

# Community Pharmacy Survey on Patient Safety Culture

# 2019 User Database Report







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## **Community Pharmacy Survey on Patient Safety Culture: 2019 User Database Report**

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## **Executive Summary**









## **Purpose and Use of This Report**

In response to requests from community pharmacies interested in comparing results on the Surveys on Patient Safety Culture<sup>TM</sup> (SOPS<sup>TM</sup>) Community Pharmacy Survey with results from other community pharmacies, the Agency for Healthcare Research and Quality (AHRQ) established the Community Pharmacy Survey on Patient Safety Culture database.

This report presents statistics (averages, standard deviations, minimum and maximum scores, and percentiles) on the patient safety culture composites and items from the survey. It also includes two appendixes:

- Appendix A presents results by community pharmacy characteristics (average number of prescriptions filled per week and geographic region).
- Appendix B presents results by respondent characteristics (staff position and tenure in community pharmacy).



# 1 Introduction

Organizational culture refers to the beliefs, values, and norms shared by staff throughout the organization that influence their actions and behaviors. Patient safety culture is the extent to which these beliefs, values, and norms support and promote patient safety. Patient safety culture can be measured by determining what is rewarded, supported, expected, and accepted in an organization as it relates to patient safety.

#### Figure 1. Patient Safety Culture



### **Survey Content**

The Agency for Healthcare Research and Quality (AHRQ) funded the development of the Community Pharmacy Survey on Patient Safety Culture. The survey includes 36 items that measure 11 composites of patient safety culture. Each of the 11 patient safety culture composites is listed and defined in Table 1-1.



Patient Safety Culture Composites	Definition: The extent to which
Communication About Mistakes	Staff discuss mistakes that happen and can talk about ways to prevent mistakes.
Communication About Prescriptions Across Shifts	Information about prescriptions is communicated well across shifts and there are clear expectations and procedures for doing so.
Communication Openness	Staff freely speak up about patient safety concerns and feel comfortable asking questions; staff suggestions are valued.
Organizational Learning—Continuous Improvement	The pharmacy tries to figure out what problems in the work process lead to mistakes and makes changes to keep mistakes from happening again.
<b>Overall Perceptions of Patient Safety</b>	There is a strong focus and emphasis on patient safety and the pharmacy is good at preventing mistakes.
Patient Counseling	Patients are encouraged to talk to the pharmacist; pharmacists spend enough time talking to patients and tell them important information about new prescriptions.
Physical Space and Environment	The pharmacy is well organized and free of clutter; the pharmacy layout supports good workflow.
Response to Mistakes	The pharmacy examines why mistakes happen, helps staff learn from mistakes, and treats staff fairly when they make mistakes.
Staff Training and Skills	Staff get the training they need, new staff receive orientation, and staff have the skills they need to do their jobs well.
Staffing, Work Pressure, and Pace	There are enough staff to handle the workload, staff do not feel rushed, staff can take breaks, and work can be completed accurately despite distractions.
Teamwork	Staff treat each other with respect, work together as an effective team, and understand their roles and responsibilities.

#### Table 1-1. Patient Safety Culture Composites and Definitions

In addition to the composite items, the survey includes three items about the frequency of documenting different types of mistakes. The survey also includes a question that asks respondents to provide an overall rating of patient safety. Finally, the survey includes limited background demographic information.



# 2 Survey Administration Statistics

This chapter presents descriptive information on the number of community pharmacies and survey respondents included in the 2019 database and information about response rates and how community pharmacies administered the survey.

#### Highlights



#### Table 2-1. Overall Statistics – 2019 Database Community Pharmacies

Overall Response Rate Information	Statistic
Total number of respondents	2,157
Total number of surveys administered	3,748
Average Response Information	Statistic
Average number of respondents per community pharmacy (range: 3 to 29)	7
Average number of surveys administered per community pharmacy (range: 3 to 97)	11.3
Average pharmacy response rate (range: 17% to 100%)	64%

#### Table 2-2. Survey Administration Mode Statistics – 2019 Database Community Pharmacies

	Database Community Pharmacies			abase ndents	Average Response Rate		
Survey Administraion Mode	istraion Mode Number Percent		Number	Percent	Percent		
Paper only	17	5%	130	6%	93%		
Web only	314	95%	2,027	94%	63%		
Total	331	100%	2,157	100%			



# **3** Community Pharmacy Characteristics

This chapter presents information about the distribution of community pharmacies by pharmacy type, average number of prescriptions filled per week, and geographic region.

#### Highlights



#### Table 3-1. Distribution of 2019 Database Community Pharmacies by Pharmacy Characteristics

		Community es (n=331)	Database Respondents (n=2,157)			
Community Pharmacy Type	Number	Percent	Number	Percent		
Independent pharmacy	7	2%	88	4%		
Supermarket pharmacy/mass merchant pharmacy	112	34%	488	23%		
Chain drugstore (local, regional, national)/integrated health system pharmacy (non-hospital unit based)	212	64%	1,581	73%		
Average Number of Prescriptions Filled per Week	Number	Percent	Number	Percent		
700 or fewer	84	25%	439	20%		
701 to 1,500	141	43%	956	44%		
1,501 or more	106	32%	762	35%		
Geographic Region	Number	Percent	Number	Percent		
New England/Mid-Atlantic/South Atlantic	30	9%	177	8%		
East Central	68	21%	349	16%		
West Central	125	38%	955	44%		
Mountain/Pacific	108	33%	676	31%		

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

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



# **4** Respondent Characteristics

This chapter describes respondent characteristics within the database community pharmacies.

