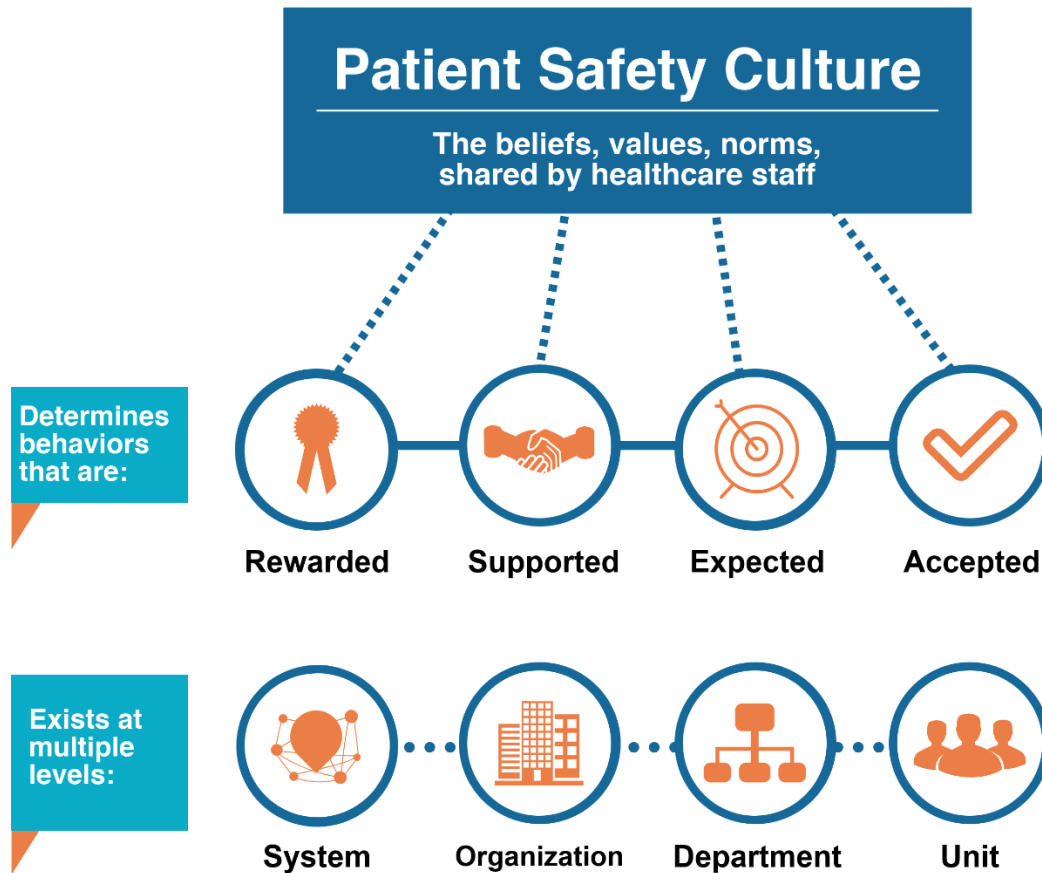
This page intentionally left blank.

1. Introduction

As hospitals continually strive to improve patient safety and quality, hospital leadership increasingly recognizes the importance of establishing a culture of patient safety. Patient safety culture refers to the beliefs, values, and norms shared by healthcare practitioners and staff throughout the organization that influence their actions and behaviors.

Patient safety culture can be measured by determining what is important and what attitudes and behaviors are rewarded, supported, expected, and accepted, with regard to patient safety. It is important to broadly establish a culture of patient safety because it exists at multiple levels: within healthcare systems, hospitals, departments, and units (Figure 1).

Figure 1. Patient Safety Culture



Survey Items and Composite Measures

The Surveys on Patient Safety Culture™ (SOPS™) Hospital Survey Version 2.0 (SOPS Hospital Survey 2.0) is intended to help hospitals assess patient safety culture. This survey is an update of the original SOPS Hospital Survey (1.0) that AHRQ released in 2004. The SOPS Hospital Survey 2.0 has a total of 40 survey items:

- Eight single-item measures:
 - One survey item asking how many patient safety events the respondent has reported
 - One survey item asking respondents to provide an overall rating on patient safety for their unit/work area
 - Six survey items on respondent background characteristics (staff position, unit/work area, hospital tenure, unit/work area tenure, work hours, interaction with patients)
- Thirty-two survey items grouped into 10 composite measures that are groupings of two or more survey items that assess the same areas of patient safety culture (Table 1 describes the composite measures).

Table 1. SOPS Hospital Survey 2.0 Patient Safety Culture Composite Measures

Patient safety culture composite measures	Definition: The extent to which...	Number of items
Communication About Error	Staff are informed when errors occur, discuss ways to prevent errors, and are informed when changes are made.	3
Communication Openness	Staff speak up if they see something unsafe and feel comfortable asking questions.	4
Handoffs and Information Exchange	Important patient care information is transferred across hospital units and during shift changes.	3
Hospital Management Support for Patient Safety	Hospital management shows that patient safety is a top priority and provides adequate resources for patient safety.	3
Organizational Learning—Continuous Improvement	Work processes are regularly reviewed, changes are made to keep mistakes from happening again, and changes are evaluated.	3
Reporting Patient Safety Events	Mistakes of the following types are reported: (1) mistakes caught and corrected before reaching the patient and (2) mistakes that could have harmed the patient but did not.	2
Response to Error	Staff are treated fairly when they make mistakes and there is a focus on learning from mistakes and supporting staff involved in errors.	4
Staffing and Work Pace	There are enough staff to handle the workload, staff work appropriate hours and do not feel rushed, and there is appropriate reliance on temporary, float, or PRN staff.	4
Supervisor, Manager, or Clinical Leader Support for Patient Safety	Supervisors, managers, or clinical leaders consider staff suggestions for improving patient safety, do not encourage taking shortcuts, and take action to address patient safety concerns.	3
Teamwork	Staff work together as an effective team, help each other during busy times, and are respectful.	3

Most of the survey items use 5-point agreement scales (“Strongly disagree” to “Strongly agree”) or frequency scales (“Never” to “Always”) and also include a “Does not apply or Don’t know” response option. The survey has a section at the end for open-ended comments.

Survey Modifications

We recommend administering the survey in its entirety without modifying or deleting items. If any changes to the core survey are made (such as changing the wording of the items or response options, changing the order of the items, or deleting one or more items), the survey is no longer considered a trademarked SOPS survey. In addition, any changes to the core survey may affect the reliability and validity of the survey, and the survey will not be comparable with other hospitals.

The successful use of SOPS surveys depends on everyone administering the same items in the same order. The following guidelines describe what is acceptable to change or modify:

- **Changing Background Items**

The survey begins with two background items about the respondent’s staff position and unit/work area. Your hospital can modify the staff positions and units/work areas so they better match the names and titles used within your hospital. In addition, changes to the other background items (hospital tenure, unit/work area tenure, work hours, and interaction with patients) are acceptable. However, if your hospital plans to submit to the SOPS Hospital Database, you must recode your modified staff positions or units/work areas so they crosswalk back to the original 2.0 survey’s staff positions or units/work areas.

