



Surveys on Patient Safety Culture™

Pilot Study Results From the AHRQ Surveys on Patient Safety Culture™ (SOPS®) Diagnostic Safety Supplemental Items for Medical Offices

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Purpose and Use of This Report

The AHRQ Surveys on Patient Safety Culture™ (SOPS®) Diagnostic Safety Supplemental Items assess the extent to which the organizational culture in medical offices supports the diagnostic process, accurate diagnoses, and communication around diagnoses. The supplemental items were designed to be administered toward the end of the SOPS Medical Office Survey, just before the background questions.

This report provides results from 66 U.S. medical offices that participated in a 2020 pilot study of the SOPS Diagnostic Safety Supplemental Items.

When comparing your medical office's results against the pilot results in this document, keep in mind that these results are from a very limited number of medical offices and will provide only a general indication of how your medical office compares with other medical offices in the United States. The data summarized here were not derived from a statistically selected sample of U.S. medical offices.

Data from the SOPS Diagnostic Safety Supplemental Items can be submitted to the AHRQ SOPS Medical Office Database. For more information on the SOPS Diagnostic Safety Supplemental Items, visit the AHRQ website at <https://www.ahrq.gov/sops/surveys/medical-office>; and for information on data submission for the SOPS Medical Office Database, visit <https://www.ahrq.gov/sops/databases/medical-office/submission.html>.

Survey Development and Pilot Study

Development of the SOPS Diagnostic Safety Supplemental Items

A survey development team at Westat developed the supplemental items under contract with AHRQ. The survey development team reviewed the literature on diagnosis and diagnostic and patient safety in medical offices, interviewed medical office and diagnostic safety experts and researchers, identified key survey topics, and drafted survey items for review by the SOPS Technical Expert Panel (TEP). We iteratively tested the draft survey items with 34 medical office providers and staff to ensure that the questions were easy to understand and answer and that the items were relevant. A TEP consisting of diagnostic safety experts also reviewed the items and provided input at various stages of the development process.

We conducted a pilot study of the diagnostic safety supplemental items in 66 U.S. medical offices in late 2020. The supplemental items were administered toward the end of the SOPS Medical Office Survey, just before the background questions. We then analyzed the pilot data to examine the psychometric properties of the supplemental items (e.g., reliability using Cronbach's alpha, factor structure), with the goal of including only the best items. The final supplemental items had good psychometric properties. The Cronbach's alpha reliability for each composite measure is shown in Table 1; reliabilities over 0.70 are considered acceptable.

The SOPS Diagnostic Safety Supplemental Items include 12 survey items grouped into 3 composite measures (a composite measure consists of 3 to 5 survey items that assess the same area of patient safety culture), described in Table 1. The survey items use 5-point agreement scales ("Strongly disagree" to "Strongly agree") and include a "Does not apply or Don't know" response option.

Table 1. SOPS Diagnostic Safety Composite Measures

Diagnostic Safety Composite Measures	Definition: The extent to which...	Number of Items	Reliability (Cronbach's Alpha)
Time Availability	Enough time is available for providers to fully evaluate patients' presenting problems, review relevant patient information, and finish patient notes by the end of their regular workday.	3	0.77
Testing and Referrals	Tests, referrals, and other diagnostic procedures are effectively tracked and followed; results are communicated to patients; and staff confirm whether patients went to high priority appointments.	4	0.81
Provider and Staff Communication Around Diagnosis	Staff are encouraged to share their concerns about a patient's health condition; providers document differential diagnoses, communicate with other providers about diagnostic issues, and discuss missed diagnoses with other providers.	5	0.76

Pilot Study Response Rate Statistics

The number of respondents, number of surveys administered, and response rates for the pilot study are shown in Table 2.

Table 2. Pilot Study Response Rate Statistics

Overall Response Rate Information		Statistic
Number of respondents		812
Number of surveys administered		1,835
Overall response rate		44%
Average Response Rate Information		Statistic
Average number of respondents per medical office (range: 3 to 64)		12
Average number of surveys administered per medical office (range: 7 to 101)		28
Average medical office response rate (range: 10% to 100%)		47%

Pilot Study Medical Office Characteristics

This section presents the characteristics of the pilot medical offices. All of the medical offices in the pilot offered patients access to a patient portal.