#### Highlights





#### Table 4-1. Distribution of 2019 Database Community Pharmacies by Respondent Characteristics

Respondent Characteristics	Database R	espondents
Community Pharmacy Staff Position	Number	Percent
Pharmacy technician (including lead technician and staff technician)	978	46%
Pharmacist (including pharmacy manager, lead pharmacist, pharmacist-in- charge, staff pharmacist)	753	35%
Pharmacy clerk or pharmacy cashier	292	14%
Other	77	4%
Pharmacy student intern/extern	33	2%
Total	2,133	100%
Missing	24	
Overall total	2,157	
Tenure in Pharmacy	Number	Percent
Less than 6 months	138	10%
6 months to less than 1 year	123	9%
1 year to less than 3 years	372	27%
3 years to less than 6 years	284	21%
6 years to less than 12 years	228	17%
12 years or more	210	15%
Total	1,355	100%
Missing	802	
Overall total	2,157	
Hours Worked per Week in Pharmacy	Number	Percent
1 to 16 hours	85	6%
17 to 31 hours	194	14%
32 to 40 hours	870	64%
More than 40 hours	207	15%
Total	1,356	100%
Missing	801	
Overall total	2,157	

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



# 5 Overall Results

This chapter presents the overall survey results, which includes the average percentage of positive responses across the database community pharmacies on each of the survey's items and composite measures. Reporting the average across community pharmacies ensures that each community pharmacy receives an equal weight when contributing to the overall average. Reporting the data at the community pharmacy level in this way is important because culture is considered a group characteristic and is not considered to be a solely individual characteristic.

An alternative method would be to report a straight percentage of positive responses across all respondents, but this method would give greater weight to respondents from larger community pharmacies.

#### **Highlights**



## **Composite and Item Charts**

This section provides the composite and item results. The methods for calculating the percent positive scores at the composite and item levels are described in the Notes section of this report.

#### **Composite Results**

**Chart 5-1** shows the average percent positive response for each of the 11 patient safety culture composites across community pharmacies in the database. The patient safety culture composites are shown in order from the highest average percent positive response to the lowest.

#### **Item Results**

**Chart 5-2** shows the average percent positive response for each of the 36 survey composite items. The items are grouped by the patient safety culture composite they are intended to measure. Within each composite, the items are presented in the order in which they appear in the survey.

**Chart 5-3** shows the results from the three items that asked respondents how often different types of mistakes were documented in their pharmacy.

#### **Overall Ratings on PatientSafety**

**Chart 5-4** shows results from the item that asks respondents to give their community pharmacy an overall rating on patient safety.



#### **Chart 5-1. Composite Results**

**Average Percent Positive Response - 2019 Database Community Pharmacies** 





#### Chart 5-2. Item Results Average Percent Positive Response - 2019 Database Community Pharmacies

#### 1. Patient Counseling **Average % Positive Response** We encourage patients to talk to pharmacists about their 96 medications (B2) Our pharmacists spend enough time talking to patients about how to use their medications (B7) 92 Our pharmacists tell patients important information about their 96 new prescriptions (B11) 2. Communication Openness Staff ideas and suggestions are valued in this pharmacy (B1) 81 Staff feel comfortable asking questions when they are unsure about something (B5) 92 It is easy for staff to speak up to their supervisor/manager 88 about patient safety concerns in this pharmacy (B10) 3. Communication About Mistakes Staff in this pharmacy discuss mistakes (B8) 84 When patient safety issues occur in this pharmacy, staff discuss 86 them (B13) In this pharmacy, we talk about ways to prevent mistakes from 86 happening again (B15) 4. Overall Perceptions of Patient Safety This pharmacy places more emphasis on sales than on patient 74 safety (C3R) This pharmacy is good at preventing mistakes (C6) 86 The way we do things in this pharmacy reflects a strong focus on patient safety (C9) 90 5. Organizational Learning - Continuous Improvement When a mistake happens, we try to figure out what problems in the work process led to the mistake (C2) 89 When the same mistake keeps happening, we change the way we do things (C5) 81 Mistakes have led to positive changes in this pharmacy (C10) 74



#### Chart 5-2. Item Results

#### **Average Percent Positive Response - 2019 Database Community Pharmacies**

6. Teamwork	Average % Positive Response
Staff treat each other with respect (A2)	82
Staff in this pharmacy clearly understand their roles and responsibilities (A4)	81
Staff work together as an effective team (A9)	82
7. Communication About Prescriptions Across Shifts	5
We have clear expectations about exchanging important prescription information across shifts (B4)	84
We have standard procedures for communicating prescription information across shifts (B6)	81
The status of problematic prescriptions is well communicated across shifts (B14)	79
8. Response to Mistakes	
Staff are treated fairly when they make mistakes (C1)	82
This pharmacy helps staff learn from their mistakes rather than punishing them (C4)	83
We look at staff actions and the way we do things to understand why mistakes happen in this pharmacy (C7)	85
Staff feel like their mistakes are held against them (C8R)	69
9. Staff Training and Skills	
Technicians in this pharmacy receive the training they need to do their jobs (A3)	82
Staff in this pharmacy have the skills they need to do their jobs well (A6)	86
Staff who are new to this pharmacy receive adequate orientation (A8)	72
Staff get enough training from this pharmacy (A10)	77



#### Chart 5-2. Item Results

#### **Average Percent Positive Response - 2019 Database Community Pharmacies**





### Chart 5-3. Item Results

Average Ratings on Documenting Mistakes - 2019 Database Community Pharmacies

# In this pharmacy, how often are the following types of mistakes documented (in writing OR tracked electronically)



**Note:** (1) Percentages indicate average percent response for each item response category across the 2019 database community pharmacies, (2) the percent positive displayed may not equal the sum of the response option percentages due to rounding, and (3) all five percentages may not add to 100 percent due to rounding.