- **Adding Supplemental or Custom Items**

If your hospital wants to add items to the survey, such as any of the [AHRQ Supplemental Items for Hospital SOPS](#) or other custom items, add these immediately before the background items (after Section F and before Section G). Supplemental items should **not** be added within the core SOPS survey (i.e., **do not** add questions within Sections A–F).

If you would like SOPS technical assistance staff to review your web or paper survey before you administer it to ensure that it is consistent with the trademarked SOPS surveys, email SafetyCultureSurveys@westat.com.

2. Getting Started

Before you begin, it is important to understand the tasks involved in collecting survey data and decide who will manage the project. This chapter is designed to guide you through the planning and decision-making stages of your project.

Determine Available Resources and Project Scope

Two of the most important elements of an effective project are a clear budget to determine the scope of your data collection effort and a realistic schedule. Think about your available resources:

- What is your budget and what resources are available to conduct this project?
- Who within the hospital is available to work on this project?
- When do you need to have the survey results completed and available?
- Do you have the technical capabilities to conduct this project in the hospital, or do you need to consider using an outside company or vendor for some or all of the tasks?

Decide on Your Data Collection Method

Most hospitals administer the SOPS Hospital Survey as a web survey. However, when deciding to use a web or paper survey, consider:

1. **Your hospital's experience with web surveys.** If you have had previous success surveying hospital staff using web surveys and achieved high response rates, you may prefer to administer a web survey. If you usually administer paper surveys, it might be better to continue with that data collection method.
2. **Logistics.** In small hospitals, the logistics of administering paper surveys may be manageable. However, web surveys offer several advantages:
 - There are no surveys or cover letters to print, survey packets to assemble, postage or mailing envelopes to arrange, or completed paper surveys to manage.
 - The responses are automatically entered into a dataset, so separate data entry is not needed.
 - The task of data cleaning is reduced because of programmed validation checks built into the web survey.

Decide Whether the Survey Will Be Confidential or Anonymous

You will need to decide whether your survey will be confidential or anonymous. A **confidential** survey is one where the survey administrators can link survey responses to individuals, but assurances and processes are in place to ensure that identifiable data will not be released to anyone.

An **anonymous** survey is one where no identifiers are used to link survey responses to individuals. Table 2 shows key differences between confidential and anonymous surveys.

Table 2. Confidential Versus Anonymous Surveys

Confidential Survey	Anonymous Survey
<ul style="list-style-type: none"> • Able to track individual respondents – can send followup reminders or second surveys to nonrespondents 	<ul style="list-style-type: none"> • Unable to track respondents – will need to send thank you/followup reminders or second surveys to everyone
<ul style="list-style-type: none"> • Staff may not feel as comfortable completing the survey if they think their responses can be linked back to them 	<ul style="list-style-type: none"> • Staff may feel more comfortable completing the survey because they have assurance that responses cannot be linked back to them

Decide Whether To Use an Outside Vendor

You may want to use an outside company or vendor to handle some or all of your data collection, analysis, and report preparation. Hiring a vendor may be a good idea for several reasons:

- Working with an outside vendor may help ensure the neutrality and credibility of your results.
- Staff may feel their responses will be more confidential when their surveys are returned to an outside vendor.
- Vendors typically have experienced staff to perform all necessary activities and tasks. A professional and experienced vendor may be able to provide your hospital with better quality results faster than if you were to do the tasks yourself.

If you plan to hire a vendor, the following guidelines may help you select the right one:

- Look for a vendor with expertise in survey administration, analysis, and reporting.
- Determine whether the vendor can handle all the project components. Some vendors will be able to handle your data analysis and feedback report needs; others may not.
- Provide potential vendors with a written, clear outline of work requirements. Make tasks, expectations, deadlines, and deliverables clear and specific. Then, ask each vendor to submit a short proposal describing the work they plan to complete, the qualifications of their company and staff, and details regarding methods and costs.
- Ensure the vendor is using the official AHRQ trademarked version of the SOPS survey, without any changes.

Plan Your Project Schedule

The sample timeline in Figure 2 can be used as a guideline for administering a web or paper survey. Plan for **at least** 10 weeks from the beginning of the project to the end.

Figure 2. Task Timeline for Project Planning for a Single Hospital

Task Timeline for Project Planning	Planning	Sample Selection and Preparation			Data Collection				Analysis and Reports			
		1	2	3	4	5	6	7	8	9	10	
Getting Started – Ch. 2												
Determine Available Resources and Project Scope	✓											
Decide on Your Data Collection Method	✓											
Decide Whether the Survey Will be Confidential or Anonymous	✓											
Decide Whether To Use an Outside Vendor	✓											
Plan Your Project Schedule	✓											
Form a Project Team	✓											
Establish Points of Contact	✓											
Selecting Your Survey Population – Ch. 3												
Determine Whom To Survey	✓											
Determine Whether To Conduct a Census or Sample	✓											
Compile Your Provider and Staff List	↔											
Select a Sample (if not conducting a census)	↔											
Mode of Survey Administration												
Administering a Web Survey – Ch. 4												
Design and Pretest SOPS Web Survey		↔										
Publicize and Promote the Survey			↔									
Send a Prenotification Email				✓								
Send a Survey Invitation Email					✓							
Send Weekly Reminder Emails						✓	✓	✓				
Disseminate Weekly Response Rates						↔						
Close Out Data Collection									✓			
Administering Paper Surveys – Ch. 5												
Determine How To Distribute and Return Completed Surveys	✓											
Develop and Assemble Survey Materials		↔										
Publicize and Promote the Survey			↔									
Send a Prenotification Letter (Optional)				✓								
Distribute First Paper Survey Packet					✓							
Distribute Second Paper Survey Packet							✓					
Disseminate Weekly Response Rates						↔						
Close Out Data Collection									✓			
Analyzing Data– Ch. 6												
Create and Clean Your Survey Data File										✓		
Calculate the Final Response Rate										✓		
Deidentify and Analyze Open-Ended Comments										↔		
Analyze the Data										↔		

Form a Project Team

Whether you conduct the survey in-house or through an outside vendor, you will need to establish a project team responsible for planning and managing the project. Your team may consist of one or more individuals from your own hospital staff, outsourced vendor staff, or a combination. Their responsibilities will include:

- **Planning and budgeting**—Determine the scope of the project given available resources, plan project tasks, and monitor the budget.
- **Establishing contact people**—Assign points of contact to support survey administration, maintain open communication throughout the project, and provide assistance.
- **Preparing publicity materials**—Create fliers, posters, and email and intranet messages to announce and promote the survey in the hospital.
- **Preparing survey materials:**
 - **Preparing paper survey materials** (if conducting a paper survey)—Print surveys, prepare postage-paid return envelopes and labels, and assemble these components for survey distribution.
 - **Programming the web survey instrument** (if conducting a web survey)—Design the instrument, program the survey, and pretest the instrument.
- **Administering the survey:**
 - **Distributing and receiving paper survey materials** (if conducting a paper survey)—Distribute surveys and reminder notices and handle receipt of completed surveys. If administering a confidential survey, identify nonrespondents who should receive followup surveys.
 - **Emailing staff the survey invitation and reminders (if conducting a web survey)**—Distribute email survey invitations and reminder emails over the data collection period. If administering a confidential survey, identify nonrespondents who should receive followup email reminders.
 - **Calculating preliminary response rates**—Monitor survey returns and calculate preliminary response rates.
- **Handling data entry, analysis, and report preparation**—Review survey data for respondent errors and data entry errors in electronic data files, conduct data analysis, and prepare reports of the results.
- **Distributing and discussing feedback results with staff**—Disseminate results broadly to increase their usefulness.
- **Coordinating with and monitoring an outside vendor (optional)**—Outline the requirements of the project to solicit bids from outside vendors, select a vendor, coordinate tasks to be completed in-house versus by the vendor, and monitor progress to ensure that the necessary work is completed and deadlines are met.