Table 3-1. Pilot Study Medical Office Characteristics

Number of Providers per Week	Pilot Study Medical Offices (n=66)	
	Number	Percent
1-3	9	14%
4-9	32	48%
10-19	21	32%
20 or more	4	6%
Medical Office Ownership	Number	Percent
Community health center	10	15%
Hospital or health system university or academic medical center	52	79%
Providers or physicians	3	5%
Other	1	2%
Does your medical office have an incident/event reporting system that has a specific coded category to document diagnostic errors such as missed, wrong, or delayed diagnoses?	Number	Percent
Yes	37	56%
No	25	38%
Don't know	4	6%
Geographic Region *	Number	Percent
New England/Mid-Atlantic	3	5%
South Atlantic	8	12%
East Central	12	18%
West North Central	26	39%
West South Central	8	12%
Mountain	5	8%
Pacific	4	6%

Note: Percentages may not add to 100 percent due to rounding. States are categorized into regions as follows:

- New England/Mid-Atlantic: CT, MA, ME, NH, RI, VT, NJ, NY, PA
- South Atlantic: DC, DE, FL, GA, MD, NC, SC, VA, WV
- East Central: IL, IN, MI, OH, WI, AL, KY, MS, TN
- West North Central: IA, KS, MN, MO, ND, NE, SD
- West South Central: AR, LA, OK, TX
- Mountain: AZ, CO, ID, MT, NM, NV, UT, WY
- Pacific: AK, CA, HI, OR, WA

Table 3-2. Pilot Study Medical Office Specialties

Single vs. Multi-Specialty	Number	Percent
Single specialty	43	65%
Multi-specialty	23	35%
Single-Specialty Offices Only (n= 43)		
Cardiology	2	5%
Dermatology	1	2%
Emergency medicine	1	2%
Family practice/Family medicine/Internal medicine/Primary care	24	56%
Gastroenterology	1	2%
General surgery/Surgery (all)	3	7%
OB/GYN or GYN	3	7%
Ophthalmology	2	5%
Orthopedics	2	5%
Otolaryngology	1	2%
Pediatrics	1	2%
Pulmonary medicine	1	2%
Other specialty	1	2%

Note: Percentages may not add to 100 percent due to rounding.

Pilot Study Respondent Characteristics

This section describes the characteristics of the respondents within the pilot study medical offices.

Table 4. Pilot Study Respondent Characteristics

Medical Office Staff Position	Pilot Study Respondents	
	Number	Percent
Other clinical staff or clinical support staff	186	24%
Administrative or clerical staff	192	25%
Registered nurse (RN), licensed vocational nurse (LVN), licensed practical nurse (LPN)	120	16%
Physician (M.D. or D.O.)	85	11%
Management	74	10%
Physician assistant, nurse practitioner, clinical nurse specialist, nurse midwife, advanced practice nurse, and other etc.	66	9%
Other position	46	6%
Total	769	100%
Missing	43	
Overall Total	812	
Tenure in Medical Office	Number	Percent
Less than 1 year	120	16%
1 year to less than 6 years	429	56%
6 years or more	222	29%
Total	771	100%
Missing	41	
Overall Total	812	
Hours Worked per Week in Medical Office	Number	Percent
1 to 32 hours	60	8%
33 to 40 hours	446	58%
41 hours or more	266	34%
Total	772	100%
Missing	40	
Overall total	812	

Note: Percentages may not add to 100 due to rounding.

Composite Measure and Item Results

Composite Measure and Item Charts

This section provides results for the composite measures and items for the SOPS Diagnostic Safety Supplemental Items. The methods for calculating the percent positive scores for the composite measures and items are described in the Notes.

Composite Measure Results

Chart 1 shows the average percent positive response for each of the 3 patient safety culture composite measures. The patient safety culture composite measures are shown in order from the highest average percent positive response to the lowest.