#### Chart 5-4. Item Results Average Overall Rating on Patient Safety - 2019 Database Community Pharmacies



**Note:** (1) Percentages indicate average percent response for each item response category across the 2019 database community pharmacies, and (2) the percent positive displayed may not equal the sum of the response option percentages due to rounding.



# 6 Comparing Your Results

To compare your community pharmacy's survey results with the results from the database, you need to calculate your community pharmacy's percent positive response on the survey's 11 composite measures and other survey items, including three questions on documenting mistakes and an overall rating on patient safety.

The Notes section at the end of this report describes how to calculate percent positive scores. You can then compare your community pharmacy's results with the database averages and examine the percentile scores to place your community pharmacy's results relative to the distribution of database community pharmacies.

When comparing your community pharmacy's results with results from the database, note that the database only provides *relative* comparisons. Although your community pharmacy's survey results may be better than the database statistics, you may believe there is room for improvement in a particular area within your community pharmacy in an *absolute* sense.

The data in this report should be used to supplement your community pharmacy's efforts to identify areas of strength and areas on which to focus efforts to improve patient safety culture.



#### Highlights

## **Composite and Item Tables**

Table 6-1 presents statistics (average percent positive, standard deviation (s.d.), minimum and maximum scores, and percentiles) for each of the 11 patient safety culture composites.

Table 6-2 presents statistics for each of the 36 survey items. The survey items are grouped by the patient safety culture composite they are intended to measure. Within each composite, the items are presented in the order in which they appear in the survey.

Table 6-3 presents statistics for the three items related to documenting mistakes.

Table 6-4 presents statistics for overall rating on patient safety.



					Composit	e % Positive	e Response		
Patient Safety Culture Composites	Average % Positive	s.d.	Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
1. Patient Counseling	95%	8.82%	56%	81%	92%	100%	100%	100%	100%
2. Communication Openness	87%	14.58%	30%	67%	80%	89%	100%	100%	100%
3. Communication About Mistakes	85%	16.51%	22%	61%	78%	90%	100%	100%	100%
4. Overall Perceptions of Patient Safety	83%	15.58%	27%	61%	75%	89%	95%	100%	100%
5. Organizational Learning—Continuous Improvement	82%	15.99%	8%	60%	72%	85%	94%	100%	100%
6. Teamwork	82%	19.19%	0%	53%	70%	87%	100%	100%	100%
7. Communication About Prescriptions Across Shifts	81%	18.64%	22%	56%	69%	86%	100%	100%	100%
8. Response to Mistakes	80%	16.22%	25%	56%	70%	83%	92%	100%	100%
9. Staff Training and Skills	79%	20.24%	8%	50%	70%	83%	95%	100%	100%
10. Physical Space and Environment	73%	21.51%	0%	44%	62%	78%	89%	100%	100%
11. Staffing, Work Pressure, and Pace	45%	18.16%	0%	25%	33%	44%	56%	70%	100%



						Survey It	em % Positiv	ve Respon	se	
		Average					Median/			
	Survey Items By Composite	% Positive	s.d.	Min	10th %ile	25th %ile	50th %ile	75th %ile	90th %ile	Max
		POSITIVE	5.0.	141111	7011C	7611E	76HE	76HE	7611E	IVIAA
1.	Patient Counseling	1		1						
1.	We encourage patients to talk to pharmacists about their medications. (B2)	96%	9.76%	33%	80%	100%	100%	100%	100%	100%
2.	Our pharmacists spend enough time talking to patients about how to use their medications. (B7)	92%	14.39%	33%	71%	88%	100%	100%	100%	100%
3.	Our pharmacists tell patients important information about their new prescriptions. (B11)	96%	9.78%	33%	80%	100%	100%	100%	100%	100%
2.	Communication Openness									
1.	Staff ideas and suggestions are valued in this pharmacy. (B1)	81%	21.17%	0%	50%	67%	83%	100%	100%	100%
2.	Staff feel comfortable asking questions when they are unsure about something. (B5)	92%	14.90%	0%	71%	86%	100%	100%	100%	100%
3.	It is easy for staff to speak up to their supervisor/manager about patient safety concerns in this pharmacy. (B10)	88%	16.09%	27%	67%	80%	100%	100%	100%	100%
3.	Communication About Mistakes									
1.	Staff in this pharmacy discuss mistakes. (B8)	84%	18.35%	22%	60%	71%	89%	100%	100%	100%
2.	When patient safety issues occur in this pharmacy, staff discuss them. (B13)	86%	18.61%	0%	61%	75%	100%	100%	100%	100%
3.	In this pharmacy, we talk about ways to prevent mistakes from happening again. (B15)	86%	18.72%	11%	60%	75%	100%	100%	100%	100%