Establish Points of Contact

You will need to identify people in the hospital to serve as points of contact (POCs) for the survey. Decide how many points of contact are needed by taking into account the number of staff and hospital units or work areas taking the survey. We recommend using at least two types of points of contact.

Main Hospital Point of Contact

At least one main hospital POC should be appointed from the project team. We recommend including contact information for the main hospital POC in all survey materials in case respondents have questions about the survey.

The main hospital POC has several duties, including:

- Answering questions about survey items, instructions, or staff concerns;
- Helping to coordinate survey mailing or web survey email invitation and reminders and receipt of completed surveys;
- Communicating with outside vendors as needed; and
- Communicating with other POCs as needed.

Additional Points of Contact

You may decide to recruit a POC for each hospital unit/work area or staff position included in your sample. A unit-level POC is responsible for promoting and distributing the survey within his/her unit (for paper surveys) and for reminding unit staff to complete the survey. Unit-level POCs typically are at the management or supervisory level, such as nurse managers, department managers, or shift supervisors.

Perform Additional Tasks To Administer the Survey in Multiple Hospitals

If you plan to administer the survey in multiple hospitals within a healthcare system, you will need to establish a main system-level POC to coordinate data collection across hospitals. You will also need to consider whether to modify the timeline and use hospital identifiers.

Timeline

When administering the survey in multiple hospitals, you may need to adjust the timeline to accomplish the tasks for a larger sample.

- Allow more time to assemble survey materials or develop a web survey (e.g., 4 weeks instead of 2 weeks for paper or 3 weeks for web).
- Add a week or more to the data collection and data analysis periods.

Hospital Identifiers

When you administer the survey in multiple hospitals, you should identify each hospital as a separate site so that each site can receive its own results, in addition to overall results across sites. You will need to use hospital-level identifiers to track surveys from each hospital and to produce feedback reports for each hospital.

For **paper surveys**, you can vary the color of the paper to identify responses from Hospital A versus Hospital B. Or you can print a hospital identifier on the survey by giving each hospital a unique form number (e.g., Form 1, Form 2, Form 3) to identify different hospitals. You can print the identifier on the survey (e.g., lower left corner of the back page). Be aware, however, that some staff members will be so concerned about the confidentiality of their responses that they might mark out the site identifier or form number.

For **web surveys**, you can include a hospital identifier as part of the programming of the survey such that the link used to access the survey is unique to each hospital.

3. Selecting Your Survey Population

This chapter is designed to guide you through selecting your survey population, including whom to survey and whether to conduct a census or a sample.

Determine Whom To Survey

The survey assesses patient safety culture from the perspective of hospital providers and staff. Everyone asked to complete the survey should have enough knowledge about your hospital and its operations to provide informed answers to the survey items. Overall, when considering who should complete the survey, ask yourself:

- Does this person know about day-to-day activities in this hospital?
- Does this person interact regularly with staff working in this hospital?

The survey can be completed by all types of hospital staff—from housekeeping and security to nurses and hospital administrators. Hospital-based physicians or physicians in outpatient settings with hospital privileges can also be asked to respond to the survey. They should respond about the hospital unit where they spend most of their work time or provide most of their clinical services, or they can simply select “Many different hospital units/No specific unit” when responding to the survey.

Determine Whether To Conduct a Census or Sample

All providers and staff in your hospital or hospital system represent your population. From this population, you may want to administer surveys to everyone (a census), or you may want to focus on specific units or staff positions (a sample).

You may want to conduct a census because you are administering the survey to raise staff awareness about patient safety culture and make sure everyone’s input counts. If you administer the survey in a smaller hospital, you should consider conducting a census and survey all providers and staff to ensure that you receive an adequate number of responses.

If your hospital has a large number of providers and staff, it may be too expensive to conduct a census, so you may consider selecting a sample. In addition, you may not need to survey all providers and staff to get a representative group of respondents.

Compile Your Provider and Staff List

Compile a list that includes several items of information for each provider and staff member:

- First and last name
- Internal hospital mailing address if paper surveys will be distributed
- Email address if conducting a web-based survey or using email to send prenotification letters, web survey hyperlinks, and reminders

- Hospital unit/work area
- Staff position or job title

Once you compile your list, review it to make sure the information is complete, up to date, and accurate. Make the following corrections:

- Exclude staff who no longer work at the hospital;
- Exclude staff who only work in outpatient offices, not in the hospital inpatient setting; and
- Deduplicate names of staff who appear more than once on the list.

If you conduct a census of all providers and staff, no sampling is needed; your list is complete.

Select a Sample

If you decide to conduct a sample, you should select a group of people who closely represent your hospital’s population so you can generalize your sample’s results to the broader population. If you are in a larger hospital, you can select a sample in several ways. The list below presents three examples of ways staff can be selected from units/work areas, listed in order from **most** to **least** representative of the entire hospital population:

- A random **subset** of staff from **all** units/work areas (most representative)
- **All** staff from **some** units/work areas
- A **subset** of staff from **some** units/work areas (least representative)

Determine Your Sample Size

The size of your sample will depend on whom you want to survey and your available resources. While your resources may limit the number of staff you can survey, the more staff you survey, the more likely you are to adequately represent your population.

Because not everyone will respond, you can expect to receive completed surveys from about 30 percent to 50 percent of your sample. Table 3 shows recommended minimum sample sizes given the numbers of providers and staff in your hospital and the expected response assuming a 50 percent response rate.

Table 3. Minimum Sample Sizes by Total Number of Providers and Staff

Number of Providers and Staff	Minimum Sample Size*	Expected Number of Responses (Assuming a 50% Response Rate)
500 (or fewer)	500 – a census of all providers and staff	250 (or fewer)
501-699	500	250
700--1,299	600	300
1,300–3,999	700	350
4,000 or more	750	375

*The sample size is based on three assumptions: simple random or systematic random sampling, a response rate of 50 percent, and a confidence interval of +/- 5 percent.