- The composite measure with the highest average percent positive (79 percent) was *Testing and Referrals*.
- The composite measure with the lowest average percent positive (56 percent) was *Time Availability*.

Item Results

Chart 2 shows the average percent positive response for each of the 12 survey items. The items are grouped by the patient safety culture composite measure they are intended to measure. Within each composite measure, the items are presented in the order in which they appear in the survey.

- The item with the highest average percent positive (86 percent) was: “*Providers in this office talk directly with specialists/radiologists/pathologists when something needs clarification.*”
- The item with the lowest average percent positive (48 percent) was: “*Providers in this office finish their patient notes by the end of their regular workday.*”

Chart 2 also provides the average percentages of respondents answering “Does not apply or Don’t Know” (NA/DK) or those who did not answer/left the item missing (MI) for each item (see the Notes section for how these percentages are calculated). For all but three items, the average NA/DK/MI percentages ranged from 16 percent to 26 percent. However, three items within the composite measure *Provider and Staff Communication Around Diagnosis* had higher average percentages of NA/DK/MI, ranging from 43 to 49 percent. When these items were further investigated, most providers (e.g., physicians, physician assistants, nurse practitioners) could answer these questions. However, nonprovider staff accounted for most of those answering “Does not apply/Don’t know.” This finding indicates room for improvement in communications with nonprovider staff on these items, which focus on providers documenting differential diagnosis; communications with providers who may have missed a diagnosis; and being informed when a missed, wrong or delayed diagnosis happens.

**Chart 1. SOPS Diagnostic Safety Composite Measure Results
Average Percent Positive Response – Pilot Study Medical Offices**

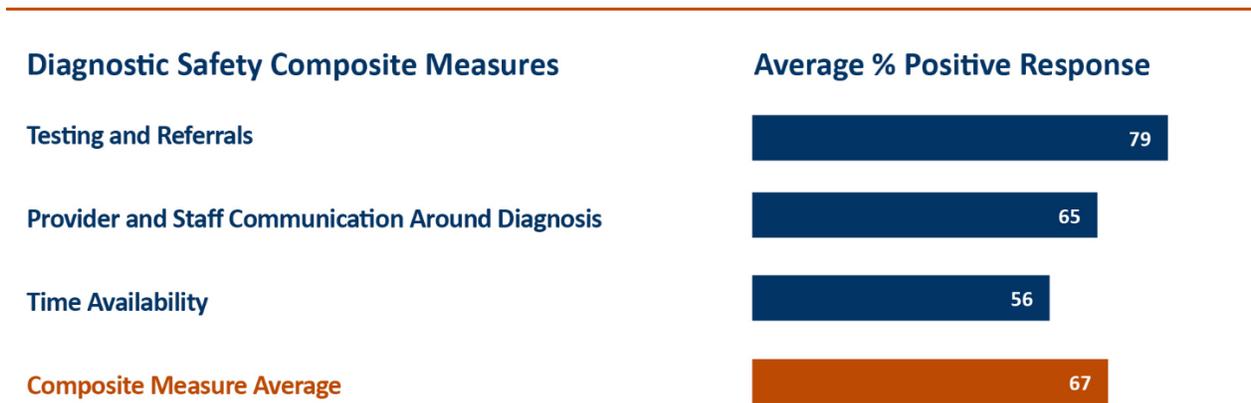


Chart 2. SOPS Diagnostic Safety Item Results - Average Percent Positive Response - Pilot Study Medical Offices