#### Table 6-2. Item Results – 2019 Database Community Pharmacies (Page 1 of 4)



						Survey Ite	em % Positi	ve Respoi	nse	
	Survey Items By Composite	Average % Positive	s.d.	Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
4.	Overall Perceptions of Patient Safety									
1.	This pharmacy places more emphasis on sales than on patient safety. (C3R)	74%	24.21%	0%	33%	67%	78%	100%	100%	100%
2.	This pharmacy is good at preventing mistakes. (C6)	86%	18.96%	0%	60%	73%	100%	100%	100%	100%
3.	The way we do things in this pharmacy reflects a strong focus on patient safety. (C9)	90%	16.27%	25%	67%	80%	100%	100%	100%	100%
5.	Organizational Learning—Continuous Improvement									
1.	When a mistake happens, we try to figure out what problems in the work process led to the mistake. (C2)	89%	15.80%	25%	67%	80%	100%	100%	100%	100%
2.	When the same mistake keeps happening, we change the way we do things. (C5)	81%	20.10%	0%	53%	67%	86%	100%	100%	100%
3.	Mistakes have led to positive changes in this pharmacy. (C10)	74%	22.00%	0%	40%	63%	75%	100%	100%	100%
6.	Teamwork									
1.	Staff treat each other with respect. (A2)	82%	22.11%	0%	50%	67%	89%	100%	100%	100%
2.	Staff in this pharmacy clearly understand their roles and responsibilities. (A4)	81%	21.37%	0%	50%	67%	83%	100%	100%	100%
3.	Staff work together as an effective team. (A9)	82%	21.81%	0%	53%	67%	88%	100%	100%	100%

#### Table 6-2. Item Results – 2019 Database Community Pharmacies (Page 2 of 4)



				Survey Item % Positive Response						
	Survey Items By Composite	Average % Positive	s.d.	Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
7.	Communication About Prescriptions Across Shifts									
1.	We have clear expectations about exchanging important prescription information across shifts. (B4)	84%	18.91%	20%	60%	71%	89%	100%	100%	100%
2.	We have standard procedures for communicating prescription information across shifts. (B6)	81%	20.28%	18%	50%	67%	86%	100%	100%	100%
3.	The status of problematic prescriptions is well communicated across shifts. (B14)	79%	22.58%	0%	50%	67%	83%	100%	100%	100%
8.	Response to Mistakes									
1.	Staff are treated fairly when they make mistakes. (C1)	82%	19.26%	0%	57%	67%	86%	100%	100%	100%
2.	This pharmacy helps staff learn from their mistakes rather than punishing them. (C4)	83%	19.33%	0%	57%	67%	86%	100%	100%	100%
3.	We look at staff actions and the way we do things to understand why mistakes happen in this pharmacy. (C7)	85%	18.16%	0%	63%	73%	90%	100%	100%	100%
4.	Staff feel like their mistakes are held against them. (C8R)	69%	24.96%	0%	33%	50%	71%	88%	100%	100%
9.	Staff Training and Skills									
1.	Technicians in this pharmacy receive the training they need to do their jobs. (A3)	82%	23.01%	0%	50%	71%	89%	100%	100%	100%
2.	Staff in this pharmacy have the skills they need to do their jobs well. (A6)	86%	18.61%	20%	60%	75%	94%	100%	100%	100%
3.	Staff who are new to this pharmacy receive adequate orientation. (A8)	72%	25.36%	0%	33%	60%	75%	100%	100%	100%
4.	Staff get enough training from this pharmacy. (A10)	77%	24.01%	0%	40%	67%	82%	100%	100%	100%

#### Table 6-2. Item Results – 2019 Database Community Pharmacies (Page 3 of 4)



				1		Survey It	em % Posit	ive Respo	onse	
	Survey Items By Composite	Average % Positive	s.d.	Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max
10.	Physical Space and Environment									
1.	This pharmacy is well organized. (A1)	84%	21.51%	0%	57%	75%	92%	100%	100%	100%
2.	This pharmacy is free of clutter. (A5)	74%	26.64%	0%	33%	60%	80%	100%	100%	100%
3.	The physical layout of this pharmacy supports good workflow. (A7)	63%	30.07%	0%	17%	40%	67%	86%	100%	100%
11.	Staffing, Work Pressure, and Pace									
1.	Staff take adequate breaks during their shifts. (B3)	70%	26.68%	0%	33%	50%	71%	100%	100%	100%
2.	We feel rushed when processing prescriptions. (B9R)	21%	22.36%	0%	0%	0%	17%	33%	50%	100%
3.	We have enough staff to handle the workload. (B12)	58%	31.76%	0%	20%	33%	64%	83%	100%	100%
4.	Interruptions/distractions in this pharmacy (from phone calls, faxes, customers, etc.) make it difficult for staff to work accurately. (B16R)	32%	25.32%	0%	0%	14%	30%	50%	67%	100%

#### Table 6-2. Item Results – 2019 Database Community Pharmacies (Page 4 of 4)



Table 6-3. Item Results on Documenting Mistakes – 2019 Database Community Pharmac	ies
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_				Survey Item % Positive Response							
	Documenting Mistakes	Average % Positive	s.d.	Min	10th %ile	25th% ile	Median/ 50th %ile	75th %ile	90th %ile	Max	
1.	When a mistake reaches the patient and could cause harm but does not, how often is it documented? (D1)	94%	11.84%	25%	79%	100%	100%	100%	100%	100%	
2.	When a mistake reaches the patient but has no potential to harm the patient, how often is it documented? (D2)	91%	14.18%	25%	67%	83%	100%	100%	100%	100%	
3.	When a mistake that could have harmed the patient is corrected BEFORE the medication leaves the pharmacy, how often is it documented? (D3)	58%	27.88%	0%	20%	38%	60%	80%	100%	100%	

**Note:** The item's survey location is shown after the item text. For D1-D3, the percent positive response is based on those who responded "Most of the time documented" or "Always documented." For the full distribution of results, see Chart 5-3.