Simple Random vs. Systematic Sampling

If you select a subset or sample of providers and staff from all hospital units/work areas or staff positions, you will need to use a method such as simple random sampling or systematic sampling. Simple random sampling involves selecting staff randomly so that each staff member has an equal chance of being selected.

Systematic sampling essentially involves selecting every Nth person from a provider and staff list. To begin, sort your provider and staff list by unit/work area and then by staff position. If you have a list of 1,200 names and need to select 600 to include in your sample, you begin at a random point on the list and then select every other name on your list. Thus, if you begin with the first person on the list, you select the 2nd, 4th, 6th, 8th, etc., staff member, compiling a total of 600 names in your sample list.

Example of Selecting a Sample of Nursing Staff

Suppose you work in a 300-bed hospital with 1,600 provider and staff members. Nursing is the single largest staffing category, with 1,200 staff. The remaining 400 providers and staff are non-nursing staff in the hospital.

- **Conduct a Census or Sample.** You decide to survey a **sample** of nurses and a **census** of all non-nursing staff.
- **Determine Your Sample Size for Nurses.** You have a population of 1,200 nurses, so according to Table 3, your minimum sample size should be 600 nurses.
- **Compile Your Provider and Staff List.** Your final list consists of:
 1. 600 nursing staff—From the total of 1,200 nurses, a sample of 600 nurses was selected as follows:
 - A list of the 1,200 nurses was produced.
 - Using systematic sampling from a random starting point on the list, every other nurse on the list was selected in the sample until 600 names were selected (1,200 total nurses divided by 600 nurses needed = every 2nd nurse).
 2. All 400 non-nursing staff.
 3. Total provider and staff list = 1,000.
- **Review and Fine-Tune Your Sample.** When verifying the contact information for the initial sample of 1,000 providers and staff, you find that 25 staff no longer work for the hospital and need to be dropped from the list. To replace the names, randomly select additional staff from the same staff positions or units as the staff who were dropped.

4. Administering a Web Survey

In this chapter, we describe best practices in web survey design and pretesting; survey administration steps for web surveys, including ways to publicize your survey; and materials that need to be developed. These activities may be conducted by your hospital staff, outsourced vendor staff, or a combination.

Design and Test the SOPS Web Survey

When programming your web survey, you need to consider a number of web survey design features. Whether you use commercial off-the-shelf software or have a vendor conduct a web survey, you should assess the various web survey options available to you. We present a number of important features for designing a SOPS web survey in Table 4.

Table 4. SOPS Web Survey Design Features

SOPS Web Survey Design Feature	Description
Do not force respondents to answer every survey item.	The paper version does not require an answer to every survey item and the web should not either. Further, respondents may have a good reason for not answering a particular item.
Design for mobile devices.	Always design your survey for mobile devices and test your web survey on different types of mobile devices (e.g., smart phones, tablets) to ensure that it is easily viewable and can be completed.
Avoid drop-down boxes.	Drop down boxes make it harder to choose the correct answer and may cause respondents to select the wrong answer, especially from long lists.
Display previous and next page buttons.	Previous and next buttons allow respondents to read through the entire survey and go back to review their answers and make changes if needed.
Limit vertical scrolling and ensure there is no horizontal scrolling.	Display fewer survey items per web page so that the items and response options are all visible without scrolling. If vertical scrolling is necessary for the background items, (e.g., unit/work area), ensure that all response options are in a single column to avoid horizontal scrolling (left to right).
Provide a thank you page.	A thank you page indicates to respondents that their survey responses were received and acknowledges their effort in completing the survey.
(Confidential surveys only) Allow answers to be saved automatically on each page.	Automatic saving of answers on each page will prevent the loss of response due to a breakoff and allows respondents to return to complete the survey.

It is essential to thoroughly test the survey. When testing:

- Use the same type of computer that will be available to staff taking the survey at your hospital. If you have more than one type of computer, be sure to test with a range of computer types. You should also test the web survey using mobile devices with small screens if you think some staff will complete the survey on a smart phone or tablet.

- Test the survey with various internet browsers (e.g., with different iterations of Google Chrome, Internet Explorer, Microsoft Edge, Safari, and Firefox), different display settings (screen resolutions set at 800 x 600 pixels versus 1200 x 800 pixels), and so forth.
- Submit test survey responses to ensure that the web survey data entered are captured accurately. Check the web survey data output against the survey data you entered.
- Check to make sure the responses you entered (e.g., *Strongly disagree* through *Strongly agree*) have the correct values (see Chapter 6 for how to code the survey). If the web responses are miscoded, there is no way to correct the dataset after the survey has been administered.

Testing will help to ensure that the survey appears and performs as it should despite the different settings and personal preferences that staff may use. For more information on web survey design principles and testing, refer to the SOPS webcast “Best Practices for Web-based SOPS Surveys” (www.ahrq.gov/sops/events/webinars/bestpracticesweb.html) or the following references: Couper (2008); Dillman, et al. (2009); and Tourangeau, et al. (2013).

Publicize and Promote the Survey

We strongly recommend publicizing the survey before and during data collection. Be sure to advertise that hospital leaders support the survey. Publicity activities may include:

- Posting fliers or posters in your hospital, sending staff emails, and posting information about the survey on your hospital intranet;
- Promoting the survey during staff meetings; and
- Having a senior leader or executive send a supportive email during data collection, thanking staff if they have completed the survey and encouraging others to do so.

Publicity materials can help legitimize the survey effort and increase your response rate by including some or all of the following types of information:

- Endorsements of the survey from your leadership;
- Clear statements about the purpose of the survey, which is to assess provider and staff attitudes and opinions about the culture of patient safety in your hospital;
- Description of how the collected data will be used to identify ways to improve patient safety culture;
- Assurance of individual anonymity (if an anonymous survey) or confidentiality of response (if a confidential survey);
- Assurances that only summary (aggregated) data will be reported, thus keeping individual responses confidential;
- Information about the survey vendor, if you have chosen to use a vendor, so staff know that the vendor will be collecting data; and
- Contact information for the designated points of contact (POCs) if staff have questions.

For each POC, describe the purpose of the survey and explain his or her role in the survey effort. Use official hospital letterhead or an email from hospital leadership to show support for the POC and the importance of this role. Also provide POCs with a data collection protocol that describes their tasks, along with a proposed timeline. (A sample web survey data collection protocol is available in Appendix A.)

Administer the Survey

This section outlines the basic web survey data collection steps to achieve high response rates (Figure 3). Response rates are important because low rates may limit your ability to generalize results to your entire hospital. With low response rates, you face the possibility that the large number of staff who did **not** respond to the survey would have answered very differently from those who did respond. The higher the response rate, the more confident you can be that you have an adequate representation of staff views.

Figure 3. Web Survey Recommended Survey Administration Steps



Send a Prenotification Email

Email staff a prenotification letter from a person or email address that is easily recognizable to staff telling them about the upcoming survey and alerting them that they will soon receive an invitation to complete the web survey. If you obtained a letter of support from your leadership, you can attach it to your email or use this as your prenotification email. We recommend that the email include:

- A statement that in a few days the person will receive an invitation from [XXX] to participate in a brief survey on patient safety in the hospital;
- A statement about the purpose and intended use of the survey and the importance of responding;
- Assurance of individual anonymity (if an anonymous survey) or confidentiality of response (if a confidential survey); and
- Introduction to the survey vendor (if applicable).