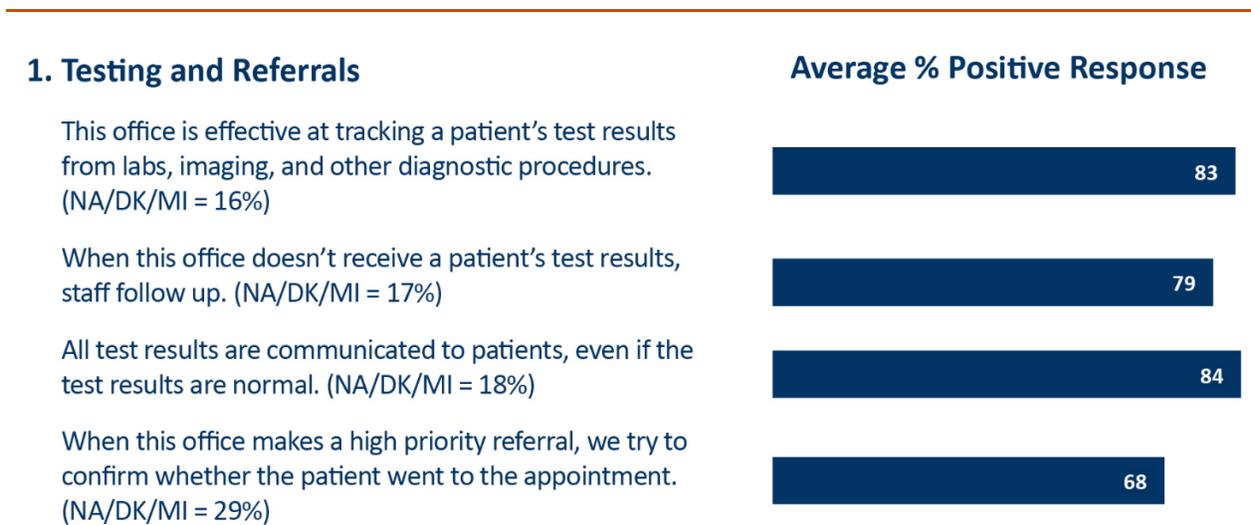
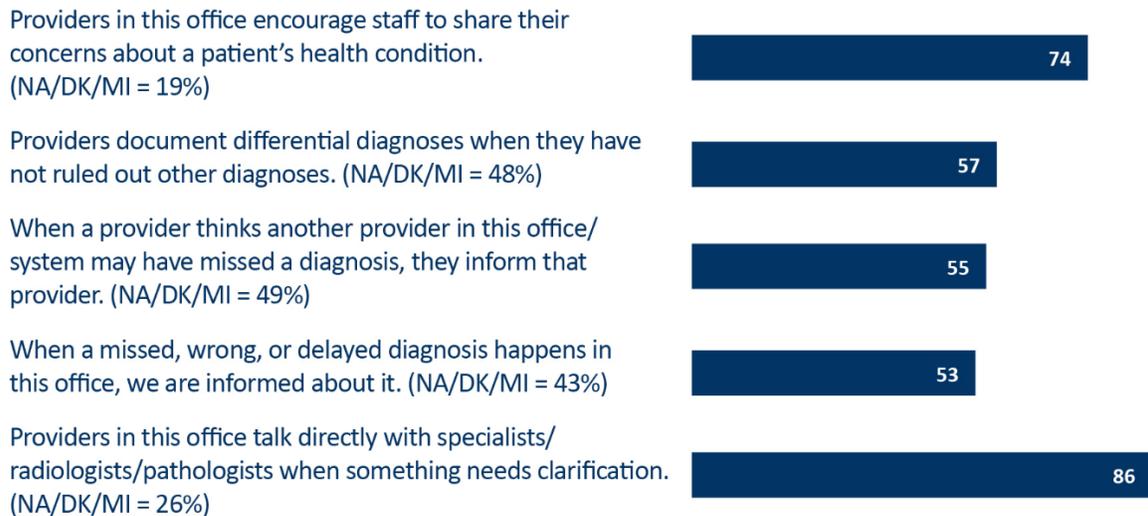