# Table 6-4. Respondents Giving Their Community Pharmacy an Overall Rating on Patient Safety of Excellent or Very Good – 2019 Database Community Pharmacies

			Survey Item % Positive Response						
	Average		Median/						
	%			10th	25th	50th	75th	90th	
Overall Rating on Patient Safety	Positive	s.d.	Min	%ile	%ile	%ile	%ile	%ile	Max
Excellent/Very good	85%	21.10%	0%	57%	75%	100%	100%	100%	100%

Note: For the full distribution of results, see Chart 5-4.



# What's Next? Action Planning for Improvement

The AHRQ Surveys on Patient Safety Culture are important sources of information for healthcare organizations striving to improve patient safety and can be used as an effective starting point for action planning to make culture changes. Organizations may find it useful to brainstorm the potential barriers that make it difficult to implement initiatives and strategies to overcome them.

## **AHRQ Action Planning Tool**

The <u>Action Planning Tool for the AHRQ Surveys on Patient Safety Culture</u> is intended for use after your organization administers the survey and analyzes the results. The first step toward improving the patient safety culture in your organization or community pharmacy is to develop an action plan using the Action Plan Template. You can complete the form by answering 10 key questions to help you record your goals, initiatives, resources needed, process and outcome measures, and timelines.

#### Define your goals and select your initiatives:

- 1. What areas do you want to focus on for improvement?
- 2. What are your goals?
- 3. What initiatives will you implement?

#### **Plan your initiatives:**

- 1. Who will be affected, and how?
- 2. Who can lead the initiative?
- 3. What resources will be needed?
- 4. What are possible barriers, and how can they be overcome?
- 5. How will you measure progress and success?
- 6. What is the timeline?

#### Communicate your action plan:

1. How will you share your action plan and with whom?

Your action plan should be flexible. The questions do not need to be answered in order. Keep in mind that as you begin to implement your plan, it may change.



## **Resource List for Users of the AHRQ Community Pharmacy Survey**

The AHRQ <u>Resource List for Users of the AHRQ Community Pharmacy Survey on Patient</u> <u>Safety Culture</u> contains references to websites that provide practical resources community pharmacies can use to implement changes to improve patient safety culture and patient safety. These resources are not a complete list but are provided to give initial guidance to community pharmacies looking for information about patient safety initiatives.

### References

Action planning tool for the AHRQ Surveys on Patient Safety Culture. Rockville, MD: Agency for Healthcare Research and Quality; January 2016. AHRQ Publication No. 16-0008-EF. <u>https://www.ahrq.gov/sops/resources/planning-tool/index.html</u>. Accessed February 26, 2019.

Census regions and divisions of the United States. <u>https://www2.census.gov/geo/pdfs/maps-data/maps/reference/us\_regdiv.pdf</u>. Accessed January 10, 2019.



## Notes: Description of Data Cleaning, Calculations, and Data Limitations

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

## **Data Cleaning**

Each participating community pharmacy submitted individual-level survey data. Once the data were submitted, we ran response frequencies on each pharmacy's data to find out-of-range values, missing values, or other data anomalies. When we found data problems, we contacted the community pharmacies and asked them to make corrections and resubmit their data. In addition, we sent each participating community pharmacy a copy of its data frequencies to verify that the dataset received was correct.

The data were also cleaned for straight-lined answers, which is when respondents give the same answer for both a positively worded item (e.g., C4. "This pharmacy helps staff learn from their mistakes rather than punishing them") and a negatively worded item (e.g., C8R. "Staff feel like their mistakes are held against them") in the same section of the survey. Positively worded and negatively worded items are in sections B and C. When respondents supplied the same answers for all items in sections B or C, the items in those sections were set to missing because the sections had negatively worded items.

After this initial cleaning, respondents with missing answers across sections A, B, C, and D were deleted before analysis. Respondents who supplied either "Does not apply or Don't know" answers or had missing answers to all items across sections A, B, C, and D were also deleted before analysis. Community pharmacies were included in the database only if they had at least five respondents after all data cleaning steps.

### **Response Rates**

As part of the data submission process, we asked community pharmacies to provide the number of completed, returned surveys and the total number of surveys distributed minus ineligibles. Ineligibles include deceased individuals or those who were no longer employed at the community pharmacy during data collection. We then calculated response rates using the formula below:

 $Response Rate = \frac{Number of complete, returned surveys}{Number of surveys distributed - Ineligibles}$ 



## **Calculation of Percent Positive Scores**

Most of the survey's items ask respondents to answer using 5-point response categories in terms of agreement (Strongly agree, Agree, Neither, Disagree, Strongly disagree) or frequency (Always, Most of the time, Sometimes, Rarely, Never). Five of the 11 patient safety culture composites, consisting of 16 items, use the frequency response option (Communication Openness; Patient Counseling; Staffing, Work Pressure, and Pace; Communication About Prescriptions Across Shifts; and Communication About Mistakes), while the other 6 composites use the agreement response option.

The three noncomposite items on Documenting Mistakes use a 5-point frequency scale ranging from "Never documented" to "Always documented":

- Never documented
- Rarely documented
- Sometimes documented
- Most of the time documented
- Always documented

The Overall Rating on Patient Safety uses a 5-point scale ranging from "Poor" to "Excellent" (Poor, Fair, Good, Very good, Excellent).

#### **Item Percent Positive Response**

The survey includes both positively worded items (e.g., "Staff are treated fairly when they make mistakes") and negatively worded items (e.g., "This pharmacy places more emphasis on sales than on patient safety"). Calculating the percent positive response on an item is different for positively and negatively worded items:

• For positively worded items, percent positive response is the combined percentage of respondents within a community pharmacy who answered "Strongly agree" or "Agree," or "Always" or "Most of the time," depending on the response categories used for the item.