Send a Survey Invitation Email

Send the survey invitation email a few days after sending the prenotification email. The survey invitation message should include the following information:

- Why the hospital is conducting the survey, how it will use the data, and why the staff member's response is important;

What if staff don't have email addresses or computer access?

- Make a set of computers available during the data collection period, and/or
- Make paper surveys available (you can later enter your completed paper survey responses into the web survey so all data reside together).

- How much time is needed to complete the survey;
- Assurances that the survey is voluntary and can be completed during work time, to emphasize that hospital administration supports the data collection effort;
- Assurance of individual anonymity (if an anonymous survey) or confidentiality of response (if a confidential survey);
- A hyperlink to the survey (If conducting a confidential survey, you may include hyperlinks customized to each respondent but include instructions not to forward the link to others. If conducting an anonymous survey, it will be one general hyperlink for all respondents.);
- Incentives for survey participation (optional); and
- Contact information for the hospital POC (and system-level POC, if applicable) for questions or help accessing the survey. If someone other than the POC will handle questions about possible technical problems with the survey, provide contact information for that person.

Sample Survey Invitation Email – Census

You are invited to participate in an important survey that is part of our hospital's patient safety program. All providers and staff are being asked to complete this survey. Your participation is voluntary, but we encourage you to complete the survey to help us improve the way we do things at this hospital.

The survey will take about 10 to 15 minutes to complete and you may take it during work time. Your individual responses will be kept anonymous [say confidential if you are using respondent identifiers]. Only group statistics, not individual responses, will be prepared and reported.

To complete the secure web survey, use the following link: <http://www...>

[Optional incentive text: In appreciation for your participation, staff will receive (describe incentive).]

Please contact [POC name and job position] if you have any questions about the survey [provide phone number and email address]. If you have a technical problem with the web survey, please respond to this email with a description of your problem or contact [Name, phone number, email].

Thank you in advance for participating in this important patient safety effort.

Send Weekly Reminder Emails

Email weekly reminders beginning 1 week after the survey invitation email is sent and throughout the survey administration period to boost responses to the survey. For confidential surveys, you can send email reminders only to nonrespondents; otherwise, reminders must be sent to everyone.

The contents of the reminder notices should be similar to the first invitation email but should have a slightly different subject line and wording to capture recipients' attention. You might begin with: "About one week ago an invitation to participate in the Hospital Survey on Patient Safety was emailed to you and other staff at our hospital. If you have already completed the survey, thank you very much and please disregard this reminder." Reminders should always include the instructions and hyperlink for accessing the survey.

Keep in mind that your goal is to achieve a high response rate. If your response rate is too low after emailing the second survey reminder, add another week or two to the survey administration period and continue sending weekly reminder emails.

Disseminate Weekly Response Rates

Calculate a preliminary response rate at least once a week to track response progress. Divide the number of completed surveys (numerator) by the number of eligible providers and staff who received the survey (denominator).

$$\frac{\text{Number of surveys returned}}{\text{Number of eligible providers and staff who received a survey}}$$

If any staff members' employment ends during data collection, they are still considered eligible and should be included in the denominator even if they did not complete the survey. See Chapter 6 for a discussion of how to calculate the final official response rate for your hospital.

Consider Using Incentives To Maximize Response Rates

Offering incentives can be a good way to increase responses to a survey because respondents often ask, "What's in it for me?" You may want to offer individual incentives, such as a raffle for cash prizes or gift certificates, or you can offer group incentives, such as catered lunches for hospital units/work areas with at least a 75 percent response rate. Be creative and think about what would motivate your providers and staff to complete the survey.

5. Administering Paper Surveys

In this chapter, we present information on steps for paper survey administration, including how to help you decide how your paper surveys will be distributed and returned, how to promote and publicize your survey, and how to develop and assemble the survey materials. These activities may be conducted by your hospital staff, outsourced vendor staff, or a combination.

Determine How To Distribute and Return Completed Surveys

Paper surveys can be distributed through your organization's internal mail delivery system or distributed to hospital staff through designated points of contact (POCs) within your hospital. To promote participation, you can distribute the surveys at staff meetings and serve refreshments, following these guidelines for distributing surveys:

- Provide explicit instructions for completing and returning the survey.
- Inform staff that completing the survey is voluntary.
- Assure staff that their responses will be kept confidential. Emphasize that reports of findings will include only summary data and will not identify individuals.
- Advise them, if they complete the survey during a meeting, not to discuss the survey with other staff while answering the survey.
- Permit staff to complete the survey **during work time** to emphasize that hospital administration supports the data collection effort.

Several options are available for respondents to return completed paper surveys:

- **Drop-boxes.** Staff can return surveys to locked drop-boxes placed throughout your hospital.
- **Internal mail system.** Staff can return surveys through your hospital's internal mail system to a designated POC within your hospital or to a corporate headquarters address.
- **Mail.** If you use a vendor or do not have an internal mail system, staff can also mail their completed surveys to the outside vendor or designated POC. If surveys are returned through the mail, you will need to account for return postage in your budget.

Whatever process you decide, it should help reassure staff that their survey responses will remain confidential.

Develop and Assemble Survey Materials

Estimate the number of surveys you need to print, using the following printing guidelines:

- If you conduct an anonymous survey and plan to send second surveys to everyone, print at least twice the number of surveys as providers and staff on your list. Include a few extra surveys in case some staff misplace theirs.

- If you track responses and will send second surveys only to nonrespondents, you may print fewer surveys overall. For example, if you administer the survey to 800 staff and your hospital typically gets a 40 percent response after the first survey packet, print 800 first surveys and 480 second surveys (800 staff x 60% nonrespondents = 480), for a total of 1,280 printed surveys. Add a few extra surveys in case some staff misplace theirs.

Envelopes for Paper Survey Packets

Outer envelopes with staff names are a good idea, even if the survey itself is completed anonymously, to ensure that every staff member receives a survey. Use a slightly larger outer envelope to keep from bending or folding the survey. Include a return envelope in the survey packet, with a preprinted return address/location.

Use your estimate of the number of surveys to print to estimate the number of outer and return envelopes you will need. Returns can be directed to an internal organizational address to avoid postage costs or can be mailed.

If staff will return their surveys by mail, weigh the survey and the return envelope to ensure you have adequate postage on the return envelopes. You can use business reply envelopes so you only pay for the pieces returned. When calculating the total cost of postage, be sure to base the amount on your estimated number of any initial **and** followup surveys that will be returned by mail.

Publicize and Promote the Survey

We strongly recommend publicizing the survey before and during data collection. Be sure to advertise that hospital leadership supports the survey. Publicity activities may include:

- Posting fliers or posters in your hospital, sending staff emails, and posting information about the survey on your hospital intranet;
- Promoting the survey during staff meetings; and
- Having a senior leader or executive send a supportive email or letter of support for the data collection effort.