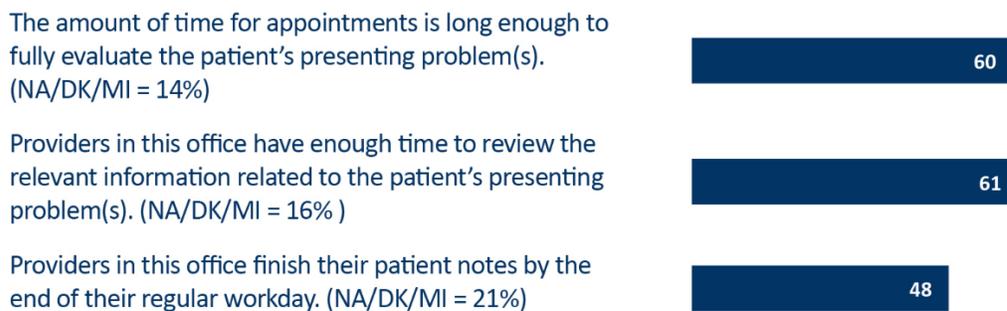
Chart 2. SOPS Diagnostic Safety Item Results - Average Percent Positive Response - Pilot Study Medical Offices (continued)

2. Provider and Staff Communication Around Diagnosis

Average % Positive Response



3. Time Availability



Note: NA/DK/MI = percentage of respondents answering “Does not apply/Don’t know” or with missing data. The item average percent positive scores do not include NA/DK/MI responses.

Notes: Explanation of Calculations

This section provides additional detail regarding how various statistics presented in this report were calculated.

Calculation of Percent Positive Scores

All of the SOPS Diagnostic Safety Supplemental Items ask respondents to answer using 5-point response categories in terms of agreement (Strongly agree, Agree, Neither, Disagree, Strongly disagree).

The survey's items also 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 question. "Does not apply/Don't know" and missing responses are excluded when calculating percentages of response to the survey items.

Item Percent Positive Response

The survey only includes positively worded items:

- **Percent positive response** is the combined percentage of respondents within a medical office who answered "Strongly agree" or "Agree".

For example, for the item "The amount of time for appointments is long enough to fully evaluate the patient's presenting problem(s)," if 50 percent of respondents within a medical office responded "Strongly agree" and 25 percent responded "Agree", the item percent positive response for that medical office would be $50\% + 25\% = 75\%$ positive.

Composite Measure Percent Positive Response

The 3 patient safety culture composite measures are composed of three, four, or five survey items. We calculated composite measure scores for each medical office by averaging the percent positive response on the items within a composite measure. For example, for a three-item composite measure, if the item percent positive responses were 50 percent, 55 percent, and 60 percent, the medical office's composite measure percent positive response would be the average of these three percentages, or 55 percent positive.

Item and Composite Measure Percent Positive Scores Example

We calculated average percent positive scores for each of the 3 patient safety culture composite measures and survey items by averaging the medical office-level percent positive scores of all medical offices in the pilot study. Since the percent positive is displayed as an overall average, scores from each medical office are weighted equally in their contribution to the calculation of the average.

Table N1 shows an example of computing a percent positive score and the calculation of the “Does Not Apply/Don’t Know” and Missing percentages for the composite measure *Time Availability*.

Table N1. Example of Computing Item Percent “Does Not Apply/Don’t Know” and Missing and Item and Composite Measure Percent Positive Scores for the SOPS Diagnostic Safety Supplemental Items

Three Items Measuring "Time Availability"	Calculation of Percent Positive			Calculation of Percent NA/DK/MI		
	# of "Strongly Agree" or "Agree" Responses	Total # of Responses to the Item (Excluding "Does Not Apply or Don't Know" and Missing (NA/DK/MI) Responses)	Percent Positive Response	Total # of NA/DK/MI Responses	Total # of Respondents in Medical Office	Percent NA/DK/MI
"The amount of time for appointments is long enough to fully evaluate the patient's presenting problem(s)."	110	240	110/240=46%	50	290	50/290 = 17%
"Providers in this office have enough time to review the relevant information related to the patient's presenting problem(s)."	140	250	140/250= 56%	100	400	100/400 = 25%
"Providers in this office finish their patient notes by the end of their regular workday."	125	260	125/260=48%	40	300	40/300 = 13%
Composite Measure Percent Positive Score = (46% + 56% + 48%) / 3 = 50%				--	--	--

The *Composite Measure Average* is calculated by averaging the average percent positive response for all 3 composite measures.