For example, for the item "Staff are treated fairly when they make mistakes," if 50 percent of respondents within a community pharmacy responded *Strongly agree* and 25 percent responded *Agree*, the item percent positive response for that community pharmacy would be 50% + 25% = 75% positive.

• **For negatively worded items**, percent positive response is the combined percentage of respondents within a community pharmacy who answered "Strongly disagree" or "Disagree," or "Never" or "Rarely," because a *negative* answer on a negatively worded item indicates a *positive* response.



For example, for the item "This pharmacy places more emphasis on sales than on patient safety," if 60 percent of respondents within a community pharmacy responded *Strongly disagree* and 20 percent responded *Disagree*, the item percent positive response would be 80 percent (i.e., 80 percent of respondents *do not* believe that the pharmacy places more emphasis on sales than on patient safety).

Percent positive scores for the Ratings on Documenting Mistakes items were calculated differently than the other survey items. The percent positive score for these three items is the sum of the two response options that represent the largest frequency of occurrence ("Always" and "Most of the time").

#### **Composite Percent Positive Response**

The 11 patient safety culture composites are composed of three or four survey items. We calculated composite scores for each community pharmacy by averaging the percent positive response on the items within a composite. For example, for a three-item composite, if the itempercent positive responses were 50 percent, 55 percent, and 60 percent, the community pharmacy's composite percent positive response would be the average of these three percentages, or 55 percent positive.

#### Item and Composite Percent Positive Scores Example

We calculated the average percent positive scores for each of the 11 patient safety culture composites and for the 36 survey items by averaging the pharmacy-level percent positive scores across all community pharmacies in the database. Since the percent positive is displayed as an overall average, scores from each community pharmacy are weighted equally in their contribution to the calculation of the average.

Table N1 shows an example of computing a composite score for *Overall Perceptions of Patient Safety*. This composite has three items. Two are positively worded (items C6 and C9) and one is negatively worded (item C3R). Keep in mind that DISAGREEING with a negatively worded item indicates a POSITIVE response.



Three Items Measuring "Overall Perceptions of Patient Safety"	For Positively Worded Items, # of "Strongly Agree" or "Agree" Responses	For Negatively Worded Items, # of "Strongly Disagree" or "Disagree" Responses	Total # of Responses to the Item (Excluding Does Not Apply/Don't Know and Missing Responses)	Percent Positive Response on Item
Item C6 - positively worded				
"This pharmacy is good at preventing mistakes."	110	NA*	240	110/240= <b>46%</b>
Item C9 - positively worded				
"The way we do things in this pharmacy reflects a strong focus on patient safety."	140	NA*	250	140/250= <b>56%</b>
Item C3R - negatively worded				
"This pharmacy places more emphasis on sales than on patient safety."	NA*	125	260	125/260= <b>48%</b>
	Composite Score % Posit	<b>ive = (</b> 46% + 56% + 48%	%) / 3 = <b>50%</b>	

#### Table N1. Example of Computing Item and Composite Percent Positive Scores

\*NA = Not applicable.

This example includes three items, with percent positive response scores of 46 percent, 56 percent, and 48 percent. Averaging these item percent positive scores results in a composite score of 50 percent on *Overall Perceptions of Patient Safety*. In this example, an average of 50 percent of the respondents responded positively to the survey items in this composite.

Once you calculate your community pharmacy's percent positive response for each of the 11 patient safety culture composites, you can compare your results with the composite results from the 331 database community pharmacies.

## Statistically "Significant" Differences Between Scores

You may be interested in determining the statistical significance of differences between your scores and the database scores, or between scores in various breakout categories (e.g., average number of prescriptions filled per week, geographic region, etc.). Statistical significance is greatly influenced by sample size; as the number of observations in comparison groups increases, small differences in scores become statistically significant. While a 1 percentage point



difference between percent positive scores might be "statistically" significant (that is, not due to chance), the difference is not likely to be meaningful or "practically" significant.

Keep in mind that statistically significant differences are not always important, and nonsignificant differences are not always trivial. We provide the average, standard deviation, range, and percentile information so that you can compare your data with the database in different ways.

#### **Standard Deviation**

The standard deviation (s.d.) is a measure of the spread or variability of community pharmacy scores around the average. The standard deviations presented in Chapter 6 tell you the extent to which community pharmacies' scores differ from the average:

- If scores from all community pharmacies were exactly the same, then the average would represent all their scores perfectly and the standard deviation would be zero.
- If scores from all community pharmacies were very close to the average, then the standard deviation would be small and close to zero.
- If scores from many community pharmacies were very different from the average, then the standard deviation would be a large number.

When the distribution of community pharmacy scores follows a normal bell-shaped curve (where most of the scores fall in the middle of the distribution, with fewer scores at the lower and higher ends of the distribution), the average, plus or minus the standard deviation, will include about 68 percent of all community pharmacy scores. For example, if an average percent positive score across the database community pharmacy were 70 percent with a standard deviation of 10 percent (and scores were normally distributed), then about 68 percent of all the database community pharmacies would have scores between 60 and 80 percent positive.

#### **Minimum and Maximum Scores**

The minimum (lowest) and maximum (highest) percent positive scores are presented for each composite and item. These scores provide information about the range of percent positive scores obtained by community pharmacies in the database and are actual scores from the lowest and highest scoring pharmacies. When comparing your data with the minimum and maximum scores, keep in mind that these scores may represent community pharmacies that are extreme outliers (indicated by large differences between the minimum score and the 10<sup>th</sup> percentile score, or between the 90<sup>th</sup> percentile score and the maximum score).