Publicity materials can help legitimize the survey effort and increase your response rate by including some or all of the following types of information:

- Endorsements of the survey from your leadership;
- Clear statements about the purpose of the survey, which is to assess staff attitudes and opinions about the culture of patient safety in your hospital;
- Description of how the collected data will be used to identify ways to improve patient safety culture;
- Assurance of individual anonymity (if an anonymous survey) or confidentiality of response (if a confidential survey);

- Assurances that only summary (aggregated) data will be reported, thus keeping individual responses confidential;
- Information about the survey vendor, if you have chosen to use a vendor, so staff know that the vendor will be collecting data; and
- Contact information for the designated POCs if staff have questions.

For each unit-level contact person, describe the purposes of the survey and explain their role in the survey effort. Use official hospital letterhead or an email from hospital leadership to show support for the POC and the importance of this role. Also provide POCs with a data collection protocol that describes their tasks, along with a proposed timeline. (A sample paper survey data collection protocol is available in Appendix B.)

Administer the Survey

This section outlines the basic data collection steps to achieve high response rates. Response rates are important because low rates may limit your ability to generalize results to your entire hospital. When response rates are low, there is a danger that the large number of staff who did **not** respond to the survey would have answered very differently from those who did respond. The higher the response rate, the more confident you can be that you have an adequate representation of staff views.

Figure 4 outlines the recommended paper survey administration steps.

Figure 4. Paper Survey Recommended Survey Administration Steps



Send a Prenotification Letter (Optional)

If you have publicized your survey well and your survey cover letter explains the purposes of the survey, distributing a prenotification letter is optional. If you obtained a letter of support from your leadership, it can serve as your prenotification letter or you can include it when you distribute your first survey packet. We recommend that the prenotification letter include:

- A statement that in a few days the person will receive a packet to participate in a brief survey on patient safety in the hospital;
- A statement about the purpose and intended use of the survey and the importance of responding;
- Assurance of individual anonymity (if an anonymous survey) or confidentiality of response (if a confidential survey); and
- Introduction to the survey vendor (if applicable).

Distribute First Paper Survey Packet

About 1 week after publicizing the survey or sending a prenotification letter, distribute a first survey packet to each staff member that includes a supporting cover letter, the survey, and a return envelope. If you want staff to return their surveys by mail, include a preaddressed postage-paid envelope. The cover letter should be on official hospital letterhead and signed by a senior hospital leader.

The cover letter should address the following points:

- Why the hospital is conducting the survey, how it will use the data, and why the staff member's response is important;
- How much time is needed to complete the survey;
- Assurances that the survey is voluntary and can be completed during work time, to emphasize that hospital administration supports the data collection effort;
- Assurances of individual anonymity (if an anonymous survey) or confidentiality of response (if a confidential survey). If you conduct a confidential survey, use individual identifiers (e.g., R001, R002, etc., with a crosswalk back to the individual respondent) on your surveys so that you can distribute second surveys only to nonrespondents;
- How to return completed surveys;
- Incentives for survey participation (optional); and
- Contact information for the hospital POCs (and system-level POC, if applicable) for questions or help accessing the survey.

Sample cover letter text is shown on the next page.

Sample Cover Letter Text for Paper Survey – Census

You are invited to participate in an important survey that is part of our hospital's patient safety program. All providers and staff are being asked to complete this survey. Your participation is voluntary, but we encourage you to complete the survey to help us improve the way we do things at this hospital.

The survey will take about 10 to 15 minutes to complete and you may take it during work time. Your individual responses will be kept anonymous [say confidential if you are using respondent identifiers]. Only group statistics, not individual responses, will be prepared and reported.

Please complete your survey **WITHIN THE NEXT 7 DAYS**. When you have completed your survey, please [provide return instructions for paper surveys]. [Optional incentive text: In appreciation for your participation, staff who complete and return their surveys will receive (describe incentive).]

Please contact [POC name and job position] if you have any questions [provide phone number and email address]. Thank you in advance for your participation in this important patient safety effort.

Distribute Second Paper Survey Packet

To promote a higher response, 2 weeks after the first survey is distributed, distribute a second survey packet (for confidential surveys, you can send the second survey packet only to nonrespondents; otherwise, second surveys must be sent to everyone.). The contents of the second survey cover letter should be similar to the first cover letter but worded differently. You might begin with: "About *X* days ago, a copy of the Hospital Survey on Patient Safety was distributed to you and other staff at your hospital. If you have already returned a completed survey, thank you very much and please disregard this second survey packet."

Keep in mind that your goal is to achieve a high response rate. If your response rate is still too low after distributing the second survey, add another week or two to the data collection period or consider sending a followup reminder notice. The reminder notices, which can be on a half-page of cardstock, should ask staff to please complete and return their surveys and should include a thank you to those who have done so already.

Disseminate Weekly Response Rates

Calculate a preliminary response rate at least once a week to track response progress. Divide the number of returned surveys (numerator) by the number of eligible providers and staff who received the survey (denominator).

$$\frac{\text{Number of surveys returned}}{\text{Number of eligible providers and staff who received a survey}}$$

If staff members' employment ends during data collection, they are still considered eligible and should be included in the denominator even if they did not complete and return the survey. See Chapter 6 for a discussion of how to calculate the final official response rate for your hospital.

Consider Using Incentives To Maximize Response Rates

Offering incentives can be a good way to increase responses to a survey because respondents often ask, "What's in it for me?" You may want to offer individual incentives, such as a raffle for cash prizes or gift certificates, or you can offer group incentives, such as catered lunches for hospital units/work areas with at least a 75 percent response rate. Be creative and think about what would motivate your providers and staff to complete the survey.

6. Analyzing the Data

If you decide to do your own data entry, analysis, and report preparation, use this chapter to guide you through the various decisions and steps. If you decide to hire a vendor for any of these tasks, use this chapter as a guide to ensure that proper data preparation is conducted.

SOPS Hospital Survey 2.0 Data Entry and Analysis Tool

AHRQ has developed a SOPS Hospital Survey 2.0 Data Entry and Analysis Tool that works with Microsoft Excel® and makes it easy to input your respondent-level data from the survey. The tool then automatically creates tables and graphs to display your survey results and shows your hospital's results compared with the latest pilot study or database results. The tool will also produce results broken out by unit/work area, staff position, interaction with patients, and tenure at the unit level. To request the tool, email DatabasesOnSafetyCulture@westat.com.

Create and Clean Your Survey Data File

Code Response Options

The formatted survey provides character or numeric values next to each response option for coding purposes. Table 5 provides the coding for most of the response options found in the survey. For the background characteristics (e.g., staff position, unit/work area, etc.), the coding is found next to the check boxes.

Table 5. Sample Response Option Coding

Response Options by Scale	Numerical Value
Strongly agree or Always	5
Agree or Most of the time	4
Neither agree nor disagree or Sometimes	3
Disagree or Rarely	2
Strongly disagree or Never	1
Does not apply/Don't know	9

Clean the Data

Paper Surveys. Problematic responses may occur with paper surveys if some respondents write in an answer in between two response options (e.g., between Strongly Agree and Agree) or mark two answers for one item. Develop and document editing rules that address these problems and apply them consistently. Examples of such rules are to use the highest or most positive response when two responses are provided (e.g., a response with both 2 and 3 would convert to a 3) or to mark all of these types of inappropriate responses as missing.

Once you determine how to handle multiple or unclear responses, you can enter the data directly into an electronic file by using statistical software such as SAS®, SPSS®, or Microsoft Excel®, or you can create a text file that can be easily imported into a data analysis software program. If you use the SOPS Hospital Survey 2.0 Data Entry and Analysis Tool, you can enter paper survey responses directly into the tool, but each hospital's data should be entered into a separate Data Entry and Analysis Tool file to generate separate results for each hospital.

When you enter the data into a software program, each row in your data file should represent one staff member's responses and each column should represent a different survey item. If you conduct a confidential survey, you can enter the identification number from the survey in the electronic data file and then destroy any information linking the identifiers to individual names. You want to eliminate the possibility of linking responses on the electronic file to individuals.

If you conduct an anonymous survey, include some type of respondent identifier in the data file. Create an identification number for each completed paper survey and write it on the completed paper survey in addition to entering it into the electronic data file. This identifier can be as simple as numbering the returned surveys consecutively, beginning with the number 1. This number will enable you to check the electronic data file against a respondent's original answers if any values look like they were entered incorrectly.

The next step is to check the data file for possible data entry errors by producing frequencies of responses for each item and looking for out-of-range values or values that are not valid responses. Most items in the survey require a response between 1 and 5 with a 9 coded as *Does not apply/Don't know*.

Check through the data file to ensure that all responses are within the valid range (e.g., that a response of 7 has not been entered). If you find out-of-range values, return to the original completed paper survey and determine the response that should have been entered for that respondent. If you use the SOPS Hospital Survey 2.0 Data Entry and Analysis Tool, you will not have out-of-range values because the tool will not allow invalid responses to be entered.

Web Surveys. If you conduct a web survey, you can minimize data cleaning by programming the web survey to only allow valid responses. Your pretesting should ensure that responses are coded and captured correctly in the data file, so the file should not contain invalid values. But you should verify the data by again checking that all responses are within the valid range to ensure that the web survey does not contain any programming errors.

Identify Incomplete and Ineligible Surveys

Examine the survey data for possible problems, such as surveys that:

- Are completely blank; contain "*Does not apply/Don't know*" responses for all survey items in Sections A, B, C, D, and F; or contain responses only for the background survey items or
- Contain the exact same answer to all the items in the survey (since a few survey items are negatively worded, the same exact response to all items indicates the respondent probably did not pay careful attention and the responses are probably not valid).

Calculate the Final Response Rate

After you identify which returned surveys to include in the analysis data file, you can use the following formula to calculate the official response rate:

$$\frac{\text{Number of surveys returned} - \text{incompletes}}{\text{Number of eligible providers and staff who received a survey}}$$

Deidentify and Analyze Open-Ended Comments

Respondents are given the opportunity to provide written comments at the end of the survey. Comments can be used to obtain direct quotes for feedback purposes, but they should be carefully reviewed and deidentified first to ensure that they do not contain any information that can be used to identify who wrote the comment or individuals referred to in the comments.

You can analyze the comments by reviewing them and identifying common themes (e.g., communication, staffing and work pace, teamwork). You can then assign codes to each theme and code each comment. Then you can tally the number of comments per code or theme to get a sense of which themes have the most comments.

Analyze the Data

If you administer the survey at more than one hospital, you can produce an overall feedback report that includes data from all your hospitals, but you should also prepare a separate report for each hospital.

Ideally, feedback reports should be provided broadly—to management, administrators, boards of directors, committees, and staff—either directly during meetings or through communication tools such as email, intranet sites, or newsletters. The more broadly the results are disseminated, the more useful the information is likely to become and the more likely respondents will feel that taking the survey was worthwhile.

You can customize feedback reports for each audience, from one- or two-page executive summaries to more complete reports that use statistics to draw conclusions or make comparisons. In the feedback reports, include the following types of information:

- How the survey was conducted (paper, web, survey administration period) and your response rate.
- Background characteristics of all respondents—their unit/work area, staff position, tenure within the hospital, tenure within unit, weekly hours, etc.—to help others understand who responded to the survey.
- Item results—do not report results for an item if the total number of respondents is fewer than three for that item.
- Composite measure results—do not report results for a composite measure if any item within that composite measure has fewer than three respondents.

- Breakouts of results by staff position, unit/work area, or other background characteristics. Do not report results for any background characteristic category (e.g., nurses) that has fewer than five respondents in that category and fewer than three respondents to an item in that category.
 - It is possible to still provide breakout results when you have fewer respondents by combining categories. For example, if only two respondents are Resident or Interns and four are Physician Assistants, you can combine these categories for analysis and reporting purposes.

Minimum Number of Respondents for Feedback Reports

To protect the confidentiality of individual respondents, **do not provide any type of survey feedback report for a hospital if fewer than 10 respondents complete the survey**. Also, if fewer than three respondents answer a particular survey item, do not report percentages for that item—simply indicate there were not enough data to report results for the item.

Calculate Frequencies of Response

One of the simplest ways to present results is to calculate the frequency of response for each survey item. To make the results easier to view in the report, you can combine the two lowest response categories (e.g., *Strongly disagree/Disagree* and *Never/Rarely*) and the two highest response categories (e.g., *Strongly agree/Agree* and *Most of the time/Always*). The midpoints of the scales are reported as a separate category (*Neither Agree nor Disagree* or *Sometimes*).

Most of the survey’s items include a *Does not apply/Don’t know* response option. In addition, each survey item will probably have some missing data from respondents who simply did not answer the survey item. *Does not apply/Don’t know* and missing responses are excluded when displaying percentages of response to the survey items. When using a statistical software program, recode the “9” response (*Does not apply/Don’t know*) as a missing value so it is not included when displaying frequencies of response.

Calculate Item Percent Positive Scores

The survey includes both positively worded items (e.g., “In this unit, we work together as an effective team”) and negatively worded items (e.g., “We have patient safety problems in this unit”). Calculating the percent positive response on an item is different for positively and negatively worded items.

For positively worded items, percent positive scores are the combined percentage of respondents within a hospital who answered “Strongly agree” or “Agree,” or “Always” or “Most of the time.” Table 6 shows an example of calculating an item percent positive score for a positively worded item.