#### Percentiles

Percentiles provide information about the distribution of community pharmacy scores. A specific percentile score shows the percentage of community pharmacies that scored at or below a particular score.



We computed percentiles using the SAS® software default method. The first step in this procedure is to rank the percent positive scores from all the participating community pharmacies, from lowest to highest. The next step is to multiply the number of community pharmacies (n) by the percentile of interest (p), which in our case would be the 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, or 90<sup>th</sup> percentile.

For example, to calculate the 10<sup>th</sup> percentile, one would multiply 331 (the total number of community pharmacies) by .10 (10<sup>th</sup> percentile). The product of n x p is equal to "j+g" where "j" is the integer and "g" is the number after the decimal.

If "g" equals 0, the percentile score is equal to the percent positive value of the community pharmacy in the j<sup>th</sup> position plus the percent positive value of the community pharmacy in the j<sup>th</sup> +1 position, divided by 2  $[(X_{(j)} + X_{(j+1)})/2]$ . If "g" is *not* equal to 0, the percentile score is equal to the percent positive value of the community pharmacy in the j<sup>th</sup> +1 position.

The following examples show how the 10<sup>th</sup> and 50<sup>th</sup> percentiles would be computed using a sample of percent positive scores from 12 community pharmacies (using fake data shown in Table N2). First, the percent positive scores are sorted from low to high on Composite "A."

Community Pharmacy	Composite "A" % Positive Score	
1	33%	
2	48%	←10 <sup>th</sup> percentile score = 48%
3	52%	
4	60%	
5	63%	
6	64%	
7	66%	$\leftarrow 50^{\text{th}} \text{ percentile score} = 65\%$
8	70%	
9	72%	
10	75%	
11	75%	
12	78%	

#### Table N2. Data Table for Example of How To Compute Percentiles



#### 10<sup>th</sup> percentile

- 1. For the 10<sup>th</sup> percentile, we would first multiply the number of community pharmacies by .10:  $(n \ge 12 \ge .10 = 1.2)$ .
- 2. The product of n x p = 1.2, where "j" = 1 (the integer) and "g" = 2 (the decimal). Since "g" is *not* equal to 0, the 10<sup>th</sup> percentile score is equal to the percent positive value of the community pharmacy in the j<sup>th</sup> +1 position:
  - a. "j" equals 1.
  - b. The  $10^{\text{th}}$  percentile equals the value for the community pharmacy in the  $2^{\text{nd}}$  position = 48 percent.

#### 50<sup>th</sup> percentile

- 1. For the 50<sup>th</sup> percentile, we would first multiply the number of community pharmacies by .50: (n x p =  $12 \times .50 = 6.0$ ).
- 2. The product of n x p = 6.0, where "j" = 6 and "g" = 0. Since "g" = 0, the 50<sup>th</sup> percentile score is equal to the percent positive value of the community pharmacy in the j<sup>th</sup> position plus the percent positive value of the community pharmacy in the j<sup>th</sup> +1 position, divided by 2:
  - a. "j" equals 6.
  - b. The 50<sup>th</sup> percentile equals the average of the community pharmacies in the 6<sup>th</sup> and 7<sup>th</sup> positions (64%+66%)/2 = 65.

When the distribution of community pharmacy scores follows a normal bell-shaped curve (where most of the scores fall in the middle of the distribution, with fewer scores at the lower and higher ends of the distribution), the 50<sup>th</sup> percentile, or median, will be very similar to the average score. Interpret the percentile scores as shown in Table N3.

Percentile Score	Interpretation
<b>10<sup>th</sup> percentile</b> Represents the lowest scoring community pharmacies.	10% of community pharmacies scored the same or lower. 90% of community pharmacies scored higher.
<b>25<sup>th</sup> percentile</b> Represents lower scoring community pharmacies.	<ul><li>25% of community pharmacies scored the same or lower.</li><li>75% of community pharmacies scored higher.</li></ul>
<b>50<sup>th</sup> percentile (or median)</b> Represents the middle of the distribution of community pharmacies.	50% of community pharmacies scored the same or lower. 50% of community pharmacies scored higher.
<b>75<sup>th</sup> percentile</b> Represents higher scoring community pharmacies.	75% of community pharmacies scored the same or lower. 25% of community pharmacies scored higher.
<b>90<sup>th</sup> percentile</b> Represents the highest scoring community pharmacies.	90% of community pharmacies scored the same or lower. 10% of community pharmacies scored higher.

#### **Table N3. Interpretation of Percentile Scores**



To compare with the database percentiles, compare your community pharmacy's percent positive scores with the percentile scores for each composite and item. See example in Table N4.

	Survey Item % Positive Response											
Survey Item	Average % Positive	s.d.	Min	10th %ile	25th %ile	Median/ 50th %ile	75th %ile	90th %ile	Max			
ltem 1	36%	17.43%	0%	20%	30%	45%	70%	80%	100%			
	I	f your pha	armacy	's score	is 85 pe	rcent, your s	score fall	s here:				

#### **Table N4. Sample Percentile Statistics**

If your pharmacy's score is 78 percent positive, it falls above the 75th percentile (but below the 90<sup>th</sup>), meaning that your pharmacy scored higher than at least 75 percent of the community pharmacies in the database.

If your pharmacy's score is 85 percent positive, it falls above the 90<sup>th</sup> percentile, meaning your pharmacy scored higher than at least 90 percent of the community pharmacies in the database.

## **Data Limitations**

The survey results in this report represent the largest known compilation of publicly available patient safety culture data for community pharmacies and therefore provide a useful reference. However, several limitations to these data should be kept in mind.

First, community pharmacies voluntarily submit their data to the databases; therefore, the database only includes those community pharmacies that have administered the survey and were willing to submit their data to the database. As such, only a small percentage of all community pharmacies in the United States (less than 1 percent) are represented (see Table N5). These voluntary submitters are not representative of all community pharmacies in the United States.

Estimates based on this self-selected group may produce biased estimates of the population and it is not possible to compute estimates of precision from such a self-selected group. However, the geographic distribution of the community pharmacies in the database is to some degree



consistent with the distribution of community pharmacies based on the 2016 National Community Pharmacists Association Digest (see Table N5).

	AHRQ Databa Pharmaci	se Community ies (2019)	Pharmacists	community Association 16) <sup>1</sup>
Geographic Region	Number	Percent	Number	Percent
New England/Mid-Atlantic/South Atlantic	30	9%	25,183	42%
East Central	68	21%	13,173	22%
West Central	125	38%	10,954	18%
Mountain/Pacific	108	33%	10,774	18%
Total	331	100%	60,084	100%

## Table N5. Distribution of AHRQ 2019 Database Community Pharmacies by Region ComparedWith Community Pharmacies Nationally

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

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

In addition, community pharmacies that administered the survey were not required to undergo any training and administered the survey in different ways. Some community pharmacies used a paper-only survey and others used web-only surveys. It is possible that these different administration modes could lead to differences in survey responses; further research is needed to determine whether and how different administration modes affect the results.

Finally, the data that community pharmacies submitted have been cleaned for out-of-range values (e.g., invalid response values due to data entry errors), blank records (where responses to all survey items were missing or "Don't know" with the exception of demographic items) and straight-lining (where responses to all survey items in a section were the same even though at least one item was negatively worded). Otherwise, data are presented as submitted. No additional attempts were made to verify or audit the accuracy of the data submitted.

<sup>&</sup>lt;sup>1</sup> National Community Pharmacists Association. NCPA 2016 digest: opportunities for community pharmacy in a changing market. <u>http://www.ncpa.co/pdf/digest/2016/2016-ncpa-digest-spon-cardinal.pdf</u>. Accessed February 27, 2019.



# Appendixes A and B: Overall Results by Community Pharmacy Characteristics and Respondent Characteristics

In addition to the overall results on the database community pharmacies presented, Part II of the report presents data tables showing average percent positive scores on the survey composite measures and items across database community pharmacies, broken down by the following pharmacy and respondent characteristics:

Appendix A: Results by Community Pharmacy Characteristics

- Average Number of Prescriptions Filled per Week
- Geographic Region

Appendix B: Results by Respondent Characteristics

- Staff Position
- Tenure in Community Pharmacy

The breakout tables are included as appendixes because there are a large number of them. Highlights of the findings from the breakout tables in these appendixes are provided on the following pages. The appendixes are available at <a href="http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/pharmacy/2019/">http://www.ahrq.gov/professionals/quality-patient-safety/patientsafetyculture/pharmacy/2019/</a> <a href="http://www.ahrq.gov/professionals/quality-pharmsurv19-pt2.pdf">http://www.ahrq.gov/professionals/quality-pharmsurv19-pt2.pdf</a>.



## **Highlights From Appendix A: Overall Results by Community Pharmacy Characteristics**

#### Average Number of Prescriptions Filled per Week (Tables A-1, A-4)

- Community pharmacies with an average of *700 or fewer prescriptions filled per week* had the highest average percent positive across all 11 patient safety culture composite measures (85 percent); community pharmacies with an average of *1,501 or more prescriptions filled per week* had the lowest (74 percent).
- The highest percentage of respondents who gave their pharmacy an Overall Rating on Patient Safety of "Excellent" or "Very good" came from community pharmacies with an average of *700 or fewer prescriptions filled per week* (94 percent); community pharmacies with *1,501 or more prescriptions filled per week* had the lowest (78 percent).

#### Geographic Region (Tables A-5, A-8)

- Community pharmacies in the *New England/Mid-Atlantic/South Atlantic* region had the highest average percent positive (87 percent) on the Overall Perceptions of Patient Safety composite measure; community pharmacies in the *Mountain/Pacific* region had the lowest (80 percent).
- Community pharmacies from the *New England/Mid-Atlantic/South Atlantic* region had the highest percentage of respondents who gave their pharmacy an Overall Rating on Patient Safety of "Excellent" or "Very good" (89 percent); community pharmacies from the *Mountain/Pacific* and *West Central* regions had the lowest (83 percent each).

## **Highlights From Appendix B: Overall Results by Respondent Characteristics**

#### Staff Position (Tables B-1, B-4)

- *Pharmacists* had the highest average percent positive across all patient safety culture composite measures (82 percent); *Pharmacy technicians* had the lowest (76 percent).
- *Pharmacy clerks/cashiers* had the highest percentage of respondents who gave their pharmacy an Overall Rating on Patient Safety of "Excellent" or "Very good" (92 percent); *Pharmacy student interns/externs* had the lowest (78 percent).

#### Tenure in Community Pharmacy (Tables B-5, B-8)

- Respondents who had worked in the community pharmacy *less than 6 months* had the highest average percent positive across all patient safety culture composite measures (84 percent); respondents who had worked in the community pharmacy *3 years to less than 6 years* had the lowest (74 percent).
- Respondents who had worked in the community pharmacy *less than 6 months* had the highest percentage of respondents who gave their pharmacy an Overall Rating on Patient Safety of "Excellent" or "Very good" (91 percent); respondents who had worked in the community pharmacy *3 years to less than 6 years* had the lowest (79 percent).



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