Table 6. How To Calculate an Item Percent Positive Score for a Positively Worded Item

Item A1. In this unit, we work together as an effective team. (Positively worded item)			
Response	Number of Responses	Response Percentage	Combined Percentages
1 = Strongly disagree	10	10%	30% Negative
2 = Disagree	20	20%	
3 = Neither agree nor disagree	10	10%	10% Neutral
4 = Agree	40	40%	60% Positive
5 = Strongly agree	20	20%	
Total	100	100%	100%
9 = Does not apply/Don't know	10	–	–
Blank = Missing (did not answer)	10	–	–
Total Number of Responses	120	–	–

For negatively worded items, percent positive response is the combined percentage of respondents within a hospital who answered “Strongly disagree” or “Disagree,” or “Never” or “Rarely,” because a negative answer on a negatively worded item indicates a positive response. Negatively worded items are identified in the document *SOPS Hospital Survey Version 2.0 Items and Composite Measures*. Table 7 provides an example of how to recode negatively worded items to calculate an item percent positive score.

Table 7. How To Calculate Item Percent Positive Scores for a Negatively Worded Item

Item A9R. There is a problem with disrespectful behavior by those working in this unit. (Negatively worded item)				
Original Response	Recode	Number of Responses	Response Percentage	Combined Percentages
1 = Strongly disagree	5	20	20%	60% Positive
2 = Disagree	4	40	40%	
3 = Neither agree nor disagree	3	10	10%	10% Neutral
4 = Agree	2	20	20%	30% Negative
5 = Strongly agree	1	10	10%	
Total		100	100%	100%
9 = Does not apply/Don't know	Missing	10	–	–
Blank = Missing (did not answer)	Missing	10	–	–
Total Number of Responses		120	–	–

Calculate Composite Measure Percent Positive Scores

The 10 patient safety culture composites in the SOPS Hospital Survey 2.0 are composed of two, three, or four survey items. To calculate your hospital’s score on a particular safety culture composite measure, average the percent positive scores for each item included in the composite measure. Table 8 shows an example of computing a percent positive composite measure score for the composite measure *Teamwork*.

Table 8. Example of How To Calculate Item and Composite Measure Percent Positive Scores

Three Items Measuring Teamwork	For Positively Worded Items, # of “Strongly agree” or “Agree” Responses	For Negatively Worded Items, # of “Strongly disagree” or “Disagree” Responses	Total # of Responses to Item (Excluding Missing and Does not apply/Don’t know Responses)	Percent Positive Response to Item
Item A1-positively worded:				
“In this unit, we work together as an effective team.”	185	NA	260	185/260 = 71%
Item A8-positively worded:				
“During busy times, staff in this unit help each other.”	160	NA	250	160/250 = 64%
Item A9-negatively worded:				
“There is a problem with disrespectful behavior by those working in this unit.”	NA	188	250	188/250 = 75%
Average percent positive response across the 3 items = 70%				

NA = Not applicable.

- This composite measure has three items—two are positively worded (A1) and (A8), and one is negatively worded (A9). Keep in mind that DISAGREEING with a negatively worded item indicates a POSITIVE response.
- In this example, averaging the item-level percent positive scores ($[71\% + 64\% + 75\%]/3 = 70\%$) results in a composite measure score of 70 percent positive on *Teamwork*.

Submit to the SOPS Database

AHRQ has also established the *Hospital Survey on Patient Safety Culture Database*, a central repository for survey data from hospitals that have administered the survey. If you submit your data, you can compare your hospital’s results with the overall database results.

Submitting to the SOPS Database

If your hospital is interested in submitting its data to the SOPS Hospital Database, email DatabasesOnSafetyCulture@westat.com or go to <https://www.ahrq.gov/sops/databases/hospital/databases/submission.html>.

For free technical assistance on the SOPS Hospital Survey 2.0, email SafetyCultureSurveys@westat.com.

References

Couper MP. *Designing Effective Web Surveys*. New York: Cambridge University Press; 2008.

Dillman DA, Smyth JD, Christian LM. *Internet, Mail, and Mixed-Mode Surveys: The Tailored Design Method*. 3rd ed. New York: Wiley; 2009.

Tourangeau R, Conrad FG, Couper M. *The Science of Web Surveys*. New York: Oxford University Press; 2013.

Appendix A: Sample Data Collection Protocol for the Hospital Point of Contact: Web Survey

Your Data Collection Tasks and Schedule for the Hospital Survey on Patient Safety Culture Version 2.0

Listed below are the schedule and tasks for administering a web survey. Fill in the dates for your survey. Post this protocol in your office to remind you of the schedule.

Target Date	Activity
Three weeks before survey distribution Date: _____	Print and post publicity materials. Post survey fliers throughout the hospital (e.g., on bulletin boards, in work areas) and include a post on your hospital's intranet. Promote survey throughout the data collection period.
One week before starting data collection Date: _____	Email the prenotification message about the survey. Send the invitation to all staff with email access in the hospital.
Beginning of Week 1 (Start of Survey Data Collection) Date: _____	Email the survey invitation. Include a hyperlink (URL) in the email invitation.
Beginning of Week 2 Date: _____	Distribute 1st reminder. Email your prepared reminder notices to all staff. If you are using identifiers to track respondents, email/distribute reminders only to nonrespondents. It may be sufficient to remind staff in person to complete the survey.
Beginning of Week 3 Date: _____	Distribute 2nd reminder notice. Email your 2nd reminder notice to all staff (or only to nonrespondents if you are using identifiers).
Near End of Week 4 Closeout Date: _____	Check your response rate. If the rate is high enough, close out data collection at the end of Week 4. To increase your response rate, extend data collection by a week or longer. If your response rate is lower than 50 percent, email or distribute 3rd reminders to all staff (or only to nonrespondents if you are using identifiers).
New Closeout Date: _____	Close out extended data collection.

Appendix B: Sample Data Collection Protocol for the Hospital Point of Contact: Paper Survey

Your Data Collection Tasks and Schedule for the Hospital Survey on Patient Safety Culture Version 2.0

Listed below are the schedule and tasks for administering a paper survey. Fill in the dates for your survey. Post this protocol in your office to remind you of the schedule.

Target Date	Activity
Three weeks before survey distribution Date: _____	Print and post publicity materials. Post survey fliers throughout the hospital (e.g., on bulletin boards, in work areas) and include a post on your hospital's intranet. Promote survey throughout the data collection period.
One week before starting survey data collection Date: _____	Send prenotification letter about the survey. Send the invitation to all staff on your final staff list.
Beginning of Week 1 (Start of Survey Data Collection) Date: _____	Distribute survey packets (cover letter, survey, return envelope) to all staff members on the survey distribution list. Consider distributing the packets at staff meetings and encourage survey participation. Caution staff, however, not to discuss their answers if they complete their surveys during the meeting.
Beginning of Week 3 Date: _____	Distribute a second survey packet. If you are not using individual identifiers to track respondents, distribute second survey packets to all staff, thanking those who already completed and returned their surveys. If you are using identifiers to track respondents, distribute second survey packets only to nonrespondents.
Near End of Week 4 Closeout Date: _____	Check your response rate. If the rate is high enough, close out data collection at the end of Week 4. To increase your response rate, extend data collection by a week or longer. If your response rate is lower than 50 percent, consider distributing reminders to all staff (or only to nonrespondents if you are using identifiers).
New Closeout Date: _____	Close out extended data collection.



AHRQ Publication No. 19-0076
September 2019
www.ahrq.